

730 Buck Road

Township of Elk, Gloucester County, New Jersey



Submitted To:

ATH-NJ LLC
219 N. Vineyard Boulevard
Collingswood, NJ 08108

Traffic Impact Study

PAUPL23001
March 7, 2025

Beth-Ann Grasso, PE, CME, CFM
Division Manager/Associate Vice President
Professional Engineer: New Jersey – No. 24GE04312100





March 7, 2025

PAUPL23001

ATH-NJ LLC

Attn: Mr. Paul Ploskonka
219 N. Vineyard Boulevard
Collingswood, NJ 08108

RE: Traffic Impact Study (TIS)
Elk Cannabis Cultivation Facility
Block 44 – Lot 4
730 Buck Road
Elk Township, Gloucester County, New Jersey

Dear Mr. Ploskonka:

We are pleased to submit this *Traffic Impact Study* for the proposed cannabis cultivation facility located in the Township of Elk, Gloucester County, New Jersey. Work was initiated in general accordance with our *Proposal for Professional Land Development Services* dated August 16, 2024, (revised January 30, 2025) and your subsequent authorization to proceed.

We trust that the information presented in this report is what you require at this time, and we thank you for the opportunity to assist you with this project. If you have any questions, or if you need any further assistance with this project, please contact this office at your earliest convenience.

Respectfully,

PENNONI ASSOCIATES INC.

A handwritten signature in blue ink, appearing to read "Beth-Ann Grasso", is written over a horizontal line.

Beth-Ann Grasso, PE, CME, CFM
Division Manager/Associate Vice President

Benjamin Mitsmenn, PE
Senior Engineer

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Executive Summary

Pennoni Associates, Inc., has completed this TIS associated with the proposed Elk Cannabis Cultivation Facility (the "Facility") located in the Township of Elk, Gloucester County, New Jersey. The subject property is situated on Block 44 – Lot 4 at 730 Buck Road and is vacant with the exception of several structures on the eastern side of the property. The existing structures are to remain undisturbed, and 302,868 SF of cannabis cultivation facilities are to be constructed. As proposed, there are no new access points to be constructed, and access will be maintained through the existing driveway along Buck Road (CR 553).

The subject property is bounded by Buck Road (CR 553) to the east and Elk Road (CR 538) to the north. The Facility is anticipated to be completed in 2027.

The Project study area for this TIS includes the intersection of **Buck Road (CR 553) and the Site Driveway**.

The TIS was prepared in accordance with Chapter 47 of the New Jersey State Highway Access Management Code, Appendix F (N.J.A.C. 16:47 App. F). As required, two (2) analysis years are being considered; the Existing baseline traffic conditions and the opening or "Build" year analysis. The Build year analysis includes an assessment of the operational conditions of the study intersections under both "No-Build" and "Build" scenarios. The No-Build condition is described as the opening year for the development without the addition of the site generated traffic onto the adjacent roadway network. The proposed development is anticipated to be completed in 2026 and includes two (2) years of background traffic growth using rates published by the New Jersey Department of Transportation (NJDOT) for each roadway type within the study area.

The performance of the study intersections for each analysis condition was evaluated through a qualitative measure of operating conditions called LOS. Six (6) LOS are defined with letter designations from "A" to "F", with LOS "A" indicating delays up to ten (10) seconds and LOS "F" indicating delays exceeding eighty (80) seconds at signalized intersections. LOS "C" or better is considered acceptable, with a threshold of LOS "E" in urban areas. Pennoni utilized Trafficware *Synchro*, 12th Edition ("Synchro") software for capacity analysis calculations.

The Applicant anticipates a maximum number of employees per shift to be 11 total made up of three (3) office executives, two (2) facilities managers, and six (6) laborers in addition to up to 6 trucks per day. Given the anticipated staffing and shift size, a conservative estimate of two (2) full shift turnovers throughout the day was utilized. A shift turnover along with one (1) truck arrival and departure during both the AM and PM peak periods is estimated. The below **Table -1** summarizes the anticipated trip generation per the Applicant's information.

Table 1: Proposed Trip Generation

LUC	Independent Variable	Weekday AM Peak			Weekday PM Peak		
		In	Out	Total	In	Out	Total
190 – Marijuana Cultivation and Processing Facility	302,868 SF	12	12	24	12	12	24

The trip distribution to the proposed Facility is based on existing traffic patterns. The estimated distribution of proposed site traffic is as follows:

To/from the north along Buck Road (CR 553) 50%
To/from the south along Buck Road (CR 553) 50%

In conclusion, the construction of the proposed Elk Cannabis Cultivation Facility on Block 44 – Lot 4 at 730 Buck Road will not result in a significant increase in overall trips between it and the adjacent roadway network with 24 addition trips during the AM peak period and 24 additional trips during the PM peak period and therefore will not result in significant impacts to the operation of the adjacent roadways or intersections.

Introduction

Pennoni Associates, Inc., has completed this TIS associated with the proposed Elk Cannabis Cultivation Facility (the "Project") located in the Township of Elk, Gloucester County, New Jersey. The subject property is situated on Block 44 – Lot 4 at 730 Buck Road and is comprised of farm fields and several structures on the eastern side of the property. The existing structures are to remain undisturbed, and 302,868 SF of cannabis cultivation facilities are to be constructed. As proposed, there are no new access points to be constructed, and access will be maintained through the existing driveway along Buck Road (CR 553).

The subject property is bounded by Buck Road (CR 553) to the east and Elk Road (CR 538) to the north. The Project is anticipated to be completed in 2027.

The project study area is depicted in **Figure 1** and the site plan is depicted in **Figure 2**.

Study Area

The Project study area for this TIS includes the intersection of **Buck Road (CR 553) and the Site Driveway**.

Study Methodology

This TIS was prepared in accordance with Chapter 47 of the New Jersey State Highway Access Management Code, Appendix F (N.J.A.C. 16:47 App. F). As required, two (2) analysis years are being considered; the Existing baseline traffic conditions and the opening or "Build" year analysis. The Build year analysis includes an assessment of the operational conditions of the study intersections under both "No-Build" and "Build" scenarios. The No-Build condition is described as the opening year for the development without the addition of the site generated traffic onto the adjacent roadway network. The proposed development is anticipated to be completed in 2026 and includes two (2) years of background traffic growth using rates published by the New Jersey Department of Transportation (NJDOT) for each roadway type within the study area.

Specific elements included within the study are as follows:

- An inventory of the roadway facilities within the study area, including the existing physical and traffic operating characteristics.
- Manual turning movement (MTM) counts performed at each of the study intersections during the weekday afternoon and Saturday evening peak periods.
- Projection of future background traffic volumes.
- Calculations of vehicular trip generation for the proposed development within the study area based on trip generation rates published in the NJDOT HAPS program using methodologies in accordance with the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 3rd Edition*.
- Distribution of development-generated traffic onto the study area roadways in accordance with current travel patterns.
- Assessment of Existing and Build year traffic conditions based on capacity and Level of Service (LOS) analysis performed at the study intersections.

The performance of the study intersections for each analysis condition was evaluated through a qualitative measure of operating conditions called LOS. Six (6) LOS are defined with letter designations from "A" to "F", with LOS "A" indicating delays up to ten (10) seconds and LOS "F" indicating delays exceeding eighty (80) seconds at signalized intersections. LOS "C" or better is considered acceptable, with a threshold of LOS "E" in urban areas. Pennoni expects to utilize Trafficware *Synchro, 12th Edition* ("Synchro") software for capacity analysis calculations.

LOS are determined through analysis procedures outlined in the Transportation Research Board (TRB) *Highway Capacity Manual, 7th Edition*. Under certain circumstances, *HCM 7th Edition* cannot be used to evaluate the LOS at a given intersection due to several limiting factors which include, but are not limited to, traffic signals with non-NEMA phasing schemes, intersections with approaches having shared lanes, and clustered traffic signals. Under such circumstances, a previous version of the *Highway Capacity Manual* or Trafficware Synchro's *Percentile Delay* methodology will be utilized.

LOS for signalized intersections are based on average daily experienced by motorists passing through the intersection. The delay is based on results of the capacity analysis (rate of demand flow to capacity, in seconds) and other important variables such as quality of progression, cycle length, and the ratio of green time for a given approach.

LOS for unsignalized intersections is defined in terms of delay for vehicles entering the from the minor street approach(es) and left turning vehicles from the major street approaches. The delay is a function of the capacity of the

approach and degree of saturation. The capacity is based on the distribution of gaps in the major street traffic stream, driver judgement in selecting available gaps to execute the desired maneuver, and follow-up time required by each driver in the queue. The LOS criteria for both signalized and unsignalized intersections is provided in the below **Table 2**.

Table 2: Level of Service Criteria

Level of Service (LOS)	Signalized Intersections	Unsignalized Intersections
	Control Delay (seconds per vehicle)	
A	≤10	≤10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

2025 Existing Conditions

Existing Roadway Facilities

The existing roadways within the study area are summarized below:

- **Buck Road (CR 553)** – Buck Road (CR 553) is a north-south oriented Urban Major Collector roadway under Gloucester County jurisdiction. Buck Road (CR 553) is undivided, 28' in width, and is designed as two-way. Within the study area, Buck Road (CR 553) consists of one (1) 12' travel lane in each direction with 2' paved shoulders. Passing is permitted in both travel directions and there is no parking on either side of the roadway. There is no sidewalk present on either side of the roadway. The posted speed limit on Buck Road (CR 553) is 50 MPH.
- **Site Driveway** – The Site Driveway is an east-west oriented private driveway. The Site Driveway is undivided, of a varying width, and is designated as two-way. Within the study area, the Site Driveway consists of one travel lane for both directions of travel and no paved shoulders. Given the private status of the roadway, passing and parking may be permitted. There is no posted speed limit along the site driveway, but for the purposes of this report it has been assumed to be 25 MPH.

Existing Intersections

The intersection of **Buck Road (CR 553) and Site Driveway** is an unsignalized intersection. The eastbound approach consists of one (1) shared left turn/right turn lane. The northbound approach consists of one (1) shared left turn/through lane. The southbound approach consists of one (1) shared through/right turn lane. The eastbound approach of the Site Driveway is stop controlled.

Data Collection

Automated Traffic Recorder (ATR) counts were conducted between Monday, February 17, 2025, and Friday, February 21, 2025, just south of the subject intersection. The AM peak period was identified as 7:00 AM – 8:00 AM and the PM peak period was identified as 4:00 PM – 5:00 PM.

The ATR counts are provided in **Appendix A**. The 2025 Existing Condition traffic volumes for the study intersection are illustrated on **Figure 3**.

Analysis of Existing Conditions

Capacity Analysis

Under 2025 Existing Conditions, the study intersection operates at LOS A and all approaches/movements operate at LOS B or better.

The delay, V/C ratio, and LOS summaries for the study intersection for both peak periods can be found tabulated below in **Table 3**. Synchro HCM 7th Edition output summaries for the 2025 Existing Condition can be found in **Appendix B**.

Table 3: 2025 Existing Condition Delay and LOS

Level of Service (LOS)	Approach	Movement	AM Peak Period			PM Peak Period		
			LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)
Buck Road (CR 553) and Site Driveway (unsignalized)	EB Approach	Left/Right	B	0.004	11.1	B	0.004	11.9
	Overall – Approach		B	-	11.1	B	-	11.9
	NB Approach	Left/Through	A	0.001	7.7	A	0.001	8.0
	Overall – Approach		A	-	0.02	A	-	0.03
	SB Approach	Through/Right	A	0.00	0.0	A	0.00	0.0
	Overall – Approach		A	-	0.0	A	-	0.0
	Overall – Intersection		A	-	0.1	A	-	0.1

2027 No-Build Conditions

Background Growth

Annual Background Growth Rate

To account for general background traffic growth in the area, an annual background growth rate is applied to the baseline existing traffic volumes on the study area roadways. NJDOT publishes the *Access Permit Annual Background Growth Rate Table* to establish these background growth rates by roadway type and County which are valid for use between November 2023 to November 2025.

Per the Access Permit Annual Background Growth Rate Table, a 1.25% growth rate has been established for Urban Major Collector roadways in Gloucester County.

Adjacent Development

Under certain circumstances, a background growth rate may not be sufficient to account for the growth in traffic volumes on a roadway network. This is oftentimes due to adjacent developments planned near a site which may be completed in the same timeframe as the subject Facility.

After consultation with both the Township of Elk and Gloucester County, there are two (2) planned/approved developments within $\frac{1}{4}$ of a mile of the Facility that are anticipated to generate site trips which will travel through the study area:

- Jai & Jas Real Estate, LLC
 - Development:** A phased truck stop/convenience store/gas station development
 - Phase 1: 4,180 SF Convenience Store with Gas Station (10 standard VFP; 3 truck VFP)
 - Phase 2: 2 additional truck VFP
 - Location:** The southwest quadrant of the intersection of Buck Road (CR 553) and Elk Road (CR 538)
- Silvergate Planned Unit Development (P.U.D.)
 - Development:**
 - Residential:** 554 single-family detached homes, 266 single-family attached homes, 192 multi-family dwellings, and 226 townhomes
 - Commercial:** 690,050 SF of commercial/retail
 - Office:** 160,200 SF of office space.
 - Location:** 662 acres centered about the intersection of Buck Road (CR 553) and Clayton-Aura Road (CR 610) north of the intersection of Buck Road (CR 553) and Elk Road (CR 538).

To provide a conservative analysis for the study area intersection, the site trips generated from these adjacent developments must be surcharged onto the existing roadway network in the No-Build Conditions in addition to the new site trips generated from the proposed Facility in the Build Conditions.

Figure 4 depicts the adjacent development trips through the study area for Jai & Jas Real Estate, LLC, and the Silvergate Planned Unit Development. The adjacent development information can be found in **Appendix C**.

Figure 5 depicts the 2027 No-Build Conditions traffic volumes.

Analysis of No-Build Conditions

Capacity Analysis

Under 2027 No-Build Conditions, like the 2025 Existing Conditions, the study intersection operates at LOS A and all approaches/movements operate at LOS C or better with the following exceptions:

The delay, V/C ratio, and LOS summaries for the study intersection for both peak periods can be found tabulated below in **Table 4**. Synchro HCM 7th Edition output summaries for the 2027 No-Build Condition can be found in **Appendix D**.

Table 4: 2027 No-Build Condition Delay and LOS

Level of Service (LOS)	Approach	Movement	AM Peak Period			PM Peak Period		
			LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)
Buck Road (CR 553) and Site Driveway (unsignalized)	EB Approach	Left/Right	B	0.006	14.4	C	0.011	23.8
	Overall – Approach		B	-	14.4	C	-	23.8
	NB Approach	Left/Through	A	0.001	8.2	A	0.001	9.5
	Overall – Approach		A	-	0.02	A	-	0.02
	SB Approach	Through/Right	A	0.00	0.0	A	0.00	0.0
	Overall – Approach		A	-	0.0	A	-	0.0
	Overall – Intersection		A	-	0.1	A	-	0.1

2027 Build Conditions

Development Description

The subject property is situated on Block 44 – Lot 4 at 730 Buck Road and is comprised of farm fields and several structures on the eastern side of the property. The existing structures are to remain undisturbed, and 302,868 SF of cannabis cultivation facilities are to be constructed. As proposed, there are no new access points proposed, and access will be maintained through the existing driveway along Buck Road (CR 553).

Trip Generation

The trip generation calculations were performed utilizing methodologies consistent with those presented in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 3rd Edition*. The site trips, per ITE, for the proposed Project are summarized below in **Table 5**. The trip generation summaries and information can be found in **Appendix E**.

Table 5: Proposed Trip Generation per ITE

LUC	Independent Variable	Weekday AM Peak			Weekday PM Peak		
		In	Out	Total	In	Out	Total
190 – Marijuana Cultivation and Processing Facility	302,868 SF	194	15	209	140	54	194

The ITE trip generation rates for LUC 190 - Marijuana Cultivation and Processing Facility is based on a single site surveyed in the 2010s and, based on the anticipated staffing and operation of the site, significantly overestimates the number of trips that will be generated by the site.

The Applicant anticipates a maximum number of employees per shift to be 11 total made up of three (3) office executives, two (2) facilities managers, and six (6) laborers in addition to up to six (6) trucks per day. Given the anticipated staffing and shift size, a conservative estimate of two (2) full shift turnovers throughout the day was utilized. A shift turnover along with one (1) truck arrival and departure during both the AM and PM peak periods is estimated. The anticipated trip generation based on the Applicant's staffing information is summarized below in **Table 6**.

Table 6: Proposed Trip Generation per Applicant's Information

LUC	Independent Variable	Weekday AM Peak			Weekday PM Peak		
		In	Out	Total	In	Out	Total
190 – Marijuana Cultivation and Processing Facility	11 Employees 1 Truck	12	12	24	12	12	24

The trip generation based on the anticipated staffing and delivery will more accurately reflect the peak hour activity at the site driveway will be used analyze the associated traffic impacts in lieu of the rates contained in the *ITE Trip Generation Handbook*.

Trip Distribution

The trip distribution to the proposed Facility is based on existing traffic patterns. The estimated distribution of proposed site traffic is as follows:

To/from the north along Buck Road (CR 553) 50%
To/from the south along Buck Road (CR 553) 50%

The distribution throughout the study area and resultant site generated trips are depicted in **Figure 6** and **Figure 7**.

Figure 8 depicts the 2027 Build Conditions traffic volumes.

Analysis of Build Conditions

Capacity Analysis

Under 2027 Build Conditions, like the 2027 No-Build Conditions, the study intersection operates at LOS A and all approaches/movements operate at LOS D or better with the following exceptions:

The delay, V/C ratio, and LOS summaries for the study intersection for both peak periods can be found tabulated below in **Table 7**. Synchro HCM 7th Edition output summaries for the 2027 No-Build Condition can be found in **Appendix F**.

Table 7: 2027 Build Condition Delay and LOS

Level of Service (LOS)	Approach	Movement	AM Peak Period			PM Peak Period		
			LOS	V/C Ratio	Delay (sec.)	LOS	V/C Ratio	Delay (sec.)
Buck Road (CR 553) and Site Driveway (unsignalized)	EB Approach	Left/Right	B	0.006	14.9	D	0.081	25.8
	Overall – Approach		B	-	14.9	D	-	25.8
	NB Approach	Left/Through	A	0.007	8.2	A	0.01	9.6
	Overall – Approach		A	-	0.12	A	-	0.11
	SB Approach	Through/Right	A	0.00	0.0	A	0.00	0.0
	Overall – Approach		A	-	0.0	A	-	0.0
	Overall – Intersection		A	-	0.3	A	-	0.3

Figure 7 depicts the 2027 Build Conditions traffic volumes.

Conclusions

A summary of the findings of the report is presented below:

- The proposed cannabis cultivation facility will not result in a significant increase in traffic between it and the adjacent roadway network and intersections during either the AM or PM peak periods.
- The Facility generates, at most, 24 peak hour trips during both the AM and PM peak periods.
- Under 2025 Existing Conditions, the study intersection operates at LOS A and all approaches/movements operate at LOS B or better.
- Under 2027 No-Build Conditions, like the 2025 Existing Conditions, the study intersection operates at LOS A

and all approaches/movements operate at LOS C or better.

- Under 2027 Build Conditions, like the 2027 No-Build Conditions, the study intersection operates at LOS A and all approaches/movements operate at LOS D or better.

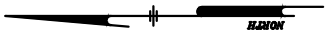
In conclusion, the construction of the proposed Elk Cannabis Cultivation Facility on Block 44 – Lot 4 at 730 Buck Road will not result in a significant increase in overall trips between it and the adjacent roadway network with 24 addition trips during the AM peak period and 24 additional trips during the PM peak period and therefore will not result in significant impacts to the operation of the adjacent roadways or intersections



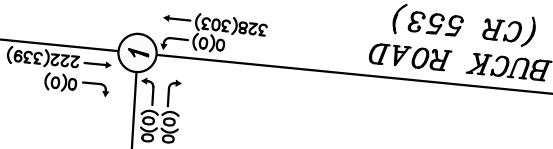
LEGEND:
① STUDY INTERSECTION NO.

STUDY INTERSECTIONS:
1. BUCK ROAD (CR 553) AND SITE DRIVEWAY

 PENNONI ASSOCIATES INC. 515 Grove Street, Suite 1B Haddon Heights, NJ 08035 T 856.547.0505 F 856.547.9174 NJ COA NO. GA28033300	ELK CANNABIS CULTIVATION FACILITY 730 BUCK ROAD TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY	PROJECT PAUPL23001
	FIGURE 1 PROJECT AREA	



SITE
DRIVEWAY



LEGEND:

#

STUDY INTERSECTION NO.

←

AM(PM)VOLUMES



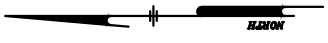
PENNONI ASSOCIATES INC.
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NJ COA NO. GA28033300

ELK CANNABIS CULTIVATION FACILITY
730 BUCK ROAD
TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY

PROJECT PAUPL23001

FIGURE 3

2025 EXISTING
CONDITIONS PEAK
HOUR TRAFFIC
VOLUMES



SITE
DRIVEWAY

140(300) ←
198(457) →

BUCK ROAD
(CR 553)

LEGEND:

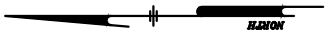
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STUDY INTERSECTION NO.

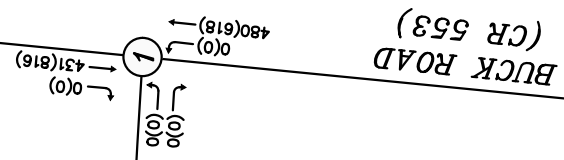
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AM(PM)VOLUMES

PROJECT PAUPL23001	
ELK CANNABIS CULTIVATION FACILITY 730 BUCK ROAD TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY	
 PENNONI ASSOCIATES INC. 515 Grove Street, Suite 1B Haddon Heights, NJ 08035 T 856.547.0505 F 856.547.9174 NJ COA NO. GA28033300	FIGURE 4 ADJACENT DEVELOPMENT SITE TRIPS



SITE
DRIVEWAY



LEGEND:

① STUDY INTERSECTION NO.

← AM(PM) VOLUMES

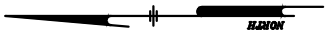
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FIGURE 5
2027 NO-BUILD
CONDITIONS PEAK
HOUR TRAFFIC
VOLUMES

ELK CANNABIS CULTIVATION FACILITY
730 BUCK ROAD
TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY

**Pennoni**

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NJ COA NO. GA28033300



SITE
DRIVEWAY

1

50%(0%)

0%(50%)
0%(50%)

50%(0%)

BUCK ROAD
(CR 553)

LEGEND:

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STUDY INTERSECTION NO.

←

IN%(OUT%)DISTRIBUTION

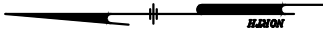


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ELK CANNABIS CULTIVATION FACILITY
730 BUCK ROAD
TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY

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FIGURE 6
PRIMARY SITE TRIP
DISTRIBUTION



SITE
DRIVEWAY

BUCK ROAD
(CR 553)

1

6(6)
6(6)
6(6)
6(6)

LEGEND:

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STUDY INTERSECTION NO.

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AM(PM)VOLUMES



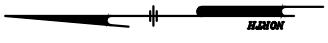
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NJ COA NO. GA28033300

ELK CANNABIS CULTIVATION FACILITY
730 BUCK ROAD
TOWNSHIP OF ELK, GLOUCESTER COUNTY, NEW JERSEY

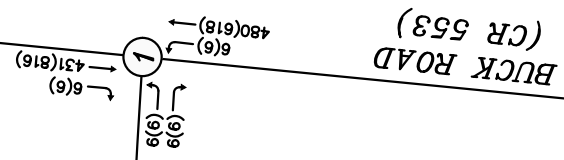
PROJECT PAUPL23001

FIGURE 7
PRIMARY SITE
GENERATED TRIPS

PRIMARY TRIPS			
PEAK	AM	PM	TOTAL
ENTER	12	12	24
EXIT	12	12	24



SITE
DRIVEWAY



LEGEND:

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 STUDY INTERSECTION NO.

←

 AM(PM) VOLUMES



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NJ COA NO. GA28033300

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PROJECT PAUPL23001

FIGURE 8
2027 BUILD CONDITIONS
PEAK HOUR TRAFFIC
VOLUMES

Appendix A: Data Collection



Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

NB																	
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total			
02/17/25	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*			
11:00	0	122	54	1	17	1	0	3	2	0	0	0	0	200			
12 PM	0	149	41	2	18	2	0	3	2	0	0	0	0	217			
13:00	1	121	39	4	18	1	0	0	3	0	0	0	0	187			
14:00	1	131	44	1	21	1	0	0	2	0	0	0	0	201			
15:00	2	159	57	1	23	1	0	0	5	0	0	0	0	248			
16:00	0	132	45	1	15	1	0	0	3	0	0	0	0	197			
17:00	0	145	35	1	10	0	0	0	0	0	0	0	0	192			
18:00	0	116	29	1	11	0	0	1	2	0	0	0	0	160			
19:00	0	65	14	1	2	0	0	0	0	0	0	0	0	82			
20:00	0	42	14	0	2	0	0	0	0	0	0	0	0	58			
21:00	0	26	10	0	5	0	0	0	1	0	0	0	0	42			
22:00	0	20	10	0	3	0	0	0	0	0	0	0	0	33			
23:00	0	14	4	0	1	0	0	0	0	0	0	0	0	19			
Total	4	1242	396	13	146	7	0	7	21	0	0	0	0	1836			
Percent	0.2%	67.6%	21.6%	0.7%	8.0%	0.4%	0.0%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%				
AM Peak Vol.		11:00	11:00	11:00	11:00	11:00		11:00	11:00					11:00			
		122	54	1	17	1		3	2					200			
PM Peak Vol.	15:00	15:00	15:00	13:00	15:00	12:00		12:00	15:00					15:00			
	2	159	57	4	23	2		3	5					248			

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02/18/25	0	12	2	0	3	0	0	0	2	0	0	0	0
01:00	0	3	0	1	0	0	0	0	2	0	0	0	0
02:00	0	0	5	0	3	0	0	0	0	0	0	0	0
03:00	0	7	5	1	2	0	0	0	1	0	0	0	0
04:00	0	37	20	0	3	0	0	0	2	0	0	0	0
05:00	0	93	46	0	21	1	0	0	2	0	0	0	0
06:00	1	195	81	0	25	2	0	1	0	0	0	0	0
07:00	0	233	74	3	29	0	6	2	1	0	0	0	0
08:00	0	198	72	1	28	1	0	1	2	0	0	0	0
09:00	1	143	55	4	26	1	6	1	2	0	0	0	0
10:00	0	128	44	0	23	0	0	4	1	0	0	0	0
11:00	0	119	50	0	14	2	5	2	4	0	0	0	0
12 PM	0	116	41	3	20	0	1	1	1	0	0	0	0
13:00	1	114	48	4	30	0	3	2	3	0	0	0	0
14:00	1	130	42	3	32	0	0	0	1	0	0	0	0
15:00	1	174	62	4	17	0	0	1	3	0	0	0	0
16:00	1	193	52	1	24	1	0	1	3	0	0	0	0
17:00	1	150	49	0	13	1	0	0	2	0	0	0	0
18:00	1	119	32	2	10	0	0	0	2	0	0	0	0
19:00	0	77	20	1	3	0	0	0	1	0	0	0	0
20:00	0	48	15	0	1	0	0	0	3	0	0	0	0
21:00	0	45	9	0	4	0	0	0	0	0	0	0	0
22:00	0	19	8	0	2	0	0	0	0	0	0	0	0
23:00	0	10	3	0	2	0	0	0	1	0	0	0	0
Total	8	2363	835	28	335	9	21	16	39	0	0	0	0
Percent	0.2%	64.7%	22.9%	0.8%	9.2%	0.2%	0.6%	0.4%	1.1%	0.0%	0.0%	0.0%	0.0%
AM Peak	06:00	07:00	06:00	09:00	07:00	06:00	07:00	10:00	11:00	0.0%	0.0%	0.0%	0.0%
Vol.	1	233	81	4	29	2	6	4	4	4	4	4	4
PM Peak	13:00	16:00	15:00	13:00	14:00	16:00	13:00	13:00	13:00	13:00	13:00	16:00	16:00
Vol.	1	193	62	4	32	1	3	2	3	3	2	3	276

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NB	Start Time	Cars &		2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi		>6 Axl Multi		Total
		Bikes	Trailers														
	02/19/25	0	12	3	0	1	0	0	0	0	0	0	0	0	0	0	16
	01:00	0	2	1	0	0	0	0	0	0	3	0	0	0	0	0	6
	02:00	0	2	2	0	3	0	0	0	0	1	0	0	0	0	0	8
	03:00	0	12	2	1	0	0	0	0	0	1	0	0	0	0	0	16
	04:00	0	36	16	0	3	0	0	0	0	1	0	0	0	0	0	56
	05:00	0	80	46	1	20	1	0	0	0	1	0	0	0	0	0	149
	06:00	0	178	78	0	24	2	0	0	0	1	0	0	0	0	0	283
	07:00	2	249	68	4	33	1	0	2	2	0	0	0	0	0	0	361
	08:00	0	202	64	0	27	0	0	3	5	0	0	0	0	0	0	301
	09:00	0	143	66	4	33	1	0	1	3	0	0	0	0	0	0	251
	10:00	0	114	37	1	26	1	0	4	5	0	0	0	0	0	0	188
	11:00	0	108	40	3	19	1	0	0	3	0	0	0	0	0	0	174
	12 PM	0	115	34	2	15	1	0	0	3	0	0	0	0	0	0	170
	13:00	0	126	43	3	23	2	0	1	4	0	0	0	0	0	0	202
	14:00	0	136	54	4	18	2	0	1	4	0	0	0	0	0	0	219
	15:00	0	166	47	3	24	0	0	1	4	0	0	0	0	0	0	245
	16:00	0	220	43	0	19	1	0	0	1	0	0	0	0	0	0	284
	17:00	0	193	56	3	17	0	0	0	1	0	0	0	0	0	0	270
	18:00	1	120	29	2	7	0	0	0	3	0	0	0	0	0	0	162
	19:00	0	84	19	0	3	0	0	1	1	0	0	0	0	0	0	108
	20:00	0	51	11	2	2	0	0	0	1	0	0	0	0	0	0	67
	21:00	0	45	17	0	1	0	0	0	1	0	0	0	0	0	0	64
	22:00	0	28	7	0	3	0	0	0	0	0	0	0	0	0	0	38
	23:00	0	21	2	0	0	0	0	0	0	0	0	0	0	0	0	23
Total		3	2443	785	33	321	13	0	14	49	0	0	0	0	0	0	3661
Percent		0.1%	66.7%	21.4%	0.9%	8.8%	0.4%	0.0%	0.4%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	06:00	07:00	07:00	06:00		10:00	08:00							07:00
Vol.		2	249	78	4	33	2		4	5							361
PM Peak		18:00	16:00	17:00	14:00	15:00	13:00		13:00	13:00							16:00
Vol.		1	220	56	4	24	2		1	4							284

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02/20/25	0	7	2	0	3	0	0	0	1	0	0	0	0	13
01:00	0	3	1	0	1	0	0	0	1	0	0	0	0	6
02:00	0	2	4	1	6	0	0	0	0	0	0	0	0	13
03:00	0	12	3	1	1	0	0	0	0	0	0	0	0	17
04:00	0	27	17	0	6	1	0	1	1	0	0	0	0	53
05:00	0	92	49	4	23	0	0	0	3	0	0	0	0	171
06:00	0	181	80	0	28	0	0	3	1	0	0	0	0	293
07:00	0	194	87	5	33	1	2	5	0	1	0	0	0	328
08:00	1	199	68	1	18	2	0	2	2	0	0	0	0	293
09:00	1	162	47	2	9	0	3	3	2	0	0	0	0	229
10:00	1	126	56	3	18	0	0	0	1	0	0	0	0	205
11:00	0	124	51	3	17	1	3	3	4	0	0	0	0	206
12 PM	0	127	35	1	20	2	1	5	4	0	0	0	0	195
13:00	0	112	52	1	24	0	1	4	8	0	0	0	0	202
14:00	0	150	46	2	24	0	0	1	4	0	0	0	0	227
15:00	0	185	66	6	22	0	0	1	3	0	0	0	0	283
16:00	0	234	50	2	16	0	0	0	1	0	0	0	0	303
17:00	0	158	41	1	14	0	0	0	0	0	0	0	0	214
18:00	0	117	33	2	4	0	0	0	0	0	0	0	0	156
19:00	0	84	12	0	9	0	0	2	1	0	0	0	0	108
20:00	1	54	8	1	6	0	0	0	1	0	0	0	0	71
21:00	0	37	7	0	2	0	0	0	0	0	0	0	0	46
22:00	0	30	8	0	2	0	0	0	1	0	0	0	0	41
23:00	0	19	3	0	2	0	0	0	1	0	0	0	0	25
Total	4	2436	826	36	308	7	10	30	40	1	0	0	0	3698
Percent	0.1%	65.9%	22.3%	1.0%	8.3%	0.2%	0.3%	0.8%	1.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	07:00	07:00	07:00	08:00	09:00	07:00	11:00	07:00				07:00
Vol.	1	199	87	5	33	2	3	5	4	1				328
PM Peak	20:00	16:00	15:00	15:00	13:00	12:00	12:00	12:00	13:00					16:00
Vol.	1	234	66	6	24	2	1	5	8					303

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02/21/25	0	17	4	0	0	0	0	0	1	0	0	0	0	22
01:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
02:00	0	4	2	0	1	0	0	0	1	0	0	0	0	8
03:00	0	6	3	1	1	1	0	0	2	0	0	0	0	14
04:00	0	30	17	0	3	0	0	0	2	0	0	0	0	52
05:00	0	88	42	1	20	0	0	0	2	0	0	0	0	153
06:00	1	185	72	1	24	1	0	0	0	0	0	0	0	284
07:00	0	229	85	2	29	1	6	4	1	0	0	0	0	357
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	1	563	225	5	79	3	6	4	9	0	0	0	0	895
Percent	0.1%	62.9%	25.1%	0.6%	8.8%	0.3%	0.7%	0.4%	1.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	07:00	07:00	07:00	03:00	07:00	07:00	03:00					07:00
Vol.	1	229	85	2	29	1	6	4	2					357
PM Peak Vol.														
Grand Total	20	9047	3067	115	1189	39	37	71	158	1	0	0	0	13744
Percent	0.1%	65.8%	22.3%	0.8%	8.7%	0.3%	0.3%	0.5%	1.1%	0.0%	0.0%	0.0%	0.0%	

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		Bikes	Trailers												
	02/17/25	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	0	95	42	5	15	0	0	1	5	0	0	0	0	163
	12 PM	3	103	41	0	26	2	1	2	1	0	0	0	0	179
	13:00	0	124	51	0	26	1	0	5	4	0	0	0	0	211
	14:00	2	144	70	1	24	3	0	0	0	0	0	0	0	244
	15:00	0	187	90	1	48	0	0	2	1	0	0	0	0	329
	16:00	3	223	63	1	25	0	0	1	1	0	0	0	0	317
	17:00	0	180	56	0	22	1	0	0	1	0	0	0	0	260
	18:00	1	174	32	1	16	0	0	2	4	0	0	0	0	230
	19:00	0	82	25	0	7	0	0	1	1	0	0	0	0	116
	20:00	0	83	24	0	6	0	0	0	2	0	0	0	0	115
	21:00	0	69	12	0	1	0	0	0	0	0	0	0	0	82
	22:00	0	38	7	1	2	0	0	0	1	0	0	0	0	49
	23:00	0	28	3	0	2	0	0	0	1	0	0	0	0	34
	Total	9	1530	516	10	220	7	1	14	22	0	0	0	0	2329
	Percent	0.4%	65.7%	22.2%	0.4%	9.4%	0.3%	0.0%	0.6%	0.9%	0.0%	0.0%	0.0%	0.0%	
	AM Peak		11:00	11:00	11:00	11:00			11:00	11:00					11:00
	Vol.		95	42	5	15			1	5					163
	PM Peak		16:00	15:00	14:00	15:00	14:00	12:00	13:00	13:00					15:00
	Vol.	3	223	90	1	48	3	1	5	4					329

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SB	Start Time	Cars & Trailers		2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
		Bikes													
02/18/25	12	0	12	6	1	3	0	0	0	0	0	0	0	0	22
01:00	6	0	6	4	1	2	0	0	0	2	0	0	0	0	15
02:00	2	0	2	3	0	0	0	0	0	0	0	0	0	0	5
03:00	4	0	4	0	0	0	0	0	1	0	0	0	0	0	5
04:00	19	0	19	5	2	3	0	0	0	0	0	0	0	0	29
05:00	17	0	17	6	3	4	0	0	0	0	0	0	0	0	30
06:00	89	0	89	30	1	14	0	0	0	3	0	0	0	0	137
07:00	172	1	172	45	3	17	5	0	0	3	0	0	0	0	246
08:00	118	1	118	40	4	25	5	0	0	3	0	0	0	0	196
09:00	103	1	103	37	4	26	2	0	1	3	0	0	0	0	177
10:00	102	0	102	46	2	18	6	1	2	1	0	0	0	0	178
11:00	96	1	96	50	4	21	3	0	2	5	0	0	0	0	182
12 PM	112	1	112	44	6	23	4	0	3	4	0	0	0	0	197
13:00	114	0	114	46	4	23	0	0	0	8	0	0	0	0	195
14:00	176	0	176	66	1	24	1	1	1	1	0	0	0	0	271
15:00	217	3	217	87	3	45	0	0	1	4	0	0	0	0	360
16:00	242	2	242	87	4	31	0	0	1	3	0	0	0	0	370
17:00	198	0	198	72	1	19	1	0	1	1	0	0	0	0	293
18:00	133	0	133	54	1	14	0	0	1	2	0	0	0	0	205
19:00	122	1	122	23	0	10	0	0	0	2	0	0	0	0	158
20:00	91	0	91	32	0	13	0	0	0	1	0	0	0	0	137
21:00	60	1	60	8	0	3	1	0	0	1	0	0	0	0	74
22:00	45	0	45	13	0	3	1	0	0	1	0	0	0	0	63
23:00	31	0	31	4	0	0	0	0	0	0	0	0	0	0	35
Total	2281	12	2281	808	45	341	29	2	14	48	0	0	0	0	3580
Percent	63.7%	0.3%	63.7%	22.6%	1.3%	9.5%	0.8%	0.1%	0.4%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	11:00	08:00	09:00	10:00	10:00	10:00	11:00	0.0%	0.0%	0.0%	0.0%	07:00
Vol.	1	172	50	50	4	26	6	1	2	5					246
PM Peak	15:00	16:00	15:00	15:00	12:00	15:00	12:00	14:00	12:00	13:00					16:00
Vol.	3	242	87	87	6	45	4	1	3	8					370

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Buck Rd
 Location: 275 ft N of Vivian Ln
 Counter: 40618

Site Code: 1
 Station ID:
 A to B NB

Latitude: 39° 38.2985 North
 Longitude: 75° 7.4675 West

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/19/25	0	9	4	0	3	0	0	0	1	0	0	0	0	17
01:00	0	6	4	0	1	0	0	0	0	0	0	0	0	11
02:00	0	3	4	0	1	0	0	0	0	0	0	0	0	8
03:00	0	10	1	0	1	0	0	1	0	0	0	0	0	13
04:00	0	12	3	1	3	0	0	0	0	0	0	0	0	19
05:00	0	22	7	1	2	0	0	0	1	0	0	0	0	33
06:00	1	89	31	4	15	0	0	0	7	0	0	0	0	147
07:00	2	175	42	1	14	2	0	0	0	0	0	0	0	236
08:00	1	128	51	1	27	2	1	2	4	0	0	0	0	217
09:00	0	84	31	1	21	0	1	1	3	0	0	0	0	142
10:00	0	100	44	4	25	3	1	1	4	0	0	0	0	182
11:00	0	89	34	4	19	1	0	1	2	0	0	0	0	150
12 PM	2	121	41	4	30	4	1	1	4	0	0	0	0	208
13:00	0	126	44	2	40	1	0	2	3	0	0	0	0	218
14:00	0	134	64	1	29	1	0	3	2	0	0	0	0	234
15:00	1	199	77	1	51	0	0	0	5	0	0	0	0	334
16:00	0	241	77	4	51	2	0	3	0	0	0	0	0	378
17:00	1	192	76	1	43	1	0	3	1	0	0	0	0	318
18:00	0	156	53	2	25	0	0	1	0	0	0	0	0	237
19:00	0	104	43	1	13	1	0	1	1	0	0	0	0	164
20:00	0	97	30	0	14	0	0	0	2	0	0	0	0	143
21:00	0	65	16	0	10	0	0	0	2	0	0	0	0	93
22:00	0	47	10	0	7	0	0	0	0	0	0	0	0	64
23:00	0	28	11	0	8	0	0	0	2	0	0	0	0	49
Total	8	2237	798	33	453	18	4	20	44	0	0	0	0	3615
Percent	0.2%	61.9%	22.1%	0.9%	12.5%	0.5%	0.1%	0.6%	1.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	06:00	08:00	10:00	08:00	08:00	06:00					07:00
Vol.	2	175	51	4	27	3	1	2	7					236
PM Peak	12:00	16:00	15:00	12:00	15:00	12:00	12:00	14:00	15:00					16:00
Vol.	2	241	77	4	51	4	1	3	5					378

Tri-State Traffic Data, Inc.

610-466-1469

TSTData.com

Road: Buck Rd
 Location: 275 ft N of Vivian Ln
 Counter: 40618

Site Code: 1
 Station ID:
 A to B NB

Latitude: 39° 38.2985 North
 Longitude: 75° 7.4675 West

SB	Start Time	Cars & Trailers		2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double		5 Axle Double	>6 Axl Double	<6 Axl Multi		6 Axle Multi		>6 Axl Multi		Total
		Bikes																	
	02/20/25	0	13	3	0	2	0	0	0	0	1	0	0	0	0	0	0	0	19
	01:00	0	3	2	1	2	0	0	0	0	1	0	0	0	0	0	0	0	9
	02:00	0	3	2	0	5	0	0	0	0	1	0	0	0	0	0	0	0	11
	03:00	0	4	2	0	2	0	0	0	0	1	0	0	0	0	0	0	0	9
	04:00	0	11	5	1	3	0	0	1	1	0	0	0	0	0	0	0	0	21
	05:00	0	22	7	2	15	0	0	0	0	0	0	0	0	0	0	0	0	46
	06:00	0	79	27	2	23	0	0	0	0	1	0	0	0	0	0	0	0	132
	07:00	0	157	37	5	22	0	0	1	1	0	0	0	0	0	0	0	0	222
	08:00	1	120	65	4	24	3	0	1	1	1	0	0	0	0	0	0	0	219
	09:00	0	84	41	3	29	0	1	2	2	3	0	0	0	0	0	0	0	163
	10:00	0	78	33	4	25	7	0	5	4	4	0	0	0	0	0	0	0	156
	11:00	0	89	36	5	36	1	1	4	5	5	0	0	0	0	0	0	0	177
	12 PM	1	130	50	1	32	2	0	0	0	8	0	0	0	0	0	0	0	224
	13:00	0	116	46	4	30	0	0	3	3	3	0	0	0	0	0	0	0	202
	14:00	0	150	68	2	46	1	0	6	2	2	0	0	0	0	0	0	0	275
	15:00	0	211	81	2	64	1	1	1	1	1	1	0	0	0	0	0	0	363
	16:00	1	206	67	5	59	0	0	1	1	0	0	0	0	0	0	0	0	339
	17:00	1	187	62	4	45	1	0	2	2	2	0	0	0	0	0	0	0	304
	18:00	0	145	42	1	38	0	0	1	2	2	0	0	0	0	0	0	0	229
	19:00	0	107	28	0	16	0	0	1	3	0	0	0	0	0	0	0	0	155
	20:00	1	80	29	1	16	1	0	0	0	0	0	0	0	0	0	0	0	128
	21:00	0	72	19	0	10	0	0	0	2	2	0	0	0	0	0	0	0	103
	22:00	0	39	8	1	10	0	0	0	1	1	0	0	0	0	0	0	0	59
	23:00	0	23	4	0	7	0	0	0	0	3	0	0	0	0	0	0	0	37
	Total	5	2129	764	48	561	17	3	29	45	1	1	0	0	0	0	0	0	3602
	Percent	0.1%	59.1%	21.2%	1.3%	15.6%	0.5%	0.1%	0.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	AM Peak	08:00	07:00	08:00	07:00	11:00	10:00	09:00	10:00	11:00									07:00
	Vol.	1	157	65	5	36	7	1	5	5									222
	PM Peak	12:00	15:00	15:00	16:00	15:00	12:00	15:00	14:00	12:00	15:00	15:00							15:00
	Vol.	1	211	81	5	64	2	1	6	8	1								363

Site Code: 1
Station ID:
A to B NB

Latitude: 39' 38.2985 North
Longitude: 75' 7.4675 West

SB	Start Time	Cars & Trailers		2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
		Bikes	Trailers												
	02/21/25	0	16	3	0	4	0	0	1	0	0	0	0	0	24
	01:00	0	6	0	0	1	1	0	0	0	0	0	0	0	8
	02:00	1	3	4	0	0	2	0	0	0	0	0	0	0	10
	03:00	0	7	0	0	0	0	0	1	2	0	0	0	0	10
	04:00	0	10	4	1	3	0	0	0	0	0	0	0	0	18
	05:00	0	26	5	2	10	0	0	0	1	0	0	0	0	44
	06:00	0	80	32	1	20	1	0	0	2	0	0	0	0	136
	07:00	2	144	34	4	22	2	0	1	0	0	0	0	0	209
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Total	3	292	82	8	60	6	0	3	5	0	0	0	0	459
	Percent	0.7%	63.6%	17.9%	1.7%	13.1%	1.3%	0.0%	0.7%	1.1%	0.0%	0.0%	0.0%	0.0%	
	AM Peak	07:00	07:00	07:00	07:00	07:00	02:00		00:00	03:00					07:00
	Vol.	2	144	34	4	22	2		1	2					209

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

NB	Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
	02/17/25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	4	0	0	0	0	2	8	45	85	40	14	3	0	0	201	58	62
	12 PM	5	0	0	0	1	3	7	41	97	54	10	1	0	0	219	57	60
	13:00	3	0	0	1	0	1	13	26	75	58	11	0	0	0	188	58	60
	14:00	2	0	0	0	0	1	9	62	78	44	5	0	0	0	201	57	59
	15:00	6	0	0	1	0	0	9	70	104	52	4	2	0	0	248	56	59
	16:00	7	0	0	0	0	1	9	43	95	39	5	0	0	0	199	56	59
	17:00	3	0	0	0	0	1	12	60	80	31	4	1	0	0	192	56	59
	18:00	4	0	0	0	2	2	16	63	51	19	4	0	0	0	161	54	58
	19:00	2	0	0	0	2	0	8	25	32	11	2	0	0	0	82	55	59
	20:00	1	0	0	0	0	1	8	16	22	7	2	1	0	0	58	55	60
	21:00	0	0	0	1	1	0	4	14	13	7	2	0	0	0	42	56	59
	22:00	0	0	0	0	0	0	1	5	16	10	1	0	0	0	33	58	59
	23:00	0	0	0	1	0	0	1	8	6	2	1	0	0	0	19	55	60
	Total	37	0	0	4	6	12	105	478	754	374	65	8	0	0	1843		
	Percent	2.0%	0.0%	0.0%	0.2%	0.3%	0.7%	5.7%	25.9%	40.9%	20.3%	3.5%	0.4%	0.0%	0.0%			
	AM Peak	11:00					11:00	11:00	11:00	11:00	11:00	11:00	11:00			11:00		
	Vol.	4					2	8	45	85	40	14	3			201		
	PM Peak	16:00			13:00	18:00	12:00	18:00	15:00	15:00	13:00	13:00	15:00			15:00		
	Vol.	7		1	1	2	3	16	70	104	58	11	2			248		

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38' 29.85" North
Longitude: 75° 7' 46.75" West

NB	Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 99	Total	85th Percent	95th Percent
	02/18/25	0	0	0	0	0	1	1	1	8	6	1	0	1	0	19	59	70
	01:00	0	0	0	0	0	0	0	1	4	0	1	0	0	0	6	60	63
	02:00	0	0	0	0	0	1	2	3	1	1	0	0	0	0	8	53	57
	03:00	0	0	0	0	0	0	1	0	6	4	2	1	2	0	16	67	72
	04:00	0	0	0	0	0	0	5	4	20	22	6	3	2	0	62	61	68
	05:00	0	0	0	0	0	2	12	26	70	40	10	3	0	0	163	58	62
	06:00	2	0	0	1	0	1	7	107	127	47	9	2	1	1	305	56	59
	07:00	8	0	0	0	2	4	18	89	172	45	8	1	1	0	348	55	59
	08:00	3	0	0	1	0	1	17	117	120	39	5	1	0	0	304	54	58
	09:00	4	0	0	0	0	0	20	78	110	20	4	2	1	0	239	54	58
	10:00	2	0	0	1	0	3	10	71	85	26	1	0	1	0	200	54	58
	11:00	5	0	0	0	1	0	21	76	80	13	1	1	0	0	198	54	56
	12 PM	4	0	1	0	1	2	11	54	78	26	7	0	0	0	184	56	59
	13:00	6	0	0	0	0	0	6	69	78	40	5	0	1	0	205	56	59
	14:00	4	0	0	0	0	3	14	58	90	35	7	0	0	0	211	56	59
	15:00	13	0	0	0	0	4	16	65	98	57	10	2	0	0	265	57	59
	16:00	5	0	0	0	0	0	5	56	141	59	10	0	0	0	276	57	59
	17:00	10	0	0	0	0	0	5	59	97	43	4	0	0	0	218	56	59
	18:00	6	0	0	0	1	4	21	54	69	10	2	1	0	0	168	54	57
	19:00	4	0	0	0	1	0	9	31	42	13	2	0	0	0	102	54	58
	20:00	0	0	1	0	0	2	17	24	18	5	0	0	0	0	67	53	56
	21:00	1	0	0	1	0	1	7	13	26	7	1	0	1	0	58	55	59
	22:00	0	0	0	0	0	2	4	9	12	2	0	0	0	0	29	54	56
	23:00	0	0	0	0	1	2	4	6	2	0	1	0	0	0	16	51	61
	Total	77	0	2	4	7	33	233	1071	1554	560	97	17	11	1	3667		
	Percent	2.1%	0.0%	0.1%	0.1%	0.2%	0.9%	6.4%	29.2%	42.4%	15.3%	2.6%	0.5%	0.3%	0.0%			
	AM Peak	07:00			06:00	07:00	07:00	11:00	08:00	07:00	06:00	05:00	04:00	03:00	06:00	07:00		
	Vol.	8		1	1	2	4	21	117	172	47	10	3	2	1	348		
	PM Peak	15:00		12:00	21:00	12:00	15:00	18:00	13:00	16:00	16:00	15:00	15:00	13:00		16:00		
	Vol.	13		1	1	1	4	21	69	141	59	10	2	1		276		

Site Code: 1
Station ID:
A to B NB

Latitude: 39' 38.2985 North
Longitude: 75' 7.4675 West

NB	Start Time	15	1	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	66	70	71	75	76	99	Total	85th	95th	
																														Percent	Percent	
	02/19/25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7	65	3	2	65	3	1	0	0	0	0	16	62	65	
	01:00	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	6	70	73	
	02:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	3	3	0	0	0	0	1	0	0	8	59	72	
	03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	6	6	1	1	1	0	0	0	0	16	59	65	
	04:00	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	6	18	8	15	15	8	3	3	0	0	1	0	56	61	65	
	05:00	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	33	60	17	32	32	17	1	1	1	1	0	0	149	59	63	
	06:00	3	0	0	0	0	0	0	0	0	0	1	0	8	0	0	70	124	5	68	68	5	2	2	0	2	0	0	283	57	59	
	07:00	7	0	0	0	0	0	0	0	2	2	7	0	7	0	0	100	148	13	74	74	13	2	2	1	1	0	0	361	57	59	
	08:00	5	0	0	0	0	0	0	0	1	1	1	0	19	0	0	123	125	2	27	27	2	0	0	0	0	0	0	303	54	57	
	09:00	2	0	0	0	0	0	1	0	0	0	1	0	14	0	0	62	128	3	40	40	3	1	1	0	0	0	0	252	55	58	
	10:00	1	0	0	0	0	0	1	0	2	0	3	0	30	0	0	63	65	3	19	19	3	1	0	0	0	0	0	188	54	58	
	11:00	0	0	0	0	0	0	0	0	1	0	0	0	17	0	0	56	65	9	26	26	9	0	0	0	0	0	0	174	56	60	
	12 PM	4	0	0	0	0	0	0	0	1	1	1	0	23	0	0	65	55	2	20	20	2	0	0	0	0	0	0	171	54	58	
	13:00	4	0	0	0	0	0	1	0	0	0	0	0	21	0	0	60	79	1	35	35	1	1	0	0	0	0	0	202	55	58	
	14:00	3	0	0	0	0	0	0	0	1	1	3	0	10	0	0	65	107	9	22	22	9	0	0	0	0	0	0	220	54	59	
	15:00	9	0	0	0	0	0	0	0	3	3	3	0	13	0	0	57	104	5	51	51	5	0	0	0	0	0	0	245	56	59	
	16:00	5	0	0	0	0	0	0	0	1	2	2	0	10	0	0	82	122	4	60	60	4	0	0	0	0	0	0	286	56	59	
	17:00	8	0	0	0	0	0	0	0	2	5	5	0	19	0	0	69	120	5	43	43	5	1	1	0	0	0	0	272	55	59	
	18:00	6	0	0	0	0	0	0	0	1	3	3	0	12	0	0	63	62	1	15	15	1	0	0	0	0	0	0	163	54	57	
	19:00	0	0	0	0	0	0	0	0	4	2	2	0	12	0	0	25	46	2	16	16	2	0	0	1	0	0	0	108	55	59	
	20:00	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	16	28	5	12	12	5	0	0	0	0	0	0	67	57	61	
	21:00	1	0	0	0	0	0	0	0	1	1	2	0	6	0	0	20	21	4	8	8	4	1	1	0	0	0	0	64	57	62	
	22:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	19	0	4	4	0	0	0	1	0	0	0	38	54	58	
	23:00	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	8	4	0	5	5	0	0	0	0	0	0	0	23	56	58	
	Total	59	0	0	0	3	0	3	22	39	22	39	243	243	6.6%	29.0%	1063	1513	41.2%	603	603	102	15	15	8	8	0.2%	0.0%	1	3671		
	Percent	1.6%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.6%	1.1%	0.6%	1.1%	6.6%	6.6%	6.6%	29.0%	29.0%	41.2%	2.8%	16.4%	16.4%	2.8%	0.4%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%			
AM Peak	07:00	7	0	0	0	0	0	0	0	0	0	0	0	10:00	30	30	08:00	07:00	05:00	07:00	07:00	05:00	04:00	04:00	06:00	06:00	04:00	07:00	07:00			
Vol.		7				1				2	2	7	30	30	30	123	123	148	17	74	74	17	3	3	2	2	1	361	361			
PM Peak	15:00	9				13:00				19:00	17:00	17:00	12:00	12:00	12:00	16:00	16:00	16:00	14:00	16:00	14:00	13:00	13:00	19:00	19:00	19:00	16:00	16:00	16:00			
Vol.		9				1				4	5	5	23	23	23	82	82	122	9	60	60	9	1	1	1	1	1	286	286			

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

NB	Start Time	1		16		21		26		31		36		41		46		51		56		61		66		71		76		85th		95th		
		15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent	Percent	Total	Percent	Percent	Total	Percent	Percent	Total	Percent	Percent	Total	Percent	Percent	Total	Percent	
02/20/25																																		
	01:00	1	0	0	0	0	0	2	2	5	2	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	13	57	61			
	02:00	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6	53	54			
	03:00	0	0	0	0	0	0	0	4	2	4	0	0	0	0	0	4	0	3	3	0	0	0	0	0	0	0	0	13	56	58			
	04:00	0	0	0	0	0	0	1	7	3	7	0	0	0	0	0	7	0	2	2	1	1	2	1	1	0	0	0	17	66	70			
	05:00	2	0	0	0	0	0	7	6	21	13	9	1	1	1	0	6	13	0	13	1	9	1	1	1	0	0	0	53	61	64			
	06:00	0	0	0	0	0	0	7	36	61	46	14	2	1	0	0	36	46	82	7	14	14	2	1	1	0	0	0	171	59	63			
	07:00	6	0	0	0	5	4	12	69	141	73	14	2	2	1	0	60	134	82	7	73	73	2	2	0	0	0	0	293	57	59			
	08:00	4	0	0	1	0	0	10	74	145	49	10	0	0	0	0	74	145	74	10	49	10	0	0	1	0	0	1	329	60	60			
	09:00	1	0	0	0	0	0	15	66	94	42	10	1	0	0	0	66	94	42	10	42	10	1	1	0	0	0	0	229	56	59			
	10:00	3	0	0	1	0	2	3	54	103	30	9	1	0	0	0	54	103	30	30	30	9	1	1	0	0	0	0	206	56	59			
	11:00	4	0	0	0	0	0	24	56	95	24	4	0	0	0	0	56	95	24	24	24	4	0	0	0	0	0	0	207	54	58			
	12 PM	7	0	0	1	0	0	7	59	81	31	10	1	0	0	0	59	81	31	31	31	10	1	1	0	0	0	0	197	57	60			
	13:00	4	0	0	0	0	9	18	63	80	24	4	1	0	0	0	63	80	24	24	24	4	1	1	0	0	0	0	203	54	58			
	14:00	4	0	0	0	0	0	12	58	116	36	1	0	0	0	0	58	116	36	36	36	1	0	0	0	0	0	1	228	55	58			
	15:00	10	0	0	0	0	10	17	79	108	50	9	0	0	0	0	79	108	50	50	50	9	0	0	0	0	0	0	0	283	56	59		
	16:00	7	0	0	0	1	3	16	87	136	48	5	1	0	0	0	87	136	48	48	48	5	1	1	0	0	0	0	304	55	59			
	17:00	5	0	0	1	0	3	2	51	97	48	5	2	0	0	0	51	97	48	48	48	5	2	2	0	0	0	0	214	57	59			
	18:00	2	0	0	0	1	0	13	58	63	15	5	0	0	0	0	58	63	15	15	15	5	0	0	0	0	0	0	157	54	59			
	19:00	1	0	0	0	1	4	8	33	38	17	5	1	0	0	0	33	38	17	17	17	5	1	0	0	0	0	0	108	56	60			
	20:00	2	0	0	0	0	2	13	18	30	4	2	0	0	0	0	18	30	4	4	4	2	0	0	0	0	0	0	71	54	58			
	21:00	0	0	0	0	0	2	4	10	17	8	3	1	1	0	0	10	17	8	8	8	3	1	1	1	0	0	0	46	58	64			
	22:00	0	0	0	0	0	2	2	7	17	9	3	1	0	0	0	7	17	9	9	9	3	1	1	0	0	0	0	41	58	63			
	23:00	0	0	0	0	0	0	3	10	7	3	2	0	0	0	0	10	7	3	3	3	2	0	0	0	0	0	0	25	57	61			
Total		63	0	0	4	10	44	201	970	1597	659	133	18	7	2	3708																		
Percent		1.7%	0.0%	0.0%	0.1%	0.3%	1.2%	5.4%	26.2%	43.1%	17.8%	3.6%	0.5%	0.2%	0.1%																			
AM Peak		07:00			08:00	07:00	07:00	11:00	08:00	08:00	06:00	05:00	03:00	07:00	07:00	07:00														07:00				
Vol.		6			1	5	4	24	74	145	82	14	2	2	1	329														329				
PM Peak		15:00			12:00	16:00	15:00	13:00	16:00	16:00	15:00	12:00	17:00	21:00	14:00	16:00														16:00				
Vol.		10			1	1	10	18	87	136	50	10	2	1	1	304														304				

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

NB	Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 99	Total	85th Percent	95th Percent	
02/21/25	01:00	0	0	0	0	0	0	2	8	7	4	1	0	0	0	22	57	59	
	02:00	0	0	0	0	0	0	0	3	1	1	0	0	0	0	5	56	58	
	03:00	0	0	0	0	0	0	2	2	3	0	1	0	0	0	8	54	62	
	04:00	0	0	0	0	0	1	1	3	0	5	3	0	1	0	14	63	71	
	05:00	0	0	0	0	1	2	5	6	17	11	7	2	0	1	52	60	64	
	06:00	1	0	0	0	0	1	8	16	56	53	15	2	1	0	153	59	63	
	07:00	2	0	0	1	14	1	65	120	61	61	15	2	0	1	284	57	60	
	08:00	3	0	0	0	18	14	100	154	56	3	2	2	2	0	357	55	59	
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total		6	0	0	1	8	19	50	203	358	191	45	8	4	2	895			
Percent	0.7%	0.0%	0.0%	0.1%	0.9%	2.1%	5.6%	22.7%	40.0%	21.3%	5.0%	0.9%	0.4%	0.2%					
AM Peak	07:00				06:00	07:00	07:00	07:00	07:00	07:00	06:00	05:00	04:00	07:00	04:00	07:00			
Vol.		3		1		5	14	18	100	154	61	15	2	2	1	357			
PM Peak																			
Vol.																			
Total		242	0	2	16	53	147	832	3785	5776	2387	442	66	30	6	13784			
Percent	1.8%	0.0%	0.0%	0.1%	0.4%	1.1%	3.2%	17.3%	27.5%	41.9%	17.3%	3.2%	0.5%	0.2%	0.0%				

Stats	10 MPH Pace Speed :	46-55 MPH
	Number in Pace :	9561
	Percent in Pace :	69.4%
	Number of Vehicles > 50 MPH :	8707
	Percent of Vehicles > 50 MPH :	63.2%
	Mean Speed(Average) :	51 MPH

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

SB	Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
	02/17/25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	8	1	1	1	1	2	8	50	65	26	1	1	0	0	165	55	58
	12 PM	2	0	0	0	3	6	33	65	49	14	5	0	1	1	179	54	58
	13:00	2	0	0	0	0	2	14	49	90	47	6	0	0	1	211	57	59
	14:00	5	0	0	0	0	0	26	64	119	24	7	1	0	0	246	54	59
	15:00	4	0	0	0	1	3	21	93	141	49	15	3	0	0	330	56	60
	16:00	4	0	0	0	1	2	17	101	137	52	5	0	0	0	319	55	58
	17:00	3	0	0	0	0	0	14	105	98	32	6	2	0	0	260	55	59
	18:00	2	0	0	0	1	7	39	70	83	23	4	1	0	0	230	54	58
	19:00	2	0	0	0	1	3	17	34	41	14	4	0	0	0	116	55	59
	20:00	1	0	0	0	0	4	18	39	40	13	0	0	0	0	115	54	57
	21:00	0	0	0	0	0	0	11	29	29	11	2	0	0	0	82	55	59
	22:00	0	0	0	0	1	0	3	17	13	11	1	0	2	1	49	58	63
	23:00	0	0	0	0	1	1	4	12	11	5	0	0	0	0	34	54	58
	Total	33	1	1	1	10	30	225	728	916	321	56	8	3	3	2336		
	Percent	1.4%	0.0%	0.0%	0.0%	0.4%	1.3%	9.6%	31.2%	39.2%	13.7%	2.4%	0.3%	0.1%	0.1%			
	AM Peak	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00			11:00		
	Vol.	8	1	1	1	1	2	8	50	65	26	1	1			165		
	PM Peak	14:00				12:00	18:00	18:00	17:00	15:00	16:00	15:00	15:00	22:00	12:00	15:00		
	Vol.	5				3	7	39	105	141	52	15	3	2	1	330		

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

SB	Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
		15	20	25	30	35	40	45	50	55	60	65	70	75	999			
02/18/25	0	0	0	0	0	0	0	3	7	7	4	1	0	0	0	22	57	59
01:00	0	0	0	0	0	0	2	2	4	4	2	0	1	0	0	15	56	66
02:00	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	5	56	58
03:00	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	5	66	68
04:00	0	0	0	0	0	0	0	1	9	8	7	4	0	0	0	29	59	63
05:00	0	0	0	1	0	0	0	0	9	14	4	2	0	0	0	30	56	61
06:00	7	0	0	0	0	0	3	1	36	58	18	10	3	1	0	137	58	63
07:00	8	0	0	1	2	0	4	15	84	85	35	12	0	0	2	248	56	59
08:00	4	0	0	0	0	0	7	25	69	70	14	8	1	0	0	198	54	59
09:00	7	1	0	1	1	0	6	22	65	54	13	7	1	0	0	178	54	59
10:00	2	0	0	0	1	2	2	37	61	50	20	4	0	0	0	179	54	58
11:00	5	0	0	0	0	0	7	22	68	57	23	0	0	1	0	183	54	58
12 PM	1	0	0	0	0	0	2	31	83	59	14	5	2	0	0	197	54	58
13:00	5	0	0	0	0	0	1	14	80	67	25	3	2	0	0	197	55	59
14:00	5	0	0	0	4	2	2	14	92	127	21	6	0	0	0	273	54	58
15:00	12	0	0	0	0	1	5	20	134	134	46	6	2	0	0	360	55	58
16:00	9	0	0	0	0	0	6	22	143	135	48	7	1	0	1	372	55	58
17:00	8	0	0	0	0	0	3	30	114	100	32	4	1	1	0	293	54	58
18:00	4	0	0	0	0	0	5	47	84	50	10	3	2	1	0	206	53	57
19:00	2	0	0	0	0	0	1	20	62	59	12	2	0	0	0	158	54	57
20:00	0	0	0	0	3	2	1	16	62	41	8	2	1	1	0	137	53	58
21:00	1	0	0	0	0	0	2	8	25	30	6	1	1	0	0	74	54	58
22:00	0	0	0	0	0	0	1	8	24	19	9	2	0	0	0	63	55	59
23:00	0	0	0	0	0	0	1	4	18	8	3	1	0	0	0	35	54	58
Total	80	1	1	3	11	7	62	363	1335	1238	376	91	19	5	3	3594		
Percent	2.2%	0.0%	0.1%	0.3%	0.2%	0.2%	1.7%	10.1%	37.1%	34.4%	10.5%	2.5%	0.5%	0.1%	0.1%			
AM Peak	07:00	09:00	05:00	07:00	10:00	10:00	08:00	10:00	07:00	07:00	07:00	07:00	06:00	06:00	07:00	07:00		
Vol.	8	1	1	2	2	2	7	37	84	85	35	12	3	1	2	248		
PM Peak	15:00			14:00	14:00	18:00	16:00	18:00	16:00	16:00	16:00	16:00	12:00	17:00	16:00	16:00		
Vol.	12			4	2	2	6	47	143	135	48	7	2	1	1	372		

Site Code: 1
Station ID:
A to B NB

Latitude: 39' 38.2985 North
Longitude: 75' 7.4675 West

SB	Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
		15	20	25	30	35	40	45	50	55	60	65	70	75	99			
	02/19/25	0	0	0	0	0	0	2	4	6	3	2	0	0	0	17	59	62
	01:00	0	0	0	0	0	0	1	1	6	2	1	0	0	0	11	58	62
	02:00	0	0	0	0	0	0	3	4	1	0	0	0	0	0	8	49	53
	03:00	0	0	0	0	0	2	2	1	4	0	3	0	0	0	13	61	63
	04:00	0	0	0	0	0	0	2	3	7	6	0	0	0	1	19	57	59
	05:00	0	0	0	0	0	0	2	9	13	5	3	1	0	0	33	59	63
	06:00	2	0	0	0	1	0	12	54	53	25	1	0	0	0	148	55	58
	07:00	7	0	1	1	1	0	13	75	95	38	5	1	0	0	237	56	59
	08:00	2	0	0	0	1	1	30	100	73	8	3	0	0	0	218	53	55
	09:00	4	0	0	1	0	1	18	58	48	11	1	0	1	0	143	54	57
	10:00	1	0	0	0	2	7	34	71	46	19	2	0	0	0	182	54	58
	11:00	0	0	0	0	0	1	19	43	57	26	4	0	0	0	150	56	59
	12 PM	2	0	0	0	0	3	21	59	72	39	12	0	0	0	208	57	60
	13:00	2	0	2	5	1	2	12	38	88	56	10	1	1	0	218	58	60
	14:00	2	0	0	0	0	2	7	48	88	65	14	4	1	0	234	58	62
	15:00	8	2	1	0	1	3	12	80	131	78	19	1	0	0	336	58	60
	16:00	6	0	0	0	0	0	17	82	161	97	15	1	1	0	380	57	59
	17:00	5	0	0	0	0	3	25	122	117	43	4	0	0	0	319	54	58
	18:00	7	0	0	0	0	1	19	86	86	32	6	1	0	0	238	55	59
	19:00	1	0	0	0	0	2	16	42	70	25	7	1	0	0	164	56	59
	20:00	1	0	0	0	0	0	12	43	60	20	5	2	0	0	143	56	59
	21:00	1	0	0	0	0	2	3	23	31	23	6	2	2	0	93	59	64
	22:00	0	0	0	0	1	0	2	18	25	16	0	0	2	0	64	57	59
	23:00	0	0	0	0	0	0	0	16	13	7	10	2	1	0	49	62	66
	Total	51	2	4	7	11	30	284	1080	1351	645	133	17	9	1	3625		
	Percent	1.4%	0.1%	0.1%	0.2%	0.3%	0.8%	7.8%	29.8%	37.3%	17.8%	3.7%	0.5%	0.2%	0.0%			
	AM Peak	07:00		07:00	07:00	10:00	10:00	10:00	08:00	07:00	07:00	07:00	05:00	09:00	04:00	07:00		
	Vol.	7		1	1	2	7	34	100	95	38	5	1	1	1	237		
	PM Peak	15:00	15:00	13:00	13:00	14:00	12:00	17:00	17:00	16:00	16:00	15:00	14:00	21:00		16:00		
	Vol.	8	2	2	5	3	3	25	122	161	97	19	4	2		380		

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

SB	Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
		15	20	25	30	35	40	45	50	55	60	65	70	75	999			
	02/20/25	0	0	0	0	0	0	1	6	9	1	2	0	0	0	19	55	62
	01:00	0	0	0	0	0	0	0	4	4	0	1	0	0	0	9	54	62
	02:00	0	0	0	0	0	0	0	3	4	2	2	0	0	0	11	60	63
	03:00	0	0	0	0	0	0	0	1	4	1	2	1	0	0	9	64	67
	04:00	0	0	0	0	0	0	0	1	10	5	3	1	1	0	21	63	69
	05:00	1	0	0	0	0	1	2	5	12	12	7	3	0	3	46	62	66
	06:00	2	0	0	0	0	1	4	25	54	34	8	3	1	0	132	58	63
	07:00	6	0	0	0	0	0	0	43	84	69	16	2	2	0	222	59	62
	08:00	8	0	0	0	0	2	8	41	100	53	5	2	0	0	219	57	59
	09:00	2	0	0	0	0	0	15	66	43	29	8	0	0	0	163	57	59
	10:00	5	0	0	0	0	1	7	40	61	35	6	1	1	0	157	57	60
	11:00	5	0	0	0	0	1	10	43	84	25	10	1	0	0	179	56	61
	12 PM	3	0	0	0	0	1	21	52	98	41	8	0	1	0	225	56	59
	13:00	2	0	0	0	0	0	11	54	89	32	10	2	1	0	202	57	61
	14:00	7	1	0	0	0	0	20	77	124	41	4	1	0	1	276	55	58
	15:00	9	1	1	0	3	11	16	107	136	60	16	2	1	0	363	57	60
	16:00	2	0	0	0	0	10	13	74	150	74	12	4	0	0	339	57	59
	17:00	4	0	0	0	0	4	18	92	124	53	9	0	0	0	304	56	59
	18:00	3	0	0	0	2	3	10	77	89	43	3	0	0	0	230	56	59
	19:00	2	0	0	0	0	0	0	38	66	33	5	1	0	0	156	57	59
	20:00	3	0	0	1	1	6	16	40	34	24	2	2	0	0	129	56	59
	21:00	0	0	0	0	0	1	11	30	38	17	6	0	0	0	103	57	60
	22:00	0	0	0	0	0	2	6	18	21	8	3	1	0	0	59	56	61
	23:00	0	0	0	0	1	1	3	14	11	7	0	0	0	0	37	56	58
	Total	64	2	2	1	7	45	203	951	1449	699	148	27	8	4	3610		
	Percent	1.8%	0.1%	0.1%	0.0%	0.2%	1.2%	5.6%	26.3%	40.1%	19.4%	4.1%	0.7%	0.2%	0.1%			
	AM Peak	08:00					08:00	09:00	09:00	08:00	07:00	07:00	05:00	07:00	05:00	07:00		
	Vol.	8					2	15	66	100	69	16	3	2	3	222		
	PM Peak	15:00	14:00	13:00	20:00	15:00	15:00	12:00	15:00	16:00	16:00	15:00	16:00	12:00	14:00	15:00		
	Vol.	9	1	1	1	3	11	21	107	150	74	16	4	1	1	363		

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

SB	Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	85th		95th	
	Time	15	20	25	30	35	40	45	50	55	60	65	70	75	99	Total	Percent	Percent	Percent
	02/21/25	0	0	0	0	0	2	0	5	5	6	3	2	0	1	24	62	67	
	01:00	0	0	0	0	0	0	0	3	5	0	0	0	0	0	8	53	54	
	02:00	0	0	0	0	0	0	0	5	3	2	0	0	0	0	10	56	58	
	03:00	0	0	0	0	0	0	2	1	3	2	2	0	0	0	10	61	63	
	04:00	0	0	0	0	0	0	1	3	3	6	4	0	0	1	18	61	63	
	05:00	1	0	0	0	0	0	0	7	21	10	4	1	0	0	44	59	63	
	06:00	2	0	0	0	0	0	2	36	56	28	8	4	0	0	136	58	63	
	07:00	3	0	0	0	0	2	6	49	67	65	15	1	1	0	209	58	62	
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	Total	6	0	0	0	0	4	11	109	163	119	36	8	1	2	459			
	Percent	1.3%	0.0%	0.0%	0.0%	0.0%	0.9%	2.4%	23.7%	35.5%	25.9%	7.8%	1.7%	0.2%	0.4%				
	AM Peak	07:00					00:00	07:00	07:00	07:00	07:00	07:00	06:00	07:00	00:00	07:00			
	Vol.	3					2	6	49	67	65	15	4	1	1	209			
	PM Peak																		
	Vol.																		
	Total	234	6	10	20	35	171	1086	4203	5117	2160	464	79	26	13	13624			
	Percent	1.7%	0.0%	0.1%	0.1%	0.3%	1.3%	8.0%	30.8%	37.6%	15.9%	3.4%	0.6%	0.2%	0.1%				

Stats

10 MPH Pace Speed :	46-55 MPH
Number in Pace :	9320
Percent in Pace :	68.4%
Number of Vehicles > 50 MPH :	7859
Percent of Vehicles > 50 MPH :	57.7%
Mean Speed(Average) :	51 MPH

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Buck Rd
Location: 275 ft N of Vivian Ln
Counter: 40618

Site Code: 1
Station ID:
A to B NB

Latitude: 39° 38.2985 North
Longitude: 75° 7.4675 West

Start Time	Monday, February 17, 2025		Tuesday, February 18, 2025		Wednesday, February 19, 2025		Thursday, February 20, 2025		Friday, February 21, 2025		Saturday, February 22, 2025		Sunday, February 23, 2025		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	19	22	16	17	13	19	22	24	*	*	*	*	18	20
01:00	*	*	6	15	6	11	6	9	5	8	*	*	*	*	6	11
02:00	*	*	8	5	8	8	13	11	8	10	*	*	*	*	9	8
03:00	*	*	16	5	16	13	17	9	14	10	*	*	*	*	16	9
04:00	*	*	62	29	56	19	53	21	52	18	*	*	*	*	56	22
05:00	*	*	163	30	149	33	171	46	153	44	*	*	*	*	159	38
06:00	*	*	305	137	283	147	293	132	284	136	*	*	*	*	291	138
07:00	*	*	348	246	361	236	328	222	357	209	*	*	*	*	348	228
08:00	*	*	303	196	301	217	293	219	*	*	*	*	*	*	299	211
09:00	*	*	239	177	251	142	229	163	*	*	*	*	*	*	240	161
10:00	*	*	200	178	188	182	205	156	*	*	*	*	*	*	198	172
11:00	200	163	196	182	174	150	206	177	*	*	*	*	*	*	194	168
12:00 PM	217	179	183	197	170	208	195	224	*	*	*	*	*	*	191	202
01:00	187	211	205	195	202	218	202	202	*	*	*	*	*	*	199	206
02:00	201	244	209	271	219	234	227	275	*	*	*	*	*	*	214	256
03:00	248	329	262	360	245	334	283	363	*	*	*	*	*	*	260	346
04:00	197	317	276	370	284	378	303	339	*	*	*	*	*	*	265	351
05:00	192	260	216	293	270	318	214	304	*	*	*	*	*	*	223	294
06:00	160	230	166	205	162	237	156	229	*	*	*	*	*	*	161	225
07:00	82	116	102	158	108	164	108	155	*	*	*	*	*	*	100	148
08:00	58	115	67	137	67	143	71	128	*	*	*	*	*	*	66	131
09:00	42	82	58	74	64	93	46	103	*	*	*	*	*	*	52	88
10:00	33	49	29	63	38	64	41	59	*	*	*	*	*	*	35	59
11:00	19	34	16	35	23	49	25	37	*	*	*	*	*	*	21	39
Total	1836	2329	3654	3580	3661	3615	3698	3602	895	459	0	0	0	0	3621	3531
Day	4165		7234		7276		7300		1354		0		0		7152	
AM Peak	11:00	11:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	-	-	-	-	07:00	07:00
Vol.	200	163	348	246	361	236	328	222	357	209	-	-	-	-	348	228
PM Peak	15:00	15:00	16:00	16:00	16:00	16:00	16:00	15:00	-	-	-	-	-	-	16:00	16:00
Vol.	248	329	276	370	284	378	303	363	-	-	-	-	-	-	265	351

Comb. Total

4165

7234

7276

7300

1354

0

7152

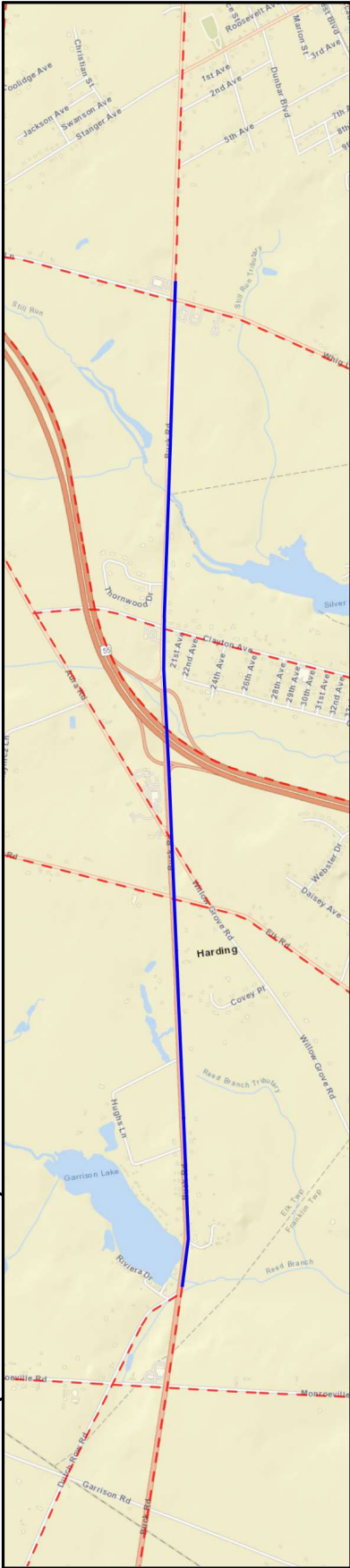
ADT

ADT 7,145

AADT 7,145

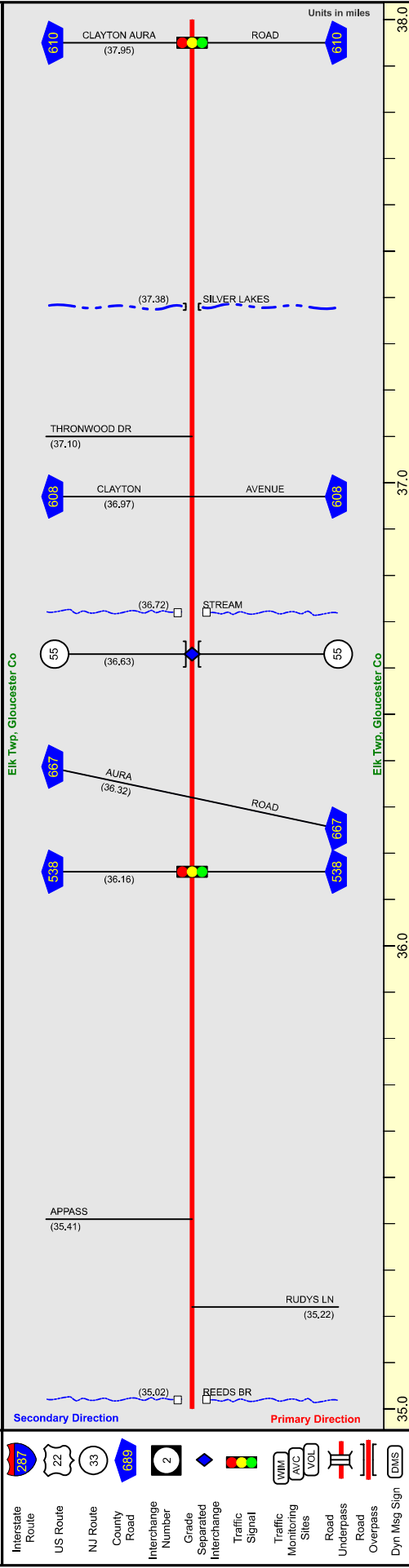
ROUTE 553 (South to North)

Mile Posts: 35.000 - 38.000



	Secondary Direction
	Primary Direction

Pavement
Shoulder
Number of Lanes
Speed Limit
Street Name



Street Name	Buck Road
Jurisdiction	County
Functional Class	Urban Minor Arterial
Federal Aid - NHS Sy	STP
Control Section	
Speed Limit	45
Number of Lanes	2
Med. Type	None
Med. Width	24
Pavement	4
Shoulder	2
Traffic Volume	7,523 (2019)
Traffic Sta. ID	90914
Structure No.	080901
Enlarged Views	080901

Date last inventoried: June 2012

SRI = 00000553

Appendix B:
2025 Existing Conditions Analysis and LOS Output Summaries



Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	328	222	1
Future Vol, veh/h	1	1	1	328	222	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	97	97
Heavy Vehicles, %	0	0	0	14	13	0
Mvmt Flow	1	1	1	360	229	1

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	592	229	230	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	472	815	1350	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	472	815	1350	-	-	-
Mov Cap-2 Maneuver	472	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.05	0.02	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	5	-	598	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Ctrl Dly (s/v)	7.7	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	303	339	1
Future Vol, veh/h	1	1	1	303	339	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	97	97
Heavy Vehicles, %	0	0	0	10	19	0
Mvmt Flow	1	1	1	333	349	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	685	350	351	0	-	0
Stage 1	350	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	417	698	1220	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	416	698	1220	-	-	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	11.93	0.03		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	6	-	522	-	-	
HCM Lane V/C Ratio	0.001	-	0.004	-	-	
HCM Ctrl Dly (s/v)	8	0	11.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Appendix C: Adjacent Development Information



Shropshire Associates LLC

SBE Certified

Traffic Engineering, Transportation Planning & Design

277 White Horse Pike, Suite 203, Atco, NJ 08004
P: 609-714-0400 F: 609-714-9944 www.sallc.org

David R. Shropshire, PE, PP
A Andrew Feranda, PE, PTOE, CME
Randal C. Barranger, PE
Nathan B. Mosley, PE, CME

November 21, 2024

EL-00695n

Balkar Saini
14 Ponty Road
Monmouth Junction, NJ 08552

(via email: balkarsaini963@gmail.com)

Re: **Traffic Engineering Assessment – Phase 1**
Commercial Center – Elk Township
Buck Road (C.R. 553) and Elk Road (C.R. 538)
Elk Township, Gloucester County, New Jersey
SA Project No. 22158

RECEIVED

JAN 07 2025

PLANNING DIVISION

Dear Mr. Saini:

At your request, Shropshire Associates, LLC prepared this traffic engineering assessment (TEA) to support applications to Elk Township and Gloucester County for the above referenced commercial development. The proposal is for the construction of a 4,180 square-foot (sf) convenience store with ten (10) fueling positions, three (3) diesel fueling positions, 24 parking spaces, and 28 truck parking spaces. The proposed development will be located on the southwest corner of Elk Road (CR 538) and Buck Road (CR 553) with frontage along eastbound Elk Road and along southbound Buck Road in Elk Township, Gloucester County, NJ.

Access to the proposed development will be provided via five (5) site driveways. One (1) full-movement driveway and one (1) right-turn ingress-only driveway are proposed along eastbound Elk Road (CR 538). Two (2) full-movement driveways and one (1) ingress-only driveway are proposed along southbound Buck Road (CR 553). Final approval for the driveways will be required from Gloucester County.

Existing Conditions

A field reconnaissance was conducted to determine the features of the adjacent roadway network within the study area. A description of the roadways and intersections within the study area are provided below.

Along the site's frontage, **Elk Road (CR 538)** is a two-lane roadway under Gloucester County jurisdiction and is classified¹ as an Urban Major Collector east of its intersection with Buck Road (CR 553) and a Rural Major Collector west of its intersection with Buck Road (CR 553). Elk Road has an approximate cartway width of 26 (foot) ft which consists of one (1) 11 ft travel lane and 2 ft shoulder in each direction. The posted speed limit along this section of Elk Road is 45 MPH. For the purpose of this study, Elk Road is assumed to extend in a general east-west direction.

Along the site's frontage, **Buck Road (CR 538)** is a two-lane roadway under Gloucester County jurisdiction and is classified as an Urban Major Collector north of its intersection with Elk

¹ NJDOT Straight Line Diagrams



Road (CR 538) and a Rural Major Collector south of its intersection with Elk Road (CR 538). Buck Road has an approximate cartway width of 32 ft which consists of one (1) 12 ft travel lane and 4 ft shoulder in each direction. The posted speed limit along this section of Buck Road is 50 MPH. For the purpose of this study, Buck Road is assumed to extend in a general north-south direction.

In the vicinity of the site, **Willow Grove Road/Aura Road (CR 667)** is a two-lane roadway under Gloucester County jurisdiction west of its intersection with Elk Road (CR 538) and under Elk Township jurisdiction east of its intersection with Elk Road (CR 538). Willow Grove Road extends from south of its intersection with Elk Road (CR 538) to its intersection with Buck Road (CR 553) where it becomes Aura Road to the west of its intersection with Buck Road (CR 553). Willow Grove Road/Aura Road is classified as an Urban Major Collector north of its intersection with Elk Road (CR 538) and a local road south of its intersection with Elk Road (CR 538). Willow Grove Road/Aura Road has an approximate cartway width of 26 ft which consists of one (1) 12 ft travel lane and 1 ft shoulder in each direction. The posted speed limit along this section of Willow Grove Road/Aura Road is 25 MPH. For the purpose of this study, Willow Grove Road/Aura Road is assumed to extend in a general north-south direction at its intersection with Elk Road (CR 538) and a general east-west direction at its intersection with Buck Road (CR 553).

The **Elk Road (CR 538)/Buck Road (CR 553)** signalized intersection is currently controlled by a two-phase semi-actuated traffic signal with a variable background cycle during the weekday AM, weekday PM, and Saturday peak hours. All approaches to the intersection consist of one (1) lane for left-turn movements and one (1) lane for shared through/right-turn movements.

The **Elk Road (CR 538)/Willow Grove Road (CR 667)** intersection is a four-way intersection that is stop-controlled along the northbound and southbound Willow Grove Road approaches. All approaches to the intersection consist of a single lane for all permitted movements.

The **Buck Road (CR 553)/Willow Grove Road-Aura Road (CR 667)** intersection is a four-way intersection that is stop-controlled along the eastbound Aura Road and westbound Willow Grove Road approaches. All approaches to the intersection consist of a single lane for all permitted movements.

Roadway Parking

Currently, there is no parking permitted along Elk Road, Buck Road, and Willow Grove Road/Aura Road in the vicinity of the existing site. No on-street parking is permitted in conjunction with our application. All proposed parking is off-street.

Roadway Geometrics

Based upon our review of the plans and field visits to the site, the roadway pavement in the vicinity of the site is generally in good condition outside of the areas to be replaced as part of the proposed widening and improvements. Sight distances at all site driveways will meet current AASHTO design criteria.

The existing Elk Road/Buck Road signalized intersection has been designed to generally provide for a desirable alignment between the roadways. In addition, all site driveways proposed to the adjacent roadway network will be aligned to provide for safe and efficient movements between the development and the adjacent roadway network.



Traffic Counts

Traffic counts were conducted at the study intersections during morning and evening commuter peak periods and the Saturday mid-day peak periods considered critical peak periods of analysis for the proposed commercial development. To determine the amount of traffic on the adjacent roadway, manual turning movement counts (MTMC) were conducted on a typical Thursday, January 11, 2024, at the study intersections. Additionally, counts were conducted on Saturday, January 13, 2024. The MTMCs were conducted during the morning (7:00 AM – 9:00 AM), afternoon (4:00 PM – 6:00 PM), and Saturday mid-day (11:00 AM – 2:00 PM) peak periods. The existing volumes are illustrated in Figure 1. The existing AM, PM, and Saturday traffic count data is attached for reference.

In addition to the MTMC data at the study intersection, as required by Gloucester County, automatic traffic recorders (ATR) were placed along Elk Road and Buck Road in the vicinity of the proposed site driveways to collect hourly, daily, and weekly two-way traffic volumes. A copy of this data is attached to the end of this report for reference. The data collected indicates that the peak time of the existing County roadway occurs during the above-referenced peak periods when the intersection count was done.

Future Conditions

The traffic resulting from the proposed development will not affect the adjacent roadway network until it is fully built-out and occupied, which is anticipated to be by the year 2026. It can be expected that the traffic volumes along the adjacent roadways will increase as a result of general traffic growth in the vicinity of the site. Based on the *Annual Background Growth Table* prepared by NJDOT, a 1.25% annual traffic growth will occur along Elk Road, Buck Road, and Willow Grove Road/Aura Road north of Elk Road and 1.00% annual traffic growth will occur along Willow Grove Road south of Elk Road in the vicinity of the site. To be conservative the 1.25 % growth rate was used for all roadways. The projected 2026 No-Build volumes are illustrated on Figure 2.

ITE Trip Generation

The proposal is for the initial construction of a 4,180 square-foot (sf) convenience store with ten (10) fueling positions, three (3) diesel fueling positions, 24 parking spaces, an 28 truck parking spaces. The amount of traffic to be generated by the proposed convenience store with gas development can best be determined by using data published by the Institute of Transportation Engineers (ITE). ITE has compiled data from thousands of studies for various land uses, independent variables, and study periods and published the results in *Trip Generation, 11th Edition*. The development is most similar to ITE Land Use 945: Convenience Store/Gas Station and ITE Land Use 950: Truck Fueling.

The traffic to be generated by the proposed convenience store with gas will be a combination of new trips and pass-by trips to the roadway system. A new trip is a trip whose primary purpose for being on the roadway is to patronize the development. A pass-by trip consists of a motorist who is already on the roadway with another trip purpose (i.e. home/work trip) and stops into the facility on their way.

Pass-by trips reduce the development's impact on the roadway since these trips consist of motorists that are already driving along the adjacent roadway network and are captured in the existing MTMC data. Using the ITE and NJDOT approved pass-by rates, the proposed convenience store with gas will have pass-by rates of 76% in the AM peak hour, 76% in the PM



peak hour, and 50% in the Saturday midday peak hour. The projected total, pass-by, and new trips to be generated by the proposed convenience store with gas and truck fueling facility are indicated in Table 1.

Table 1									
ITE Trip Generation – Commercial Center - Elk									
Land Use	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
New Trips									
Truck Fueling (3 Fueling Positions)	21	21	42	25	21	46	25	21	46
Convenience Store with Gas (10 Fueling Positions)	19	20	39	22	22	44	43	43	86
Total New Trips	40	41	81	47	43	90	68	64	132
Pass-By Trips									
Convenience Store with Gas (10 Fueling Positions)	61	61	122	70	70	140	42	42	84

The site traffic must then be distributed to the adjacent roadway network based on circulation patterns which site generated traffic can be expected to travel to and from the site. As required by Gloucester County, the site traffic was assigned to the roadway network based on a 5-mile gravity model analysis of the surrounding municipalities and population densities in the vicinity of the site. A copy of the gravity model analysis is attached for your review, with the site traffic distribution percentages shown in Figure 3. The resulting site traffic assignments for the diesel fuel and convenience store/gas station are illustrated on Figures 4A, 4B, 4C, 4D, and 4E. In order to project the future Build traffic conditions, the No-Build traffic volumes (Figure 2) were combined with the total site traffic (Figure 4E). The Build traffic volumes are illustrated on Figure 5.

Operational Analysis

In order to measure the quality of the traffic flow for the adjacent roadways and intersections, capacity analyses for the study intersections have been completed based upon the methods outlined in the *2010 Highway Capacity Manual*. Capacity analysis is a procedure used to estimate the ability of the roadway network to carry traffic. Capacity analyses are performed based on a Level of Service methodology. Level of Service (LOS) is a qualitative measure that characterizes the operational conditions of a roadway or intersection based on the perceptions by motorists and passengers. Levels of Service are defined for each type of facility (i.e. freeways, highways, signalized intersections, unsignalized intersections). These Levels of Service range from LOS A to LOS F, with a LOS A representing the best operating conditions and a LOS F representing the worst operating conditions.

The Levels of Service for signalized intersections are classified in terms of delay, which is based on the extent of driver discomfort and frustration, fuel consumption and lost travel time. The delay experienced by a motorist consists of many factors that relate to control, geometrics



and traffic. Some of these factors include the quality of progression, traffic signal cycle length, the green ratio and the volume-to-capacity ratio. The determination for the Level of Service for an unsignalized intersection is based upon the average control delay associated with each minor movement (i.e. yielding left-turn movements from the major roads and stop-controlled movements from the minor approaches). The Level of Service criteria for signalized and unsignalized intersections is summarized below in Table 2.

Table 2 Level of Service Criteria		
Level of Service	Unsignalized Delay (sec)	Signalized Delay (sec)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

In order to assess the traffic impact of the proposed residential development, the study intersections were evaluated under the existing conditions, and future No-Build and Build conditions using the above-described methodology. A detailed description of the study intersection's operations under these scenarios is provided below with the resulting Existing, No-Build and Build Levels of Service illustrated on Figures 6, 7, and 8; respectively. The capacity analysis worksheets are attached for reference.

Elk Road (CR 538) and Buck Road (CR 553) Intersection

Under the existing conditions, the Elk Road and Buck Road signalized intersection operates with an overall LOS B during both the weekday AM and the weekday PM peak hours and an overall LOS A during the Saturday peak hour. All individual movements will operate at LOS B or better during the weekday AM, weekday PM, and Saturday peak hours with the exception of the eastbound Elk Road left-turn movements which operate with an LOS C during the weekday AM peak hour.

Under the future No-Build and Build conditions, the intersection will continue to operate with an overall LOS B during both the weekday AM and the weekday PM peak hours and an overall LOS A during the Saturday peak hour. All individual movements will continue to operate with existing levels of service during all peak hours.

Elk Road (CR 538) and Willow Grove Road (CR 667) Intersection

Under the existing conditions, the eastbound and westbound Elk Road left-turn movements operate with LOS A during the weekday AM, weekday PM, and Saturday peak hours. The northbound and southbound Willow Grove Road shared left-turn/through/right-turn movements operate with LOS B during the weekday AM, weekday PM, and Saturday peak hours.

Under the future No-Build and Build conditions, all movements at the intersection will continue to operate with existing levels of service during all peak hours.



Buck Road (CR 553) and Willow Grove Road - Aura Road (CR 667) Intersection

Under the existing conditions, the northbound and southbound Buck Road left-turn movements operate with LOS A during the weekday AM, weekday PM, and Saturday peak hours. The eastbound and westbound Willow Grove Road - Aura Road shared left-turn/through/right-turn movements operate with LOS B during the weekday AM, weekday PM, and Saturday peak hours with the exception of the eastbound Willow Grove Road - Aura Road shared left-turn/through/right-turn movements which operate with LOS C during the weekday PM peak hour.

Under the future No-Build conditions, all individual movements at the intersection will continue to operate with Existing levels of service.

Under the future Build conditions, the eastbound Willow Grove Road/Aura Road shared left-turn/through/right-turn movements will operate with LOS C during the weekday AM peak hour. The westbound Willow Grove Road and Aura Road shared left-turn/through/right-turn movements will operate with LOS C during the weekday PM peak hour. All other individual movements at the intersection will operate with Existing levels of service.

Elk Road (CR 538) and Site Driveway #1 Intersection

Under the Build conditions, a new stop-controlled full-movement Site Driveway #1 will be constructed along eastbound Elk Road. All movements at the intersection will operate with a LOS A during the weekday AM, weekday PM, and Saturday peak hours. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

A left-turn lane warrant analysis was performed for westbound Elk Road at the proposed Site Driveway #1 intersection location. Based upon the future weekday AM, weekday PM, and Saturday peak hour volumes and the Highway Research Board Number 211 guidelines, a left-turn lane is **not warranted** for westbound Elk Road during the peak hour conditions. The AM, PM, and Saturday peak hour warrant graphs are attached for your review.

Elk Road (CR 538) and Site Driveway #2 Intersection

Under the Build conditions, a new right-turn ingress-only Site Driveway #2 will be constructed along eastbound Elk Road. As there are no stop-controlled or conflicting movements, levels of service are not available for this intersection. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

Buck Road (CR 553) and Site Driveway #3 Intersection

Under the Build conditions, a new right-turn ingress-only Site Driveway #3 will be constructed along southbound Buck Road. As there are no stop-controlled or conflicting movements, levels of service are not available for this intersection. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

Buck Road (CR 553) and Site Driveway #4 Intersection

Under the Build conditions, a new stop-controlled full-movement Site Driveway #4 will be constructed along southbound Buck Road. All movements at the intersection will operate with



LOS B or better during the weekday AM, weekday PM, and Saturday peak hours. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

A left-turn lane warrant analysis was performed for northbound Buck Road at the proposed Site Driveway #4 intersection location. Based upon the future weekday AM, weekday PM, and Saturday peak hour volumes and the Highway Research Board Number 211 guidelines, a left-turn lane is **not warranted** for northbound Buck Road during the peak hour conditions. The AM, PM, and Saturday peak hour warrant graphs are attached for your review.

Buck Road (CR 553) and Site Driveway #5 Intersection

Under the Build conditions, a new stop-controlled full-movement Site Driveway #5 will be constructed along southbound Buck Road. All movements at the intersection will operate with LOS B or better during the weekday AM, weekday PM, and Saturday peak hours. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

A left-turn lane warrant analysis was performed for northbound Buck Road at the proposed Site Driveway #5 intersection location. Based upon the future weekday AM, weekday PM, and Saturday peak hour volumes and the Highway Research Board Number 211 guidelines, a left-turn lane is **not warranted** for northbound Buck Road during the peak hour conditions. The AM, PM, and Saturday peak hour warrant graphs are attached for your review.

Conclusion

Based upon the data and analysis provided in this traffic engineering assessment, the traffic resulting from the proposed commercial development will not have significant impact on the adjacent roadway network based upon the following conclusions:

- The proposed convenience store with gas and diesel with tractor trailer parking development will generate 81 new trips during the weekday AM peak hour, 90 new trips during the weekday PM peak hour, and 132 new trips during the Saturday peak hour. These trips will be distributed among the five (5) proposed driveways.
- Under the Build conditions, the Elk Road (CR 538) and Buck Road (CR 553) signalized intersection will continue to operate with an overall LOS B during both the weekday AM and the weekday PM peak hours and an overall LOS A during the Saturday peak hour. All individual movements at the intersection will continue to operate with Existing levels of service, LOS C or better during all peak hours.
- Under the Build conditions, all individual movements at the Elk Road (CR 538) and Willow Grove Road (CR 667) intersection continue to operate at existing levels of service of LOS B or better during all peak hours.
- Under the Build conditions, all individual movements at the Buck Road (CR 553) and Willow Grove Road - Aura Road (CR 667) intersection will operate with LOS C or better during all peak hours.



- Under the Build conditions, five (5) site driveways will be constructed with two (2) located along eastbound Elk Road (CR 538) and three (3) being located along southbound Buck Road (CR 553). All individual movements at the proposed site driveway locations will operate with a LOS B or better during all peak hours. Left-turn warrant analysis were performed for the site full-movement site driveways and left-turn lanes were not warranted during all peak hours under the Build conditions. Final approval is required from Gloucester County with regards to the location, design, and operation of these driveways.

Please call if you have any questions.

Sincerely,
Shropshire Associates LLC

A handwritten signature in cursive script that reads "A. Andrew Feranda".

A. Andrew Feranda, PE, PTOE, CME

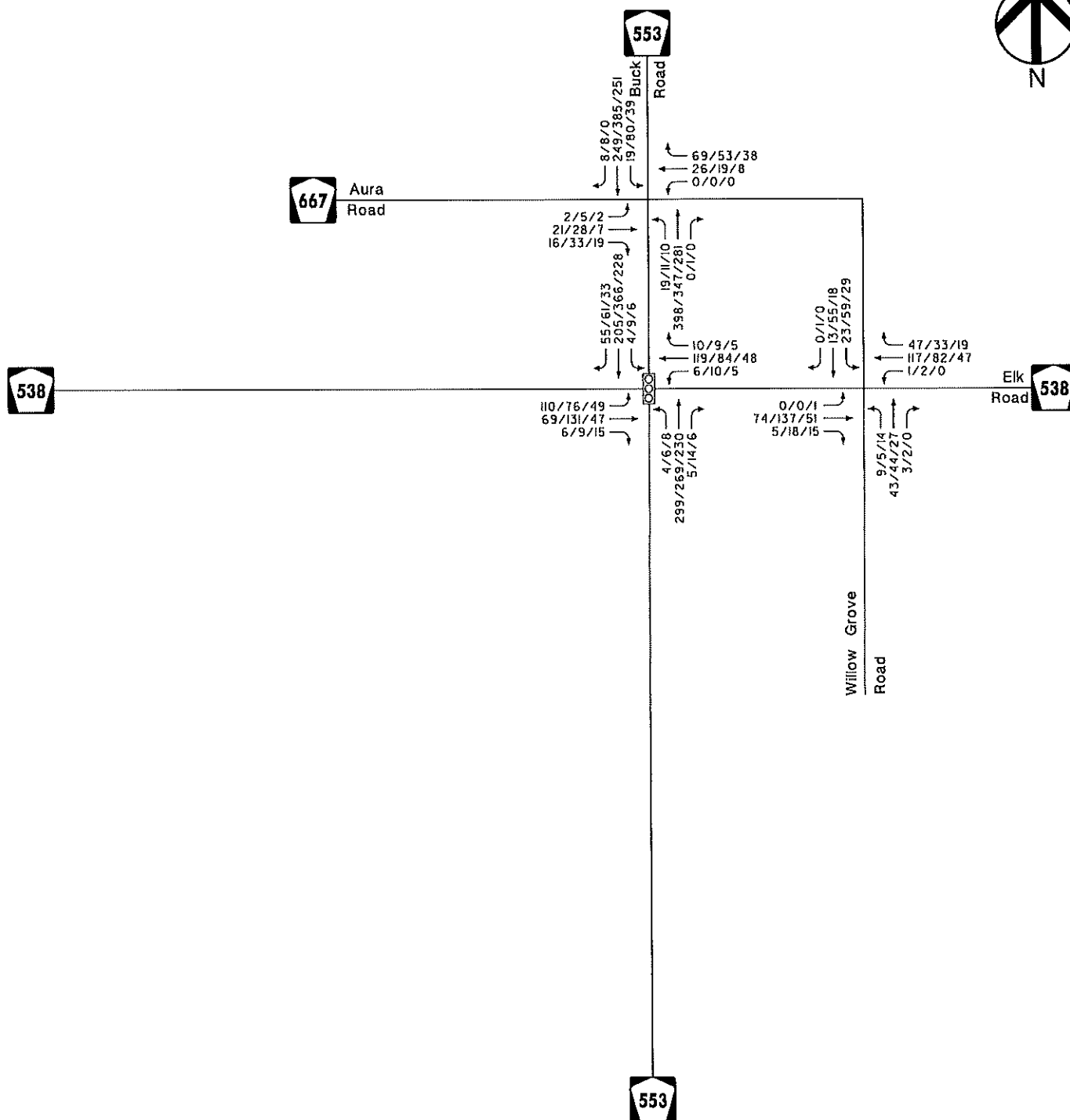
Professional Engineer

N.J. License No. 42893

AAF/jab
Enclosures

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Michael Textores, PE
Jassi Balkar

(via email: DMDeClement@aol.com)
(via email: MTextores@VanCleeEngineering.com)
(via email: Balkar86@gmail.com)



Truck Stop & Convenience With Gas

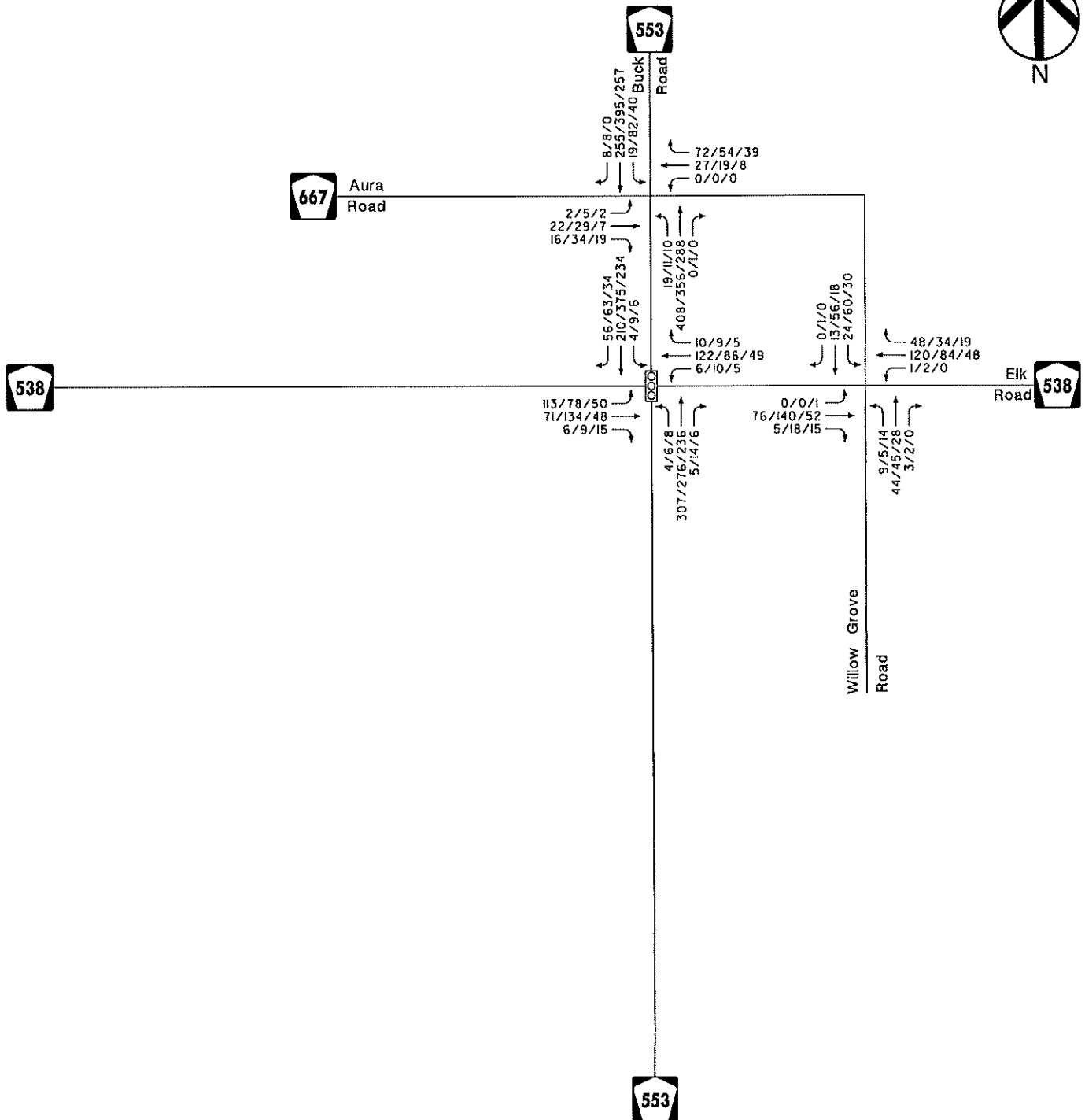
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November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR



Truck Stop & Convenience With Gas

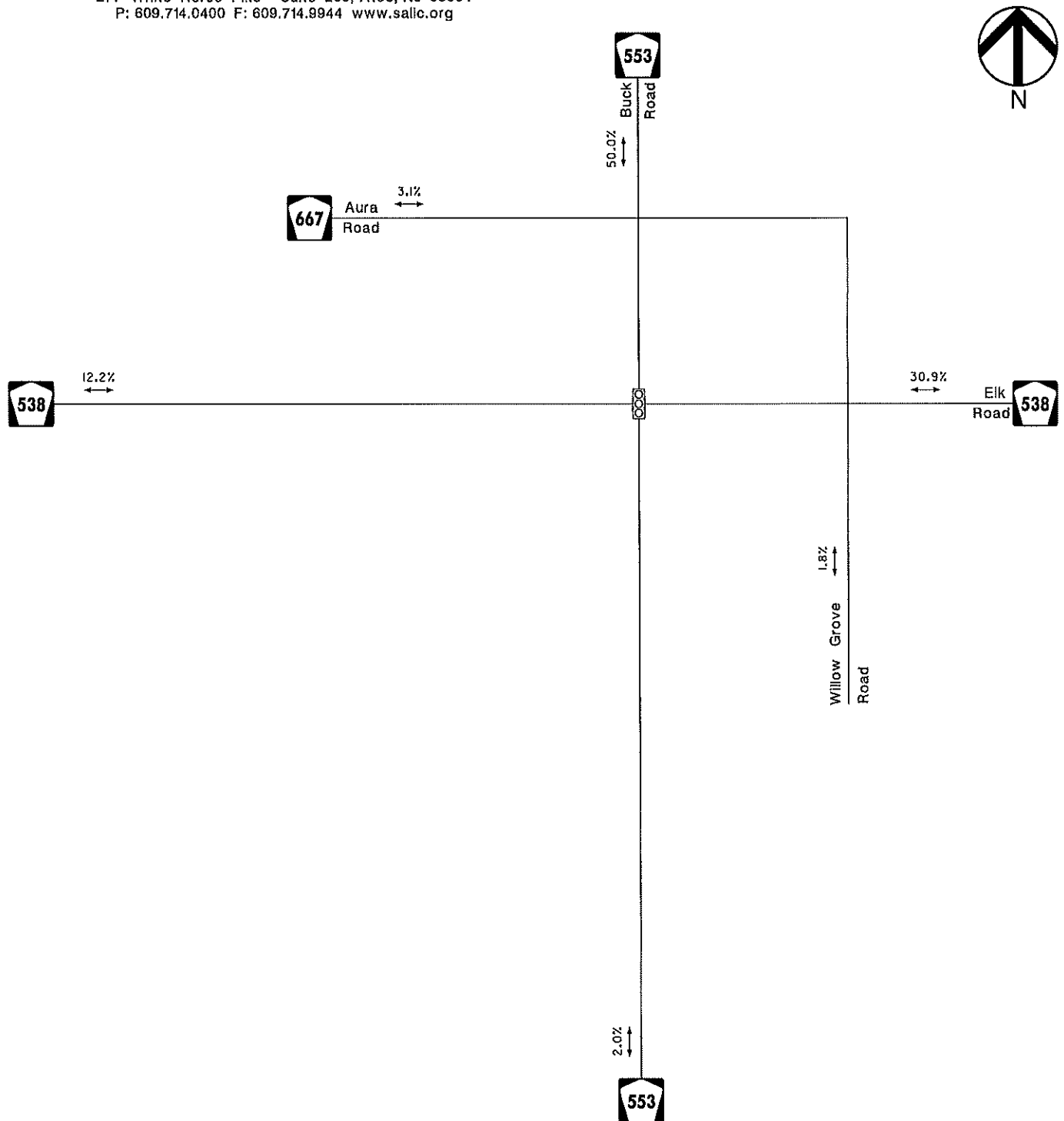
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November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR



Truck Stop & Convenience With Gas

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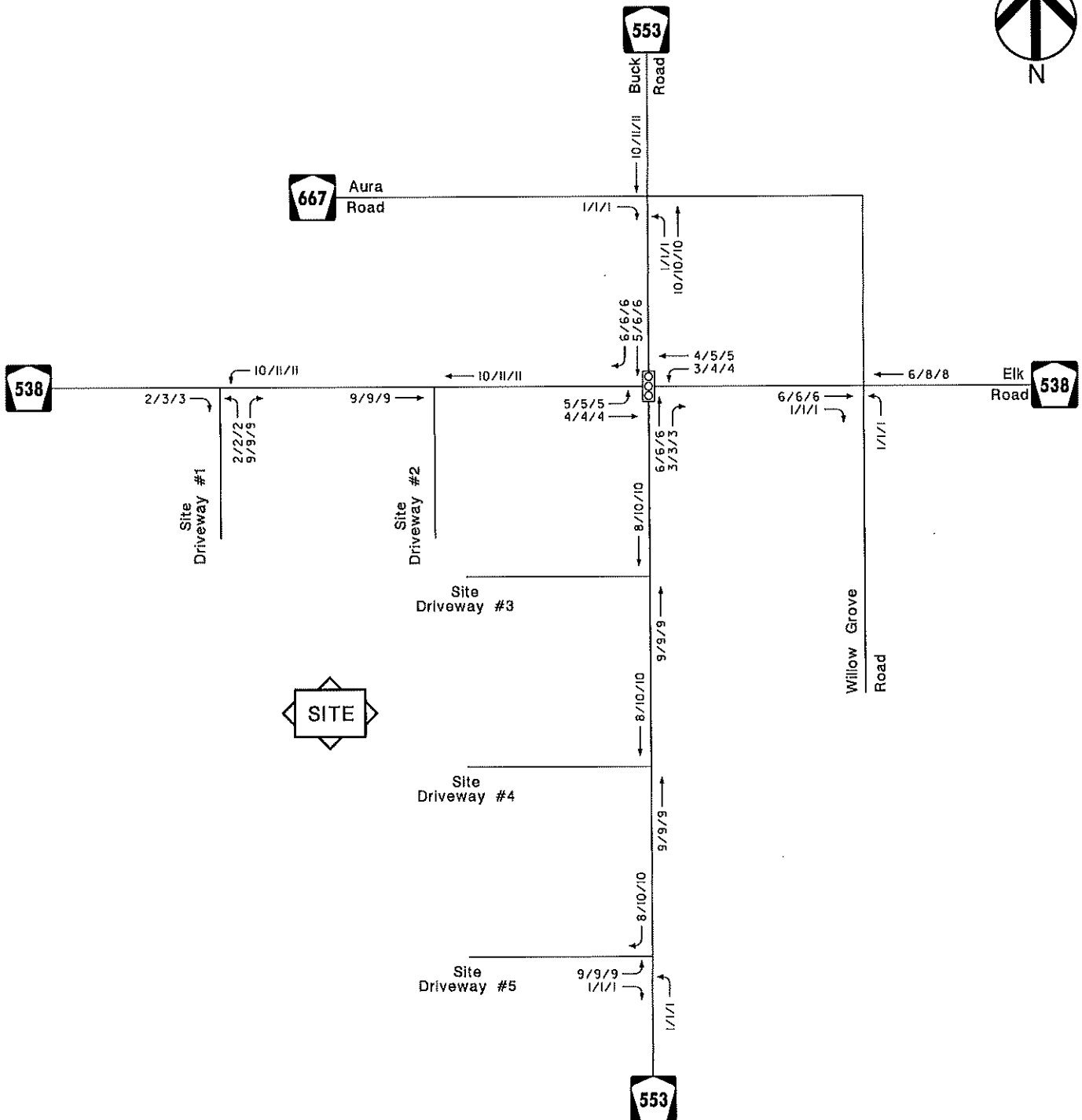
 TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR

Shropshire Associates LLC

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FIGURE 4A
SITE TRAFFIC
(DIESEL FUEL)



Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR

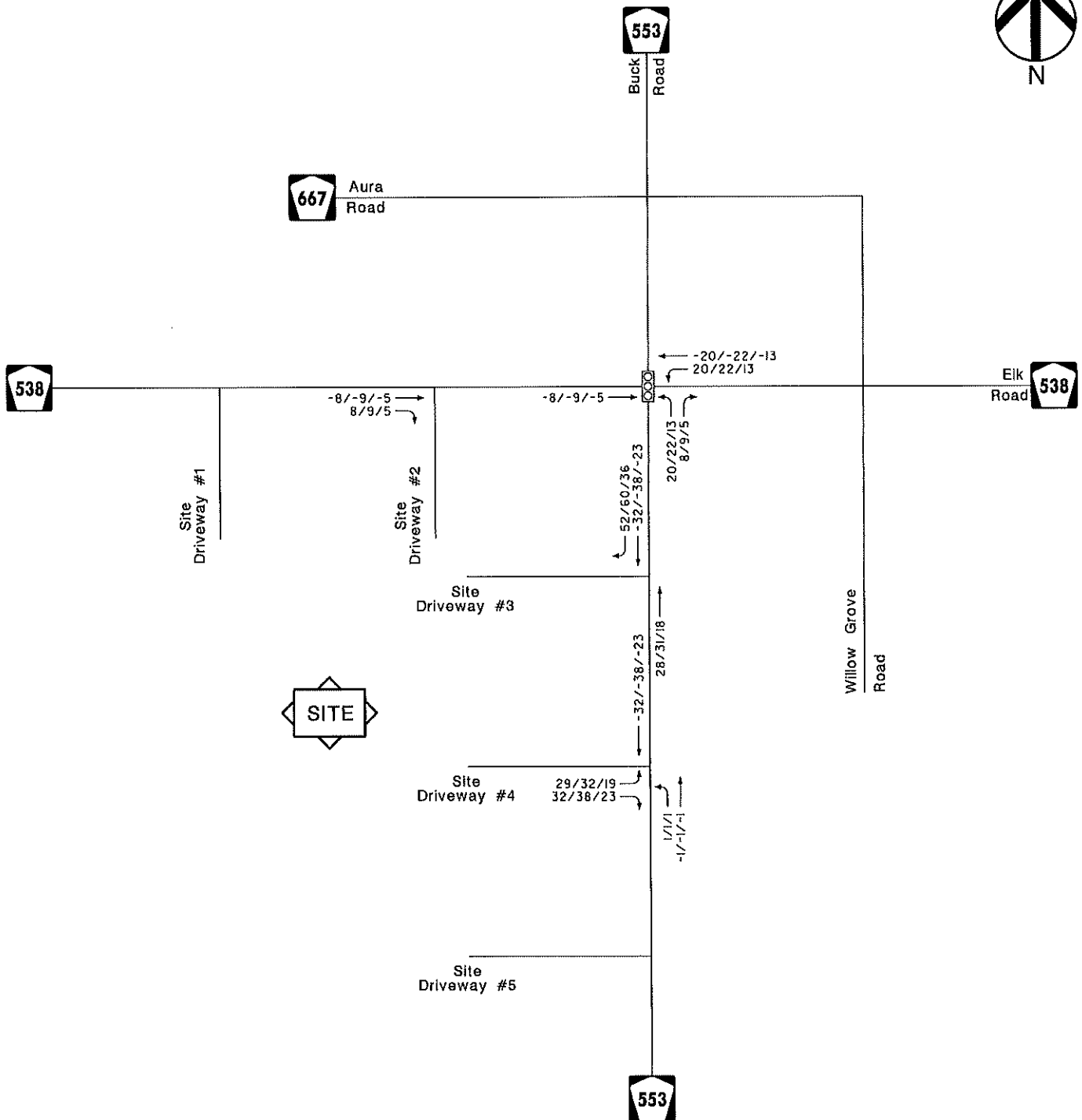
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FIGURE 4B SITE TRAFFIC (CONVENIENCE/GAS PASS-BY TRIPS)



Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR

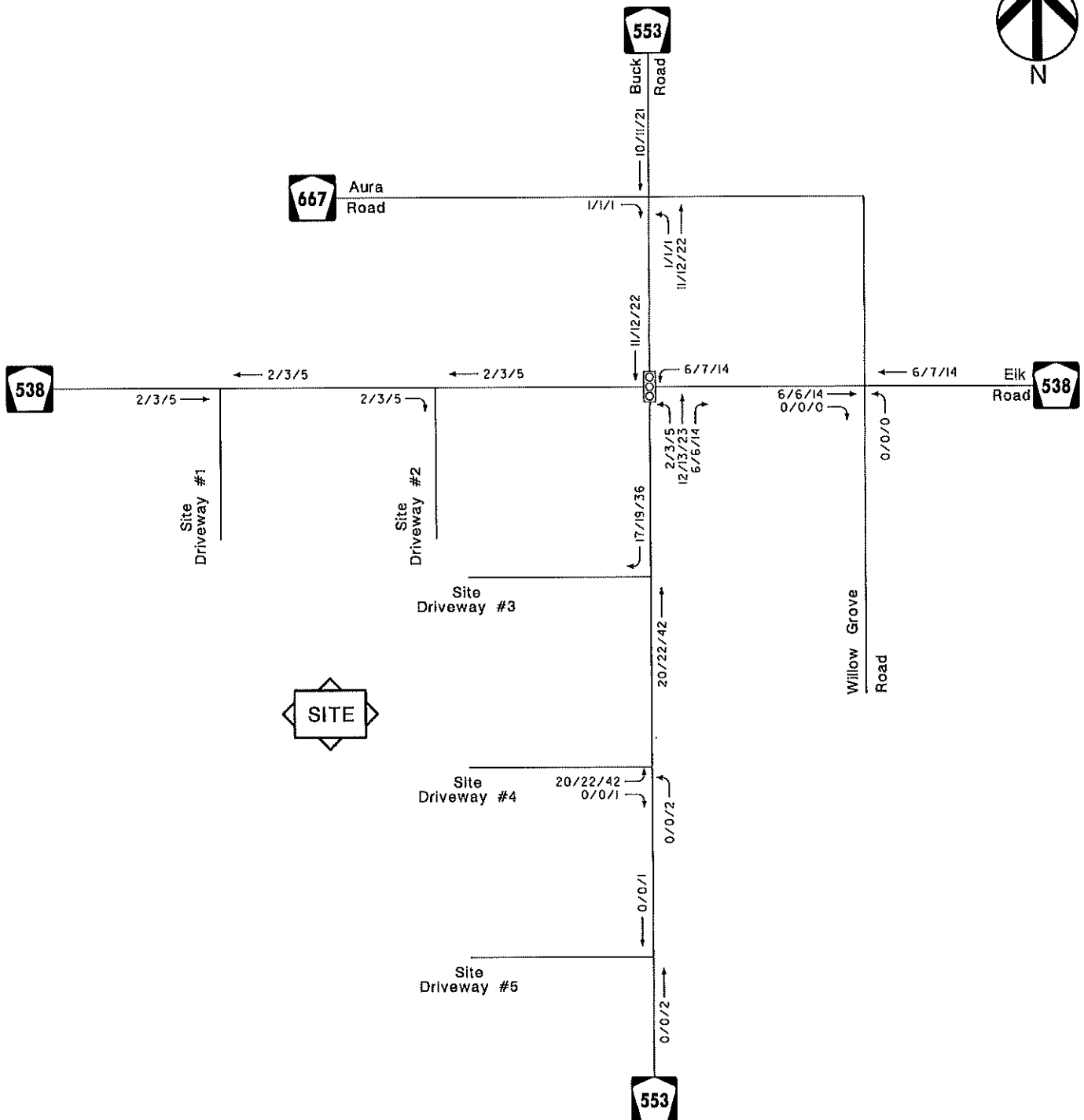
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FIGURE 4C
SITE TRAFFIC
(CONVENIENCE/GAS NEW TRIPS)



Truck Stop & Convenience With Gas

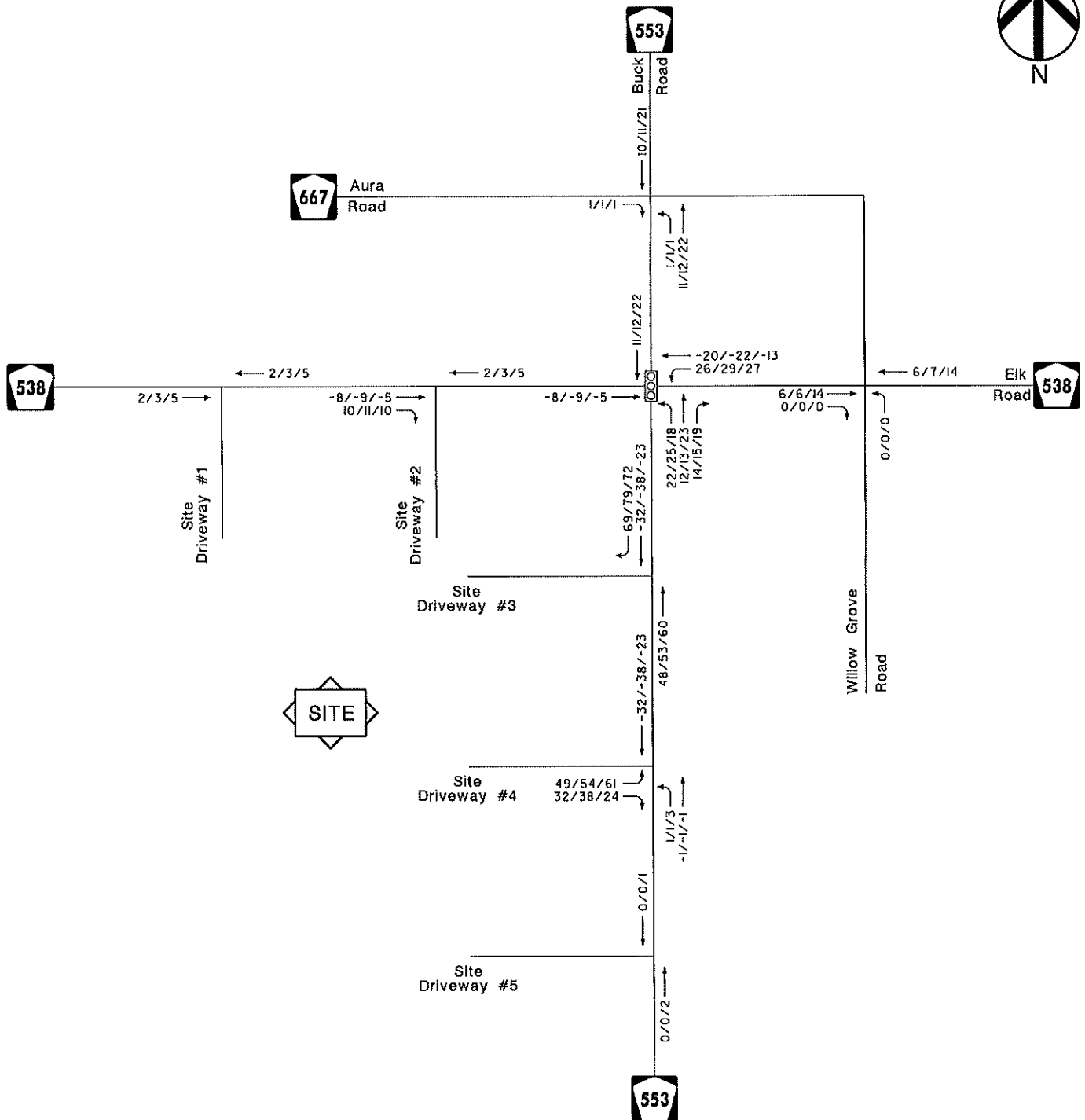
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November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR



Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024



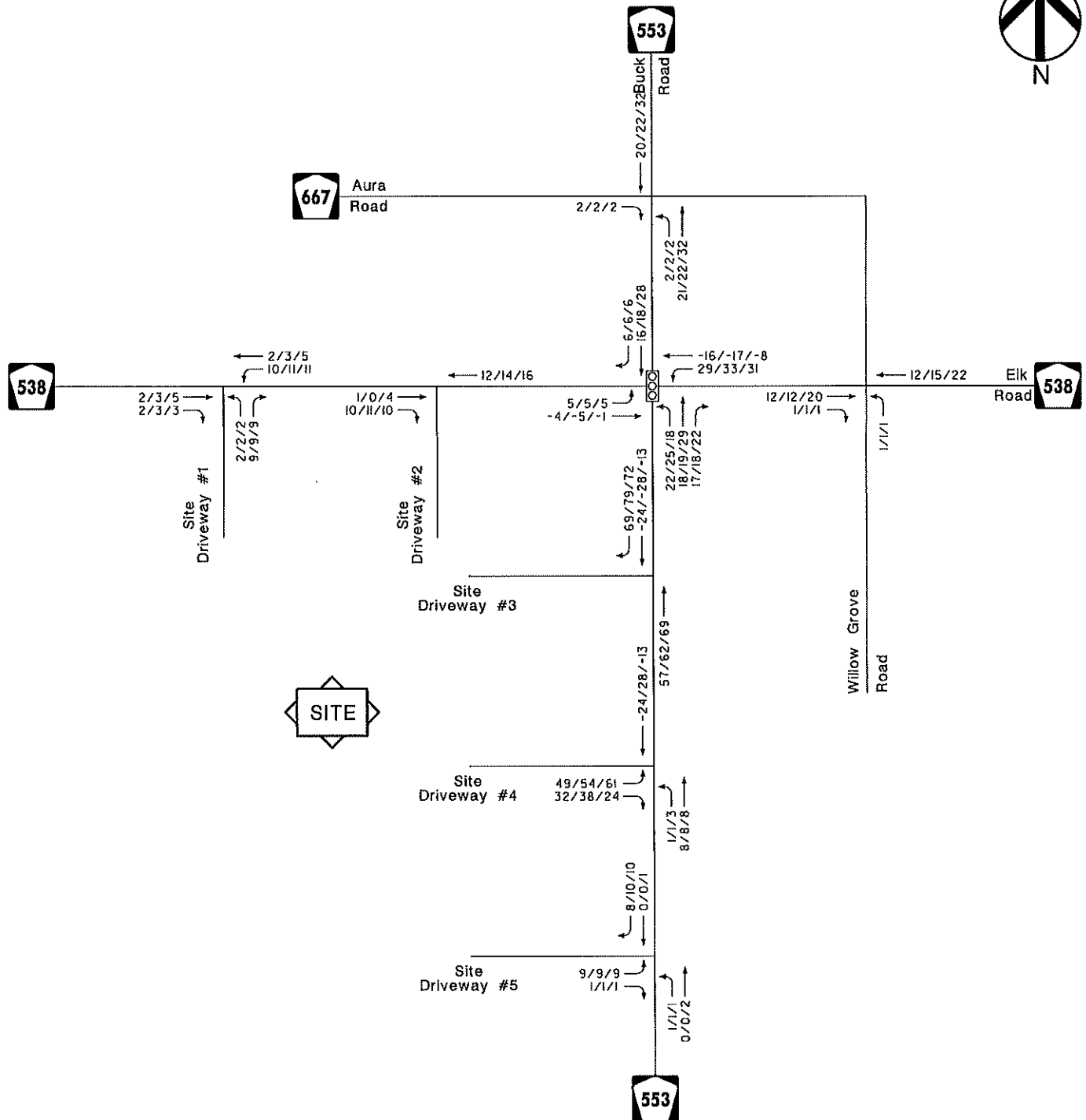
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AM/PM/SAT PEAK HOUR

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FIGURE 4E
SITE TRAFFIC
(TOTAL)



Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR

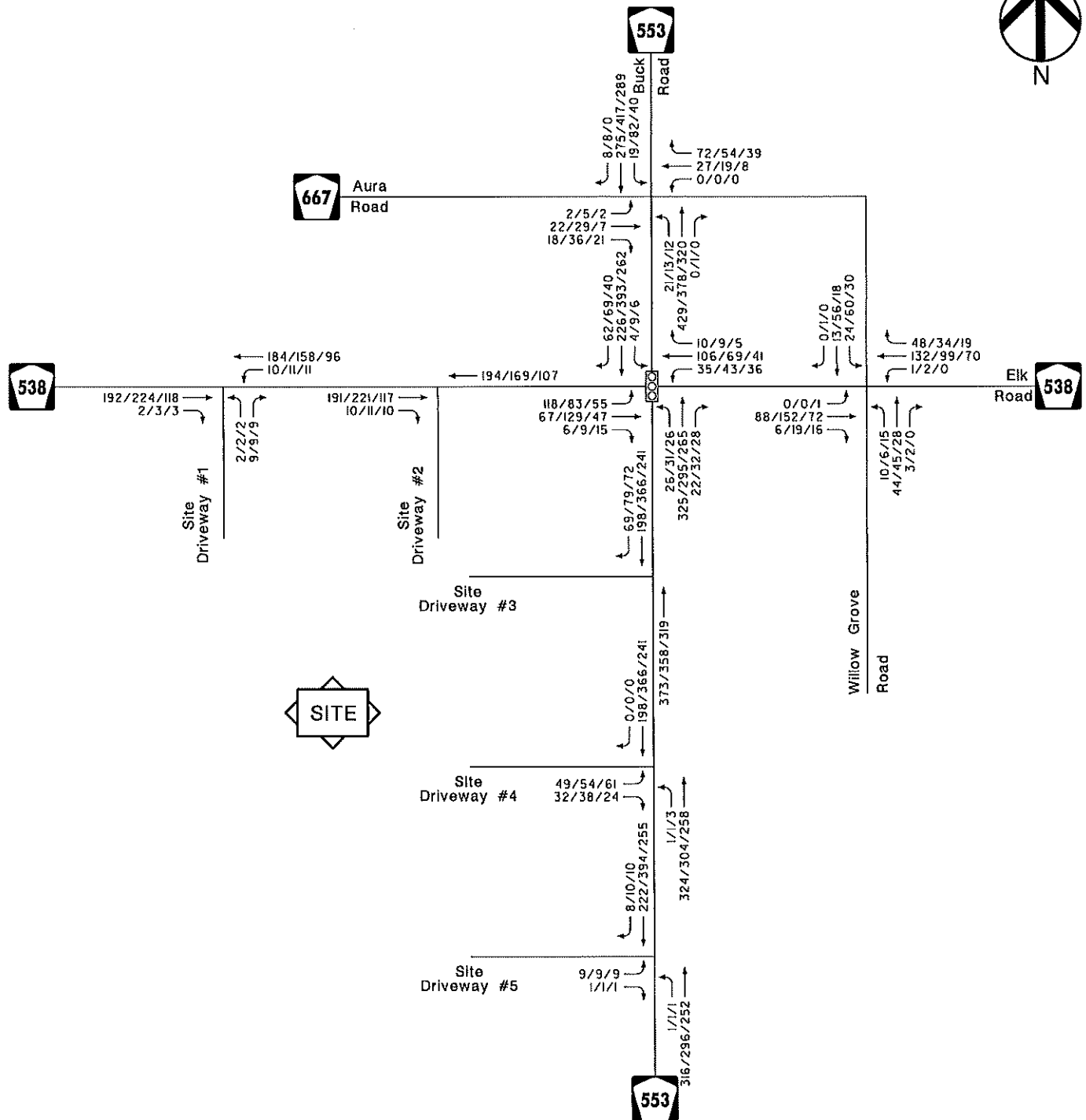
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FIGURE 5
BUILD VOLUMES



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November 2024

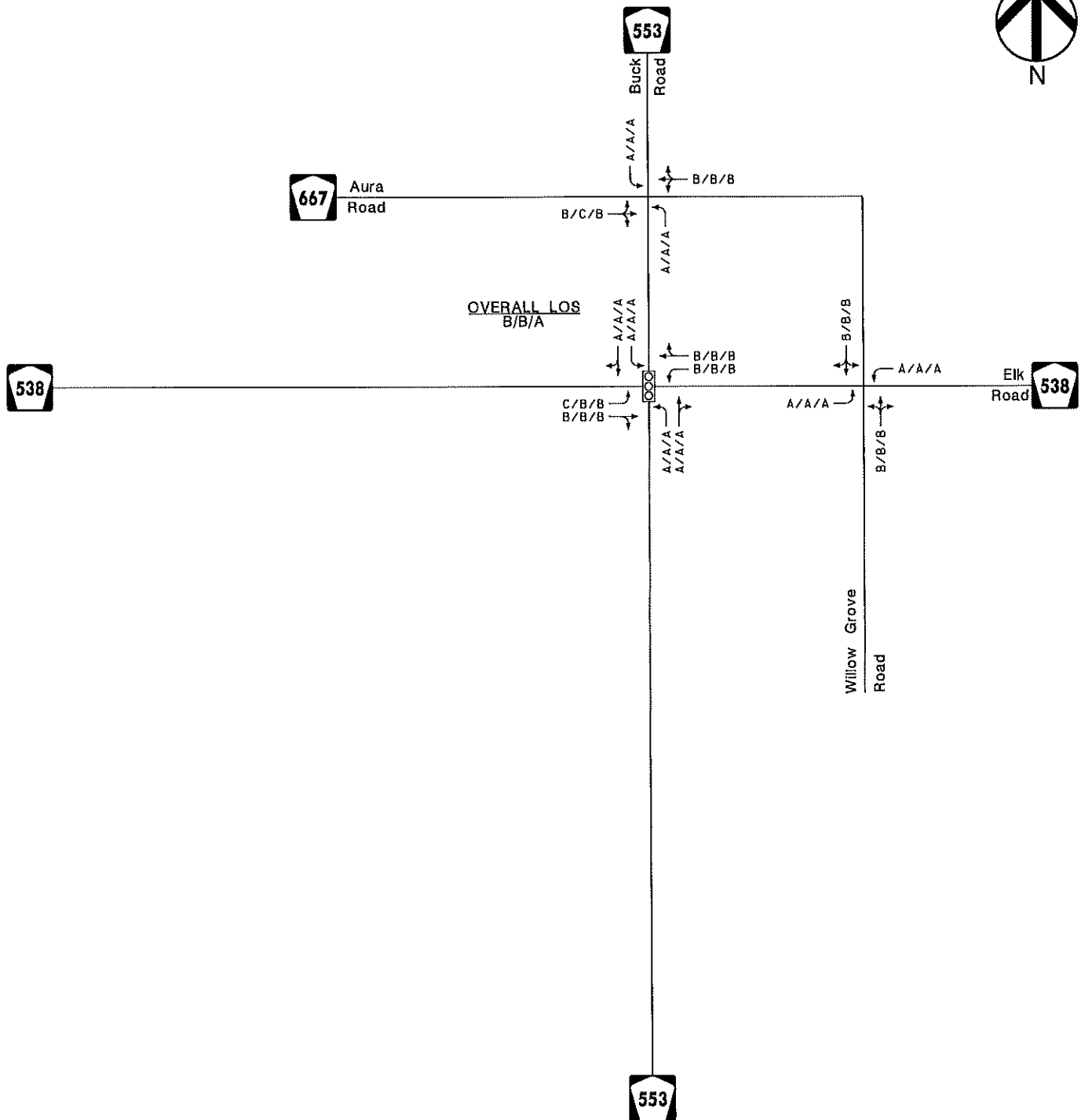


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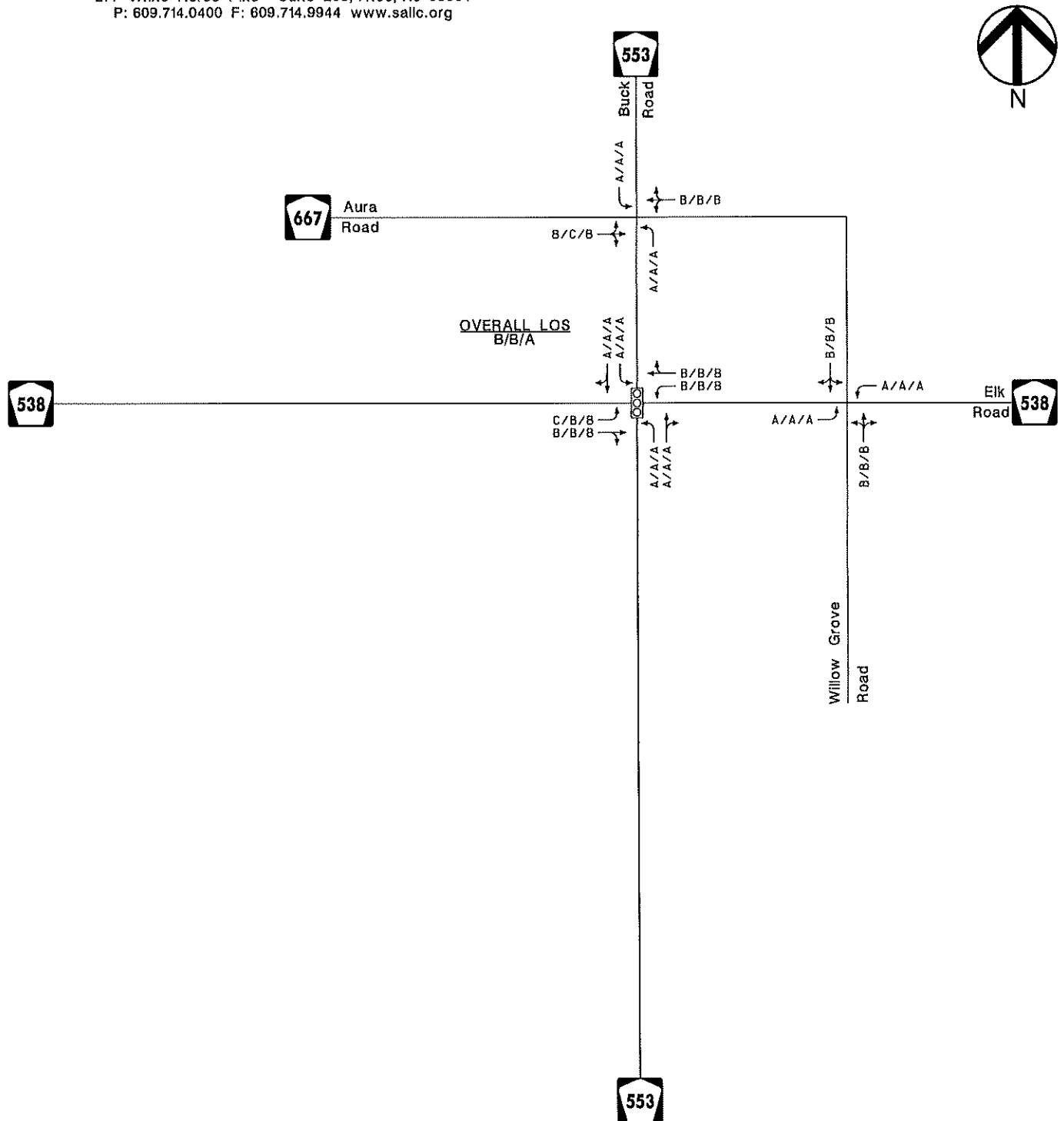
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November 2024

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AM/PM/SAT PEAK HOUR

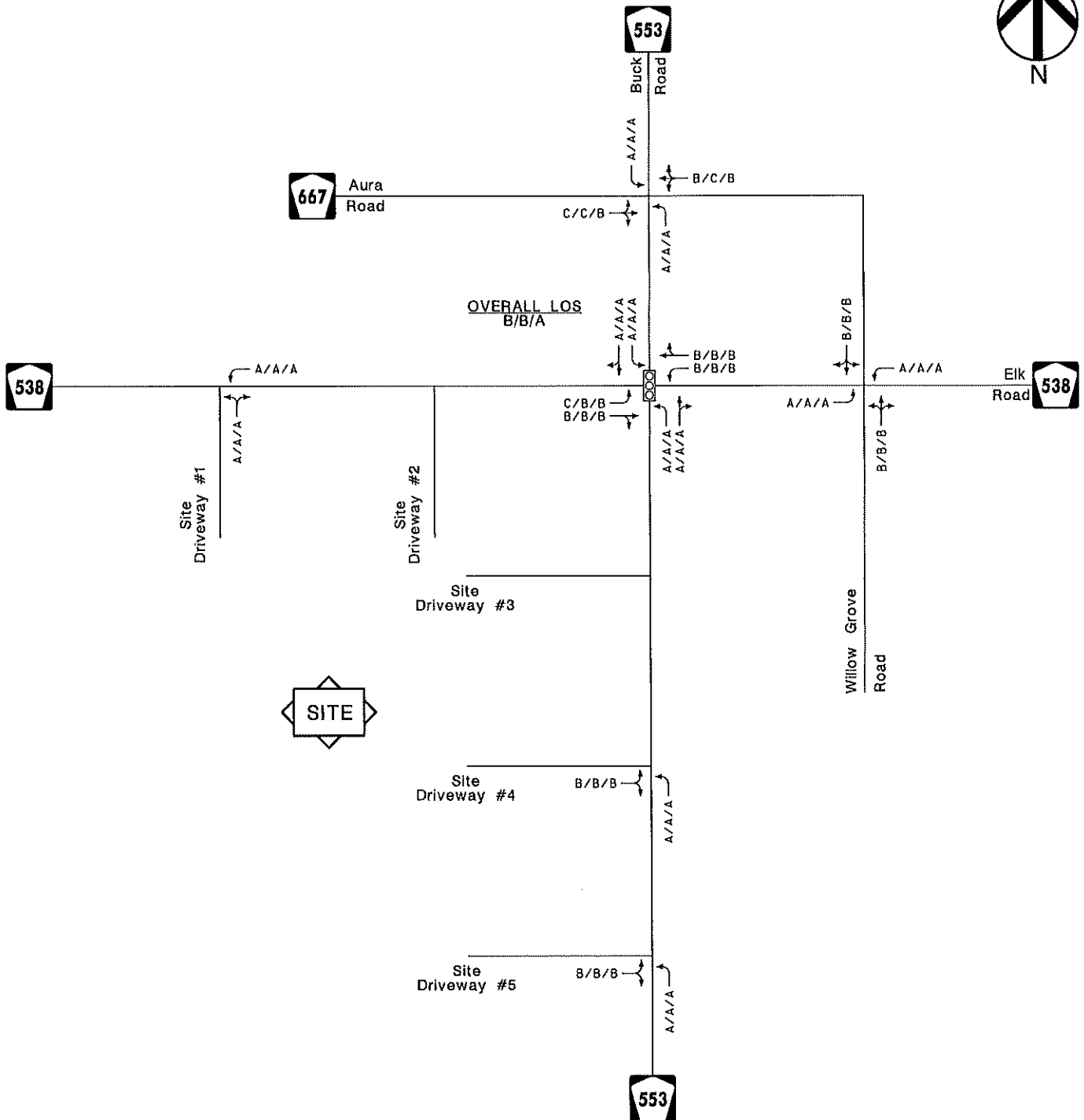


Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024

TRAFFIC SIGNAL
AM/PM/SAT PEAK HOUR



Truck Stop & Convenience With Gas

Elk Township, Gloucester County, New Jersey

November 2024



TRAFFIC SIGNAL

AM/PM/SAT PEAK HOUR

NO.	DESCRIPTION	DATE
1	REVISION	12/26/23

PROJECT NO.	23-001
PROJECT NAME	BUCK ROAD COUNTY ROUTE 538
CLIENT	JOHN J. HAYNICK & KATHY COOK
DATE	12/26/23
SCALE	1" = 100'
CHECKED BY	JOHN J. HAYNICK
DESIGNED BY	JOHN J. HAYNICK
PROJECT LOCATION	1000 ELK ROAD, BLOCK 44, LOT 6, TAX SHEET 25, TOWNSHIP OF ELK, GLoucester COUNTY, NEW JERSEY
SHEET NO.	05 of 30

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TRAFFIC ENGINEERING STUDY

SILVERGATE P.U.D.

Township of Elk, Gloucester County

New Jersey

December 29, 2004

HCA

Horner & Canter Associates

A PROFESSIONAL CORPORATION

TRANSPORTATION AND TRAFFIC ENGINEERING

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TRAFFIC ENGINEERING STUDY

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Buck Road (County Route 553)
Clayton-Aura Road (County Route 610)

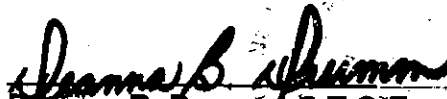
Elk Township
Gloucester County
New Jersey

Prepared by:

HORNER & CANTER ASSOCIATES
A Professional Corporation
Transportation and Traffic Engineering
105 Atsion Road - Suite H
Medford, New Jersey 08055
(609) 654-4104

December 29, 2004

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Deanna B. Drumm, P.T.O.E.
Professional Engineer
N.J. Lic. No. GE41619


Jerry A. Canter
Professional Engineer
N.J. Lic. No. GE20049

File No. 04-078

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Figure 3A	Site Traffic: AM Peak Hour
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- Figure 4B Future Traffic: PM Peak Hour
- Figure 5 Recommended Improvements

APPENDIX

TECHNICAL APPENDIX (separately bound)

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INTRODUCTION

At the request of Silvergate Associates, a Traffic Engineering Study was conducted for the Silvergate Planned Unit Development (P.U.D.) to be located in Elk Township, Gloucester County, New Jersey (Figure 1). The P.U.D. consists of approximately 662 acres and is centered on the intersection of Buck Road and Aura-Clayton Road. The proposed development is comprised of three distinct land uses; residential, retail, and office.

Specifically, the development proposal includes 1,238 residential dwelling units, 690,050 square feet of commercial/retail, and 160,200 square feet of office space. The residential units are to contain 554 single-family homes, 266 twin homes, 192 apartments, and 226 townhouses. At this time, it is currently anticipated that the commercial/retail area will consist of an 8,400-square-foot day care center and 681,650 square feet of retail space broken down into multiple phases of development.

We note that up to 207,000 square feet of the commercial area could potentially be developed as office space. However, for a conservative and worst-case scenario the greater trip generating potential of shopping center was assumed for analysis purposes.

SCOPE OF STUDY

The purpose of a traffic engineering study is to determine the magnitude of any traffic impact a land development proposal may have with respect to existing traffic conditions on the adjoining streets and highways. In making this determination, our study included:

- A site inspection and inventory of existing roadway features, adjacent land uses, driveways, travel lanes, traffic control devices, and anything that may affect the flow of traffic
- The review and analysis of traffic volume counts made by this firm
- A determination of the anticipated site traffic
- An assessment of the traffic impact the site traffic will have on existing traffic, streets, and highways at the anticipated completion date, and the identification of any mitigation

measures found necessary

EXISTING CONDITIONS

In order to evaluate the traffic impact on the adjacent streets, highways, and intersections, we first survey the surrounding area and inventory all physical features that may affect the flow of traffic.

The major thoroughfare through the planned unit development is **Buck Road, County Route 553**. Buck Road is classified¹ as a Rural/Urban Minor Arterial Roadway, extending in a general north/south orientation. The posted speed limit is 50 MPH, south of Clayton-Aura Road, reduces to 45 MPH between Clayton-Aura Road and Stanger Avenue and is further reduced to 35 MPH in the area of Sewell Street. Buck Road is approximately 24 feet wide with 2-foot-wide shoulders. Buck Road is signalized at its intersection with Swedesboro-Franklinville Road.

Clayton-Aura Road (a.k.a. Aura Road), County Route 610, is classified¹ as an Urban Minor Arterial roadway extending in a general east/west direction. Clayton-Aura Road is approximately 24 feet wide with minimal width shoulders. The posted speed limit along the roadway is primarily 45 MPH; however, east of Buck Road, the posted speed limit reduces to 40 MPH and further reduces to 35 MPH, east of County Route 637.

Swedesboro-Franklinville Road, County Route 538, is classified¹ as a Rural Major Collector roadway located at the southern end of the proposed Silvergate P.U.D. Swedesboro-Franklinville Road is approximately 24 feet wide with 2-foot-wide shoulders. The speed is posted at 45 MPH.

Aura Road, County Route 667, is an approximate 23-foot-wide roadway with 1-foot-wide shoulders. The speed limit is generally posted at 50 MPH with a 40 MPH speed limit in the area of County Route 619. Aura Road is classified¹ as a Rural Major Collector roadway.

Clayton Avenue, County Route 608, is classified¹ as a Rural/Urban Local roadway extending in a general east/west direction. Clayton Avenue is approximately 24-foot-wide with a 1-foot-wide shoulder within the limits of the P.U.D. The speed is posted at 40 MPH.

¹ New Jersey Functional Classification Maps - FHWA

Glassboro Road, County Route 637, is an approximate 22-foot-wide Urban Collector roadway. The posted speed limit is 45 MPH south of the railroad tracks and 40 MPH north of the railroad tracks. At its intersection with Clayton-Aura Road (CR 610), Glassboro Road becomes a local dirt roadway approximately 18 feet wide extending in a southerly direction.

Whig Lane, County Route 619, also known as **Union Street**, is a Rural/Urban Local roadway. Whig Lane is approximately 23 feet wide with a posted speed limit of 45 MPH, north of County Route 667 and reduces to 35 MPH in the area of Glassboro. South of County Route 667 to the Salem County line, the speed along County Route 619 is generally 50 MPH, with a 40 MPH section in the vicinity of County Route 623 and County Route 667.

Sewell Street, County Route 628, is an Urban Local roadway extending westerly from Buck Road, terminating at its intersection with County Route 641. The speed limit is posted at 25 MPH. Sewell Street is approximately 24 feet wide with 3-foot-wide shoulders.

Stanger Avenue is an Urban Collector roadway. The speed limit is posted at 35 MPH west of County Route 637 and 25 MPH east of County Route 637. Stanger Avenue is approximately 24 feet wide.

All intersections within the project area are STOP-signed controlled, with the exception of a traffic signal at the intersection of County Route 553 and County Route 538. A flasher exists at three of the study intersections: Buck Road and Clayton-Aura Road (All-way stop); Academy/Fairview Road and Stanger Avenue; and Sewell Street and Union Street.

EXISTING TRAFFIC

During June of 2004, our firm measured traffic volumes on the streets and intersections surrounding the site. This data was then adjusted to account for seasonal variations using NJDOT Group/Pattern adjustment factors for this area, resulting in the Annual Average Daily Traffic (AADT) volumes and Design Hour Volumes (DHV) shown in Table 1.

Table 1 Existing Traffic		
	AADT veh/day	DHV veh/hour
Buck Road (CR 553)	5,600	500
Clayton-Aura Road (CR 610)	3,900	350
Aura Road (CR 667)	1,300	130
Whig Lane (CR 619)	3,900	400

In order to evaluate the maximum traffic impact of the proposed development on the adjacent roadways and intersections, the critical peak hours have to be established. The term "critical peak hours" refers to the periods of time when the combined effect of background traffic (existing plus other development growth) and traffic from the proposed use result in maximum traffic flow conditions.

In this case, the peak site volumes and peak background traffic volumes will be generated in the same time period; they will occur within traditional commuter peak periods, i.e. weekday AM (the highest one-hour period between 7:00 - 9:00 AM) and weekday PM (the highest one-hour period between 4:00 - 6:00 PM).

In order to establish these critical peak hours, HCA conducted manual turning movement measurements at the following intersections affected by the site's traffic during the aforementioned peak periods, weekday AM and PM:

- Buck Road (CR 553) and Sewell Street (CR 628)
- Buck Road and Stanger Avenue
- Buck Road and Clayton-Aura Road (CR 610)
- Buck Road and Clayton Avenue (CR 608)
- Buck Road and NJ Route 55 Ramps
- Buck Road and Aura Road (CR 667)
- Buck Road and Swedesboro-Franklinville Road (CR 538)
- Union Street (CR 619) and Sewell Street
- Whig Lane (CR 619) and Stanger Avenue
- Aura Road and Whig Lane

- Stanger Avenue and Glassboro Road (CR 637)
- Clayton-Aura Road and Glassboro Road

To supplement the manual counts, an Automatic Traffic Recorder (ATR) measured hourly and daily traffic along Buck Road (CR 553), Aura Road (CR 667), Clayton-Aura Road (CR 610), and Whig Lane (CR 619).

Existing peak hour intersection volumes are shown in Figure 2A and 2B for the morning and afternoon peak periods, respectively. The 15-minute counts for the entire count period shown in the Appendix to this report.

SITE TRAFFIC

The determination of the amount of site traffic that a proposed development will have can best be made by comparison with similar sites. The Institute of Transportation Engineers has compiled hundreds of generation studies and published the results in *Trip Generation*, 2003, which is a standard used for estimating site traffic. Studies our firm has been involved in throughout New Jersey confirmed the applicability of this national standard to this area.

As a result, the Silvergate Planned Unit Development can be expected to have the following site traffic, broken down into seven different phases:

Table 2 Site Trips *							
Land use	AM Peak Hour			PM Peak Hour			Daily Volume
	IN	OUT	TOTAL	IN	OUT	TOTAL	
Phase 1							
35 Single Family Homes	8	25	33	26	15	41	396
20,000 sq. ft. Office	46	6	52	6	46	52	386
8,400 sq. ft. Day Care Center	57	50	107	52	59	111	666
Sub-Total	111	81	192	84	120	204	1,448
Phase 2							
230 Single Family Homes	43	128	171	143	84	227	2,237
Phase 3							
162 Single Family Homes	31	92	123	104	61	165	1,621
Phase 4							
192 Apartments	20	78	98	80	43	123	1,304
160,000 sq. ft. Retail	127	81	208	410	444	854	9,218
Sub-Total	147	159	306	490	487	977	10,522
Phase 5							
226 Townhouses	17	82	99	79	39	118	1,284
46,650 sq. ft. Retail (Town Center)	60	39	99	182	197	379	4,137
237,500 sq. ft. Retail (Regional Commercial)	160	103	263	532	576	1,108	11,916
Sub-Total	237	224	491	793	812	1,605	17,337
Phase 6							
266 Single Family Attached Homes	49	147	196	163	96	259	2,558
127 Single Family Homes	25	74	99	84	49	133	1,296
Sub-Total	74	221	295	247	145	392	3,854
Phase 7							
237,500 sq. ft. Retail	160	103	263	532	576	1,108	11,916
140,200 sq. ft. Office	216	29	245	40	196	236	1,730
Sub-Total	376	132	508	572	772	1,344	13,646
Grand Total	1,019	1,037	2,056	2,433	2,481	4,914	50,665

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

TRAFFIC DISTRIBUTION

In order to properly analyze the impact of the planned unit development, we must distribute the site-related trips to the adjoining street system in a manner in which we can reasonably anticipate these motorists to travel. A separate distribution analysis was completed for each land use:

residential, retail/commercial, and office.

Since the highest hourly volume in and out of a residential development is generally found to occur during the morning and afternoon street peak hours when the home/work travel is the primary trip purpose, we distributed the new residential trips based on the existing pattern of work trips made by residents of Elk and Glassboro, as determined in the latest census information.

The amount traffic attracted to the office and retail/commercial development site is directly related to the residential population serving each route. As such, the site's trips were proportioned utilizing a mathematical gravity model utilizing the 2000 census population divided by the square of the distance to each centroid (municipality) within a relative 10- and 15-mile radius for the retail and office component, respectively. This methodology assumes that municipalities located at greater distances from the proposed development will create less of an attraction to the motorists, thus generating less traffic to and from the respective area.

Since the PUD will consist of over 1,200 residential units, our gravity model assumed that a portion of the office and retail trips would be generated internally from the PUD residences. The internal component was based upon the relative size of the residential development sections.

Furthermore, studies have shown that retail type developments have two distinct trip types: new trips and pass-by trips. A new trip is a patron who uses the site as a trip origin and destination; that is, makes a specific journey to the site. Passer-by trips are patrons who are already on the adjacent streets with another trip purpose, usually the home-to-work trip, who stop in to the center on their way. As much as 60% of retail center patron traffic during the peak traffic hour is made up of passer-by trips; however, to be conservative, our study considered the following passer-by rate as per the standard in *Trip Generation*:

	AM Peak	PM Peak
Phase 1 – 8,400 sq. ft. day care center	44%	44%
Phase 4 – 160,000 sq. ft. retail	24%	34%
Phase 5 – 46,650 sq. ft. retail	38%	48%
Phase 5 – 237,500 sq. ft. retail	20%	30%
Phase 7 – 237,500 sq. ft. retail	20%	30%

Based on this analysis, we were able to distribute the peak hour trips as shown in Table 3 and assign them to the adjoining roadways as shown in Figure 3A and Figure 3B for the AM and PM peak hours, respectively.

Table 3: Trip Distribution			
	Residential	Retail	Office
NJ Route 55 To/from North To/from South	16% 3%	2% 4%	4% 4%
CR 610 To/from East	10%	3%	2%
US Route 322 To/From West	18%	--	--
CR 553 To/from North To/from South	19% 27%	18% 3%	32% 5%
CR 538 To/from East To/from West	5% 2%	7% 4%	5% 3%
CR 667 To/from East To/from West	-- --	1% 4%	1% 4%
CR 608 To/from East	--	22%	16%
CR 619 To/from East To/from West	-- --	5% 1%	3% 1%
Internal Silvergate	--	26%	20%
Total	100%	100%	100%

DESIGN HOUR VOLUMES

As with any land development, the Silvergate P.U.D. will not exhibit its full traffic impact until it is fully built and occupied. A design year of 2020 was utilized in the study. During the intervening years, we recognize that the existing traffic volumes will increase as a result of other development activity in and around the area of the site.

The NJDOT has studied growth patterns and growth projections along the State's highway network and has issued an *Annual Background Growth Rate Table*, June 2002, to be used in estimating traffic growth in traffic impact studies. For Gloucester County in this area, the NJDOT predicts a 1.40% to 3.00% annual traffic growth, which would account for anticipated development growth. A comparison of our 1993 traffic counts to the current data collected revealed an average growth of 1.95% in traffic per year. We, therefore, utilized an average 2.50% growth factor for analysis purposes.

As a result, we are able to forecast the No-Build volumes, which reflect "existing" volumes in 2020. Adding the site-generated traffic creates the Build volumes, which are shown for the peak hours in Figure 4A and 4B for the morning and afternoon peak hours, respectively.

LEVEL OF SERVICE

In order to determine the quality of traffic flow, we need to compute the Level of Service of these facilities. Level of Service (LOS) is expressed as follows:

Level of Service	A - Excellent - Free flow
	B - Very Good - Stable flow of traffic
	C - Good - Stable flow of traffic
	D - Satisfactory flow - Occasional short periods with minor delays
	E - CAPACITY FLOW - Regular delays
	F - Forced flow - Significant delays and queuing

Level of Service is computed using the methodologies and procedures as outlined in the 2000 *Highway Capacity Manual*. Level of Service is defined for each type of facility such as a highway, signalized intersection, or unsignalized intersection.

For two-lane roadways, LOS is based on a time-spent following percentage, which represents the freedom of motorists to maneuver and the comfort of travel. Percent time-spent following is affected by the average travel speed as well as the availability of passing zones along a given stretch of roadway. In addition, the ratio of the volume to the capacity (v/c ratio) at any one time is another measure to estimate the sufficiency of the roadway. For multi-lane roadways, density is the primary

factor for measuring level of service. Density is a function of speed and traffic volumes.

At signalized intersections, LOS is based on the average delay to all motorists at the intersection. The v/c ratio represents the capacity sufficiency of the intersection based on its physical characteristics as well as the traffic signal phasing/timing.

At unsignalized intersections, LOS is based on the average delay to stop-controlled and yielding movements, such as exiting movements from a STOP sign or the left turn from a through street onto a side street. Delay for unsignalized intersections is less than signalized intersections for the primary reason that motorists are actively pursuing a gap in traffic whereas at a traffic signal, motorists are passively waiting for the green.

The following table shows the delay ranges expressed in seconds per vehicle for the various levels of service for both signalized and unsignalized intersections:

<u>LOS</u>	<u>Signalized</u>	<u>Unsignalized</u>
A	<10.0	<10.0
B	10.1 to 20.0	10.1 to 15
C	20.0 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.1
E	55.1 to 80.0	35.1 to 50.0
F	>80	>50

CAPACITY ASSESSMENT

In order to assess the traffic impact of the proposed development, we calculate the Level of Service of the nearby studied roadways or intersections in the future year No-Build scenario and the future year Build scenario. The difference can be considered the site's traffic impact on the existing roadway or intersection's sufficiency.

In this regard, we will examine the site's effect on the individual roadways and intersections in the study area, calculating the impact, determining the significance, and identifying any needed highway/traffic control improvements.

For uninterrupted flow on highway sections, an LOS E generally indicates the need for improvements. At an unsignalized intersection, improvements may be necessary if a particular movement or approach functions at an LOS D or E. The need for signalization at a study intersection was considered using the peak hour future traffic projections.

We note that as per the 2003 edition of the *Manual of Uniform Traffic Control Devices*, the Traffic Signal Warrant 3, Peak Hour, is applicable only in unusual cases such as facilities that attract or discharge large numbers of vehicles over a short time. For purposes of this report, only Warrant 2, Four-Hour Vehicular Volume, was used in analysis. The morning and afternoon peak hours were compared to the volume thresholds of Warrant 2 to determine if a signal is warranted. It was assumed that if the AM and PM peak hours met the subject signal warrants, it could be reasonably be assumed that two other hours of the day will meet the volume warrant thresholds at the respective intersections.

The recommended roadway/intersection improvements are schematically shown as Figure 5 for reference.

Roadways

An analysis of each roadway within the limits of the Silvergate Planned Unit Development was completed under Existing and future 2020 Build conditions. A summary of the results can be found within the Appendix to this report, where each studied section of roadway is listed along with its respective saturation level (v/c ratio) and level of service. The resulting capacity analyses are part of the Technical Appendix for your review.

- ***County Roadways***

All of the roadways within the study area, with one exception, are under the jurisdiction of Gloucester County. All of the roadways are operating at an LOS C or better during the morning and afternoon peak periods with the exception of Buck Road. Buck Road is currently functioning at an LOS D or better with a maximum saturation of 40%.

Under future 2020 Build conditions, it is anticipated that all County roadways will operate at an LOS D or better at less than 55% capacity with the exception of Buck Road. Along Buck Road, between Clayton-Aura Road (CR 610) and Swedesboro-Franklinville Road (CR 538), we find that the

anticipated 2020 volumes will exceed the capacity of the roadway. As such, Buck Road will require widening to provide for two travel lanes in each direction. The other studied roadway sections along Buck Road (i.e. CR 610 to Sewell Street), we find are operating at 70% capacity or less and will therefore not require widening.

As per the Gloucester County's *Official County Map*, the following table outlines the planned right-of-way and cartway width.

Roadway	R-O-W width	Cartway width
Buck Road (CR 553)	88 feet	68 feet
Union Street/Whig Lane (CR 619)	76 feet	56 feet
Aura Road (CR 667)	76 feet	56 feet
Glassboro Road (CR 637)	64 feet	44 feet
Sewell Street (CR 628)	64 feet	44 feet
Clayton-Aura Road (CR 610)	76 feet	56 feet
Clayton Avenue (CR 608)	64 feet	44 feet
Swedesboro-Franklinville Road (CR 538)	88 feet	68 feet

A 68-foot wide cartway could provide for a four- or five-lane highway (two lanes per direction plus a center left-turn lane). A 56-foot wide cartway could accommodate a four-lane roadway, with two lanes in each direction and eight-foot-wide shoulders. The 44-foot-wide cartway provides for a two-lane roadway with 12-foot-wide lanes and 10-foot-wide shoulders and/or a center left-turn lane at intersections.

While no highway improvements are necessary for the County roadways, excluding Buck Road, it is recommended that the appropriate right-of-way be reserved for other potential development driven improvements required past the anticipated build out of this project (post 2020).

- ***Municipal Roadways***

Stanger Avenue is the only municipal roadway analyzed as part of the Silvergate development. We find that all studied roadway sections of Stanger Avenue are currently operating at an excellent LOS A at less than 5% capacity. Under future Build (2020) conditions, with the addition of traffic

associated with the planned unit development, Stanger Avenue is predicted to function at an LOS B or better. The capacity along the studied sections is anticipated to remain under 10%. As such, we find that no roadway improvements will be necessary to accommodate the site's traffic.

Intersections

Buck Road (CR 553) and Sewell Street (CR 628)

At this T-end intersection, the Sewell Street approach currently functions at an LOS B during both studied peak hours. Under 2020 Build conditions, the Sewell Street approach will function with LOS D delays during the morning peak hour and with LOS F delays during the afternoon peak hour.

A review of the traffic signal warrants shows that a signal most likely will not be warranted, based upon the projected 2020 design hour volumes.

Buck Road (CR 553) and Stanger Avenue

This intersection of Buck Road and Stanger Avenue currently operates with LOS B delays for the stop-controlled approaches of Stanger Avenue. By the year 2020, LOS F delays are predicted along Stanger Avenue during the afternoon peak hour primarily due to the high volume of traffic along Buck Road, warranting further evaluation of improvements.

Volume projections indicate that a traffic signal may not be warranted by 2020. It is recommended, however, that this intersection be examined again as the Silvergate development progresses. This intersection, if signalized, would operate at a very good LOS B based on a simple two-phase, 90-second background cycle. The geometrics should include a two-lane approach along Stanger Avenue (left and through/right lanes) and a minimum three-lane section along Buck Road including an exclusive left on the approaches.

Buck Road (CR 553) and Clayton-Aura Road (CR 610)

This four-way stop-controlled intersection currently operating at an overall LOS B will degrade to function with LOS F delays in 2020, needing improvements.

Future traffic projections may warrant signalization of the intersection. Analysis indicates that an overall good LOS C can be obtained with the installation of a traffic signal along with other roadway improvements. It is recommended that the Clayton-Aura Road approaches become three-lane approaches with exclusive left, through, and right lanes. Buck Road should be a five-lane section to be consistent with the future widening of Buck Road. The signal should operate semi-actuated with a 90-second cycle and a protected/permissive left-turn phase on each approach.

Buck Road (CR 553) and Clayton Avenue (CR 608)

The left-turning movement from Buck Road at this unsignalized intersection currently operates an excellent LOS A. The Clayton Avenue approaches operate with LOS E or better delays. Under 2020 Build conditions, the intersection of Buck Road and Clayton Avenue will degrade and operate with significant delays, warranting improvements.

Analysis of future traffic projections indicate that a very good LOS B can be obtained with the installation of a traffic signal functioning under a 90-second cycle with a left-turn phase along Buck Road. The approaches along Buck Road should provide a minimum of three lanes with a left-turn lane, a through lane, and a shared through/right lane. The northbound approaches may require an exclusive right-turn lane, if sufficient distance from the Route 55 ramps exists. The eastbound and westbound approaches of Clayton Avenue should provide for two lanes (left and through/right). Due to the projected westbound left-turn volumes (2020 design hour volumes) along Clayton Avenue, it is recommended that a westbound lead phase be provided.

Buck Road (CR 553) and Route 55 On/Off Ramps

The Route 55 ramps currently operate with LOS C or better delays with the exception of the southbound off-ramp, which functions with LOS F delays during the afternoon peak hour.

Future traffic projections in the year 2020 predict that both sets of ramps (i.e. northbound and southbound) will operate with significant LOS F delays during the morning and afternoon peak hours, respectively, requiring signalization.

Due to the diamond-type interchange, the traffic signal operation at both ramps should be coordinated so that the queuing from one signal does not extend through to the other signalized

intersection. We recommend that the same phasing be incorporated at each ramp intersection providing a lead in the inner direction of the interchange.

Since the existing bridge can only accommodate four lanes and Buck Road is destined to be a five-lane section on either side of the Route 55 interchange, this interchange will become the bottleneck along Buck Road. While the optimum improvement is to widen the overpass and provide a five-lane section, it is very unlikely. With utilizing the existing shoulders, it is possible to provide a four-lane section with one southbound lane, a center left-turn lane, and two northbound travel lanes. We would recommend that the northbound direction have two travel lanes versus the southbound direction since that direction is projected to have greater volume under the projected 2020 Build conditions.

Alternatively, the County may elect to have four travel lanes at the bridge providing two lanes in each direction. This would result in that the left-turn movement onto the respective ramps needing to use the inner lane to execute the required turning movement. During off-peak hours, this type of lane usage is typically not a problem. However, during peak times, we typically find that the inner lane becomes a "de-facto" left-turn lane and the majority of through traffic would be in the outer through lane. This configuration would be similar to the lane usage provided at the interchange along Berlin-Cross Keys Road and the Atlantic City Expressway in Camden County.

Our analysis assumed the first recommended geometrics: center left lane, two northbound lanes and one southbound lane. With a three-phase, 90-second cycle, an overall LOS C or better can be achieved during the morning peak hours. However, during the afternoon, an overall LOS E with several movements operating with LOS F delays are projected. With a four-lane section (i.e. no center left-turn lane), LOS F delays are also anticipated.

Due to the fact that the projections utilized for purposes of this report are for 2020 and includes an annual growth rate as well as the Silvergate PUD traffic, it would be prudent to re-examine the ramp intersections as specific development parcels, such as the commercial and nearby residential, are finalized for municipal and county approvals.

Buck Road (CR 553) and Aura Road (CR 667)

The development proposal includes the vacation of County Route 667 between County Route 553 and County Route 538 where a shopping center is proposed as part of Phase seven. The intersection will include the westbound approach of Aura Road and access to the regional shopping center on its eastern leg.

The 2020 projections show that a traffic signal will most likely be warranted. With a traffic signal installed, the southbound Buck Road approach will require a double left-turn lane due to the anticipated volume. Aura Road should provide for a left-through and right-turn lane whereas the exit from the regional shopping center should provide for three lanes (exclusive left, through, and right lanes).

When signalized, this intersection will operate at an LOS B during the morning peak hour and an LOS D during the afternoon peak hour. Exclusive left-turn phasing along Buck Road with a right-turn overlap from Aura Road and the site access may be necessary. The signal should operate as semi-actuated based on a three-phase, 90-second cycle with a protected/permissive left-turn phase along Buck Road.

Due to the potential six-lane section along Buck Road and the proximity of the Route 55 ramps, this intersection will require periodic re-examination to update volume projections and determine the actual lane usage and signal phasing.

Buck Road (CR 553) and Swedesboro-Franklinville Road (CR 538)

This signalized intersection currently operates at an overall very good LOS B. With the vacation of Aura Road between Buck Road and Swedesboro-Franklinville Road, this signalized intersection is predicted to operate with LOS F, delays requiring improvement.

It is recommended that the southbound approach of Buck Road be widened to accommodate a three-lane approach (two left-turn lanes and a through/right lane). An exclusive right-turn lane should be added along the westbound approach of Swedesboro-Franklinville Road to be channelized for a free-flow movement. Signal rephasing will be necessary. In 2020 with a 90-second cycle with a

southbound lead the signalized intersection is anticipated to function at a very good LOS C in the morning peak hour and an LOS D in the afternoon.

Union Street (CR 619) and Sewell Street (CR 628)

The critical movements at this unsignalized intersection currently functions at an LOS B or better. Under future 2020 conditions, LOS C delays or better are anticipated. As such, no improvements will be required to accommodate full development.

Whig Lane (CR 619) and Stanger Avenue

This T-end type intersection operates at an LOS A. Level of Service B delays are projected in 2020. Therefore, no improvements are required to accommodate the future traffic volumes at this intersection.

Aura Road (CR 667) and Whig Lane (CR 619)

The overall operation of this intersection currently functions at an excellent LOS A during the morning and afternoon peak hours. By 2020, the overall operation of this intersection will operate with LOS F delays.

Volume projections indicate that a traffic signal may not be warranted by 2020. It is recommended, however, that this intersection be re-examined as the Silvergate development progresses. This intersection will operate at a very good LOS B based on a simple two-phase, 90-second background cycle. The geometrics should include exclusive left-turn lanes on the Aura Road approaches and an exclusive westbound right-turn lane along Whig Lane.

Glassboro Road (CR 637) and Stanger Avenue

This intersection currently operates at an overall LOS A and will continue to operate at a very good quality of flows under future Build conditions. As a result, no intersection improvements will be required to accommodate the 2020 traffic volumes.

Clayton-Aura Road (CR 610) and Glassboro Road (CR 637)

The STOP-sign controlled approaches currently operate at an LOS B during the morning and afternoon peak hours. Under Build conditions, each individual movement in the year 2020 will operate at an LOS C or better during both studied peak hours with one exception. The southbound approach of Glassboro Road will operate with LOS D delays, still functioning at an acceptable level of service. No improvements will be necessary to accommodate the future 2020 traffic projections.

Swedesboro- Franklinville Road and Willow Grove Road

This four-legged, unsignalized intersection currently operates at a very good LOS B. With the vacation of Aura Road, the site access, which is to serve the commercial portion, will create the fourth leg to this intersection. By 2020, LOS F delays are predicated.

The projected 2020 future volumes indicate that a traffic signal would most likely be warranted at this location. With the installation of a traffic signal, the eastbound approach of Buck Road will require a double left-turn lane due to the anticipated PM peak hour volumes for this movement. Three approach lanes should be painted for the western approach of Buck Road: left, through, and right. The exiting right-turning movements from the Phase 7 development should be channelized for maximum efficiency.

When signalized, the intersection will operate at an overall good LOS C or better. A lead phase should be provided for the eastbound and southbound approaches to the subject signal.

Site Accesses

Two loop roadways are proposed along Buck Road, which will serve as the main circulation roadway through the Silvergate Planned Unit Development. For purposes of this report, the loop roadway shall be known as Town Center Loop Road. The westerly loop will be constructed through the Phase 1 and 4 developments encircling the intersection of Buck Road and Clayton-Aura Road. The eastern portion of Town Center Loop Road will provide access to the Phase 5 and 6 developments. Several other access points are proposed with each development section of the planned development. A discussion of each proposed site access under the projected 2020 design

year is provided herein.

- **Phase 1**

The first phase of development within the P.U.D. is centrally located on the southwest corner of the County Route 553/610 intersection. Access will be provided along Buck Road via the southerly intersection of Town Center Loop Road. Inbound left-turning movements are predicted to function at a very good LOS B during the studied peak hours under full-build-out conditions. The exiting movements are anticipated to operate with LOS F delays during the afternoon peak, primarily due to heavy volumes along Buck Road.

Based upon a review of *Highway Research Record*, Number 211, a left-turn lane will be warranted for northbound traffic along Buck Road under 2020 design hour volumes. A review of the signal warrants show that a traffic signal may be warranted. We note that the left-turning vehicles can exit via County Route 610 to the recommended signal at CR 553/CR Route 610. Therefore, we do not believe a traffic signal will be necessary at this location.

Access to Phase 1 will also be provided along Clayton-Aura Road via a four-legged intersection with access to Phase 4. It is anticipated that the inbound left turns along Buck Road will operate at an excellent LOS A. The exiting movements will function at an LOS C or better with the exception of the southbound approach (from Phase 4) during the PM peak period. Primarily due to the heavy volume of exiting left turns in combination with the through traffic along Clayton-Aura Road, LOS F delays are anticipated.

We do note that Phase 4 traffic does have the option to self-direct to the access along Buck Road in the event that motorists feel delays are unreasonable where a traffic signal is most probable.

Based upon the anticipated full build-out volumes in year 2020, a left-turn lane may be warranted for traffic along Clayton-Aura Road, as per a review of *Highway Research Record*, Number 211.

- **Phase 2**

A total of four access points will service the development within Phase 2 of the planned unit development. Accesses will be provided along County Route 553, Stanger Avenue, and County Route 619. All inbound left-turning movements along the respective roadways are predicted to function at an LOS B or better during both studied peak periods.

Exiting movements will operate at a very good LOS B or better with the exception of the outbound movements along Buck Road during the afternoon peak period. The exiting left- and right-turning movements at the Buck Road accesses will function with LOS E delays during the studied PM peak, primarily due to the heavy through traffic along Buck Road. Motorist may self-direct to another access point in the event that delays are found to be unacceptable.

A review of *Highway Research Record*, Number 211 indicates that a left-turn lane will be warranted for northbound traffic along Buck Road based upon the projected 2020 design hour volumes.

- **Phase 3**

The Phase 3 development is located along Aura Road (CR 667), to the south of its intersection with Whig Lane. Two points of access will service the third phase of development. The entering left turns along Aura Road are predicted to operate at an excellent LOS A. The outbound left- and right-turning movements are anticipated to function at an LOS B and LOS C during the studied morning and afternoon peak hours, respectively.

- **Phases 4 and 5**

The Town Center Loop Road along Buck Road will serve as direct access to the Phase 4 and 5 developments. A review of the signal warrants indicates the need for a traffic signal at this location under 2020 full build-out conditions.

With a 90-second background cycle, an acceptable LOS D can be obtained. Signal phasing should provide for lead left-turn phasing along Buck Road. We recommend that the each approach to

the signal provide for an exclusive left-turn lane in addition to a shared through/right lane.

The access to the commercial section of Phase 5 at the intersection of Buck Road and Aura Road was previously discussed in the off-tract intersection analysis.

- **Phase 6**

In addition to access along Buck Road via Phase 5, Phase 6 has proposed access along County Route 610 and County Route 637. Access along Clayton-Aura Road is the eastern connection to Town Center Loop Road.

The inbound left-turning movements are predicted to operate at an excellent LOS A while the exiting southbound movements will operate at an LOS B and LOS C during the morning and afternoon peak hours, respectively. A review of the left-turn lane warrants (utilizing 2020 design hour volumes) per the *Highway Research Record*, Number 211 shows that a left-turn lane would be necessary at the Phase 6 access along Clayton-Aura Road.

The Phase 6 access along Glassboro Road is proposed as a four-legged, STOP-sign controlled intersection along the access points. The entering left turns are anticipated to function at an excellent LOS A during both studied peak hours. The outbound left- and right-turning movements along the eastbound and westbound approaches will function at a very good LOS B. The warrants based upon *Highway Research Record*, Number 211 will not be met for inbound left-turning traffic at this location under 2020 conditions.

- **Phase 7**

Two points of access to the Phase 7 commercial development will be provided along Swedesboro-Franklinville Road (CR 538). With the vacation of Aura Road between Buck Road and Swedesboro-Franklinville Road, the westernmost access will align with Willow Grove Road. The operation of the western access has been previously discussed in the off-tract intersection section.

The inbound left turn at the easternmost access along Swedesboro-Franklinville Road is predicted to function at an excellent LOS A. The exiting movements will operate at an LOS C or

better during the studied peak hours. Based upon the project full build-out volumes in 2020, a left-turn lane will be warranted at the Phase 7 access along County Route 538, as per a review of the standards within *Highway Research Record*, Number 211.

SIGNAL SYSTEM

With the proposal to install several traffic signals within the limits of the planned development, specifically along Buck Road, it would be wise and extremely beneficial to traffic flow operations to design a computer-controlled traffic signal system with a two-way telecommunications (called a closed loop system) from each signalized intersection to the Engineer's Office in Clayton. This will assure the highest degree of traffic flow efficiency using state-of-the-art technology. With this in mind our conceptual improvements contained above are based on a 90-second signal cycle, which will be highly compatible with the system requirements.

P.U.D. TRAFFIC IMPACTS

The Silvergate Planned Unit Development will create a substantial increase in traffic on the highways in rural Elk Township. In order to best understand this effect of the site's traffic the portion of future traffic volumes that can be attributed to the Silvergate development has been determined based on the traffic volumes during the afternoon peak hour. As shown below in Table 4, it is found that approximately half of the area's future traffic will be generated as a result of the Silvergate development.

Table 4 Site Traffic Impacts	
<i>Studied Intersection</i>	<i>Percent Impact</i>
CR 553 and CR 628	48.6%
CR 553 and Stanger Avenue	58.8%
CR 553 and CR 610	68.0%
CR 553 and CR 608	66.8%
CR 553 and NJ Route 55 NB	64.0%
CR 553 and NJ Route 55 SB	59.4%
CR 553 and CR 667	67.1%
CR 553 and CR 538	52.8%
CR 619 and CR 628	32.6%
CR 619 and Stanger Avenue	56.1%
CR 667 and CR 619	51.9%
CR 637 and Stanger Avenue	30.7%
CR 610 and CR 637	38.7%

VACATION OF AURA ROAD

The Silvergate development proposes vacation of Aura Road (CR 667) between Buck Road (CR 553) and Swedesboro-Franklinville Road (CR 538). With the vacation, access to Phase 5 will be opposite the Aura Road approach to County Route 553. The Phase 7 access will be along County Route 538 opposite Willow Grove Road. All of the existing traffic using the section of Aura Road to be vacated would travel through the existing traffic signal at County Route 538 and County Route 553.

With the vacation, the improvements along the roadways that form the current triangle (CR 553, CR 610, and CR 538) would include two new traffic signals and widening of both Buck Road and Swedesboro-Franklinville Road between Buck Road and Aura Road. The intersection improvements should be consistent with one another.

Without the vacation, the improvements along the roadways will include two new traffic signals, with multiple turning lanes provided at each of the proposed signal locations. Difficulties arise with the

proposed fifth leg to the subject signalized intersections. Intense signage will be required to inform motorists of the appropriate turning lane for their desired destination. Right-turn-on-red restrictions must be in place since potential conflicts will exist between vehicles turning onto the fifth leg. In addition, a complex signal phasing with overlaps will be required at the Aura Road/Site Access intersections. As a whole, the subject proposed signalized intersections, at Buck Road and Aura Road as well as Swedesboro-Franklinville Road and Willow Grove Road, will operate in a highly inefficient manner due to the presence of the fifth leg.

Without the vacation of County Route 667 between County Route 553 and County Route 538, the percentage of traffic at the three intersections on the corners of the triangles is as follows:

Studied Intersection	Percent Impact
CR 553 and CR 667	81.3%
CR 553 and CR 538	32.8%
CR 667 and CR 538	93.1%

SUMMARY

A Planned Unit Development provides an opportunity for roadway improvements to be properly planned before traffic congestion sets in and developed areas prevent implementation of good design solutions.

As a result, this traffic engineering study has identified the scope of roadway and intersection improvements that will be necessary by 2020 to accommodate traffic flows at acceptable levels of service that will provide opportunity for post-Silvergate development.

With a large development such as Silvergate P.U.D., which is to be completed in approximately 15 years, it is not practical to establish a time frame or actual engineering design for the specific improvements, which are subject to the forces of the economy and the buying market. As such, this report should be utilized as a master plan for traffic improvements. The important first step is to reserve the needed right-of-way for future improvements, then to evaluate each specific development proposal for its compatibility with this report and appropriate improvement implementation. A periodic traffic study update over the next fifteen years will then keep the traffic plan current with the

development progress.

Past practice in Gloucester County with other planned unit developments is that a public/private alliance between the developer and the county government will create an extremely workable environment for the proper cost and/or task sharing that allows the timely implementation of highway improvements to safely and efficiently serve the motoring public.

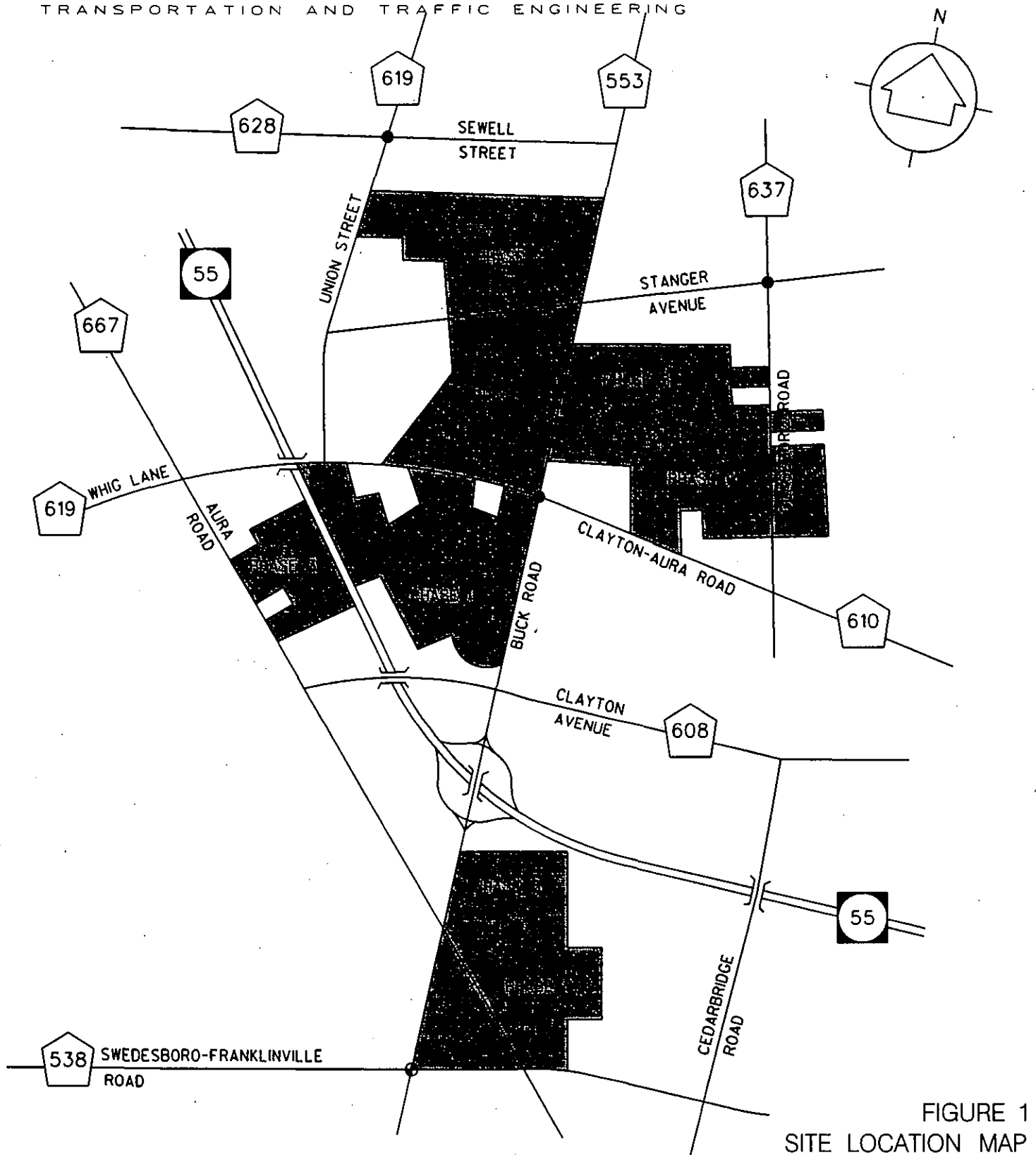


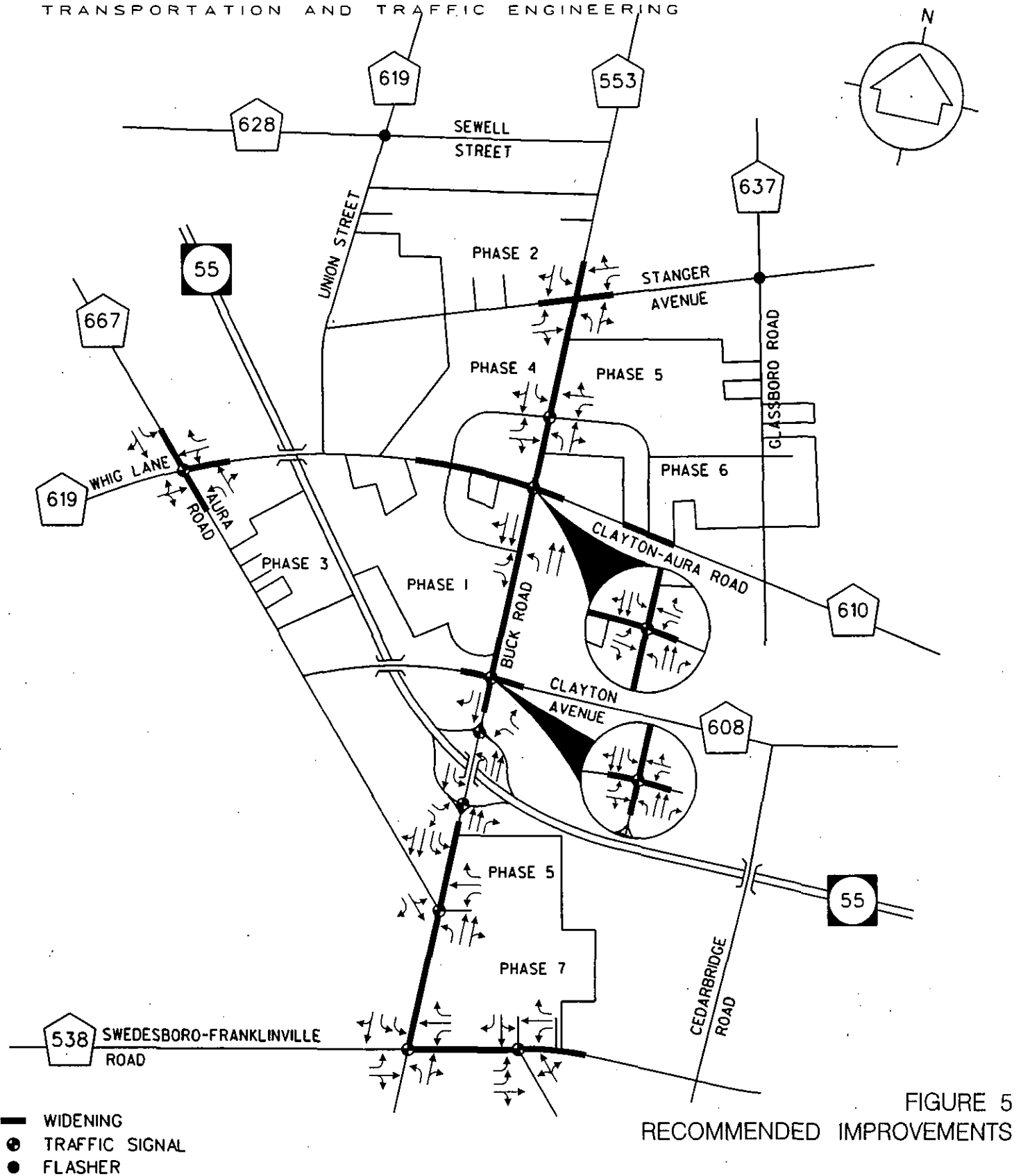
FIGURE 1
SITE LOCATION MAP

SILVERGATE P.U.D.

ELK TOWNSHIP, GLOUCESTER COUNTY, NJ

04-078
DECEMBER 2004

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DECEMBER 2004
04-078

SILVERGATE P.U.D.

ELK TOWNSHIP, GLOUCESTER COUNTY, NJ

Table 2 Site Trips									
Land Use	AM Peak Hour			PM Peak Hour			Daily Volume		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Phase 1									
35 Single Family Homes	8	25	33	26	15	41	41	396	
20,000 sq. ft. Office	46	6	52	6	46	52	52	386	
8,400 sq. ft. Day Care Center	57	50	107	52	59	111	111	666	
Sub-Total	111	81	192	84	120	204	204	1,448	
Phase 2									
230 Single Family Homes	43	128	171	143	84	227	227	2,237	
Phase 3									
162 Single Family Homes	31	92	123	104	61	165	165	1,621	
Phase 4									
192 Apartments	20	78	98	80	43	123	123	1,304	
160,000 sq. ft. Retail	127	81	208	410	444	854	854	9,218	
Sub-Total	147	159	306	490	487	977	977	10,522	
Phase 5									
226 Townhouses	17	82	99	79	39	118	118	1,284	
46,650 sq. ft. Retail (Town Center)	60	39	99	182	197	379	379	4,137	
237,500 sq. ft. Retail (Regional Commercial)	160	103	263	532	576	1,108	1,108	11,916	
Sub-Total	237	224	461	793	812	1,605	1,605	17,337	
Phase 6									
266 Single Family Attached Homes	49	147	196	163	96	259	259	2,558	
127 Single Family Homes	25	74	99	84	49	133	133	1,296	
Sub-Total	74	221	295	247	145	392	392	3,854	
Phase 7									
237,500 sq. ft. Retail	160	103	263	532	576	1,108	1,108	11,916	
140,200 sq. ft. Office	216	29	245	40	196	236	236	1,730	
Sub-Total	376	132	508	572	772	1,344	1,344	13,646	
Grand Total	1,019	1,037	2,056	2,433	2,481	4,914	4,914	50,665	

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

Direction	AM			PM		
	NB (IN)	SB (OUT)	NB (IN)	SB (OUT)	NB (IN)	SB (OUT)
Residential	52	119	183	74		
Retail	15	59	50	323		
Office	16	27	5	96		
Total	83	205	238	493		
		165		418		

NB RES 0.27
NB RET 0.03
NB OFF 0.05
SB RES 0.19
SB RET 0.18
SB OFF 0.32

Note: The Silvergate Development is proposed north of the subject site, so all inbound trips can be considered northbound and all outbound trips can be considered southbound for the purposes of this study.

L 3 1%
T 216 81%
R 49 18%
268

L 4 1%
T 347 85%
R 58 14%
409

Note: Southbound direction should only include the southbound through movement from the intersection of Elk Road (CR 538) and Buck Road (CR 553) (calculations above.)

Appendix D:
2027 No-Build Conditions Analysis and LOS Summaries



Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	480	431	1
Future Vol, veh/h	1	1	1	480	431	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	97	97
Heavy Vehicles, %	0	0	0	14	13	0
Mvmt Flow	1	1	1	527	444	1

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	975	445	445	0	-	0
Stage 1	445	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	281	617	1126	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	617	1126	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	649	-	-	-	-	-
Stage 2	595	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.37	0.02	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	4	-	386	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Ctrl Dly (s/v)	8.2	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	618	816	1
Future Vol, veh/h	1	1	1	618	816	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	97	97
Heavy Vehicles, %	0	0	0	10	19	0
Mvmt Flow	1	1	1	679	841	1

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1523	842	842	0	-	0
Stage 1	842	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	131	367	802	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	131	367	802	-	-	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	506	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	23.83	0.02	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	3	-	193	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Ctrl Dly (s/v)	9.5	0	23.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Appendix E: Trip Generation



John McAvey

From: Paul Ploskonka <paul.ploskonka@athcultivation.com>
Sent: Monday, February 17, 2025 10:51 AM
To: Benjamin Mitsmenn
Cc: Matthew Emling; Ryan Wigmore.; Spencer Slack; John McAvey
Subject: Re: PAUPL23001 - Elk Cannabis - Traffic Coordination

You don't often get email from paul.ploskonka@athcultivation.com. [Learn why this is important](#)

Ben,

Each day we will have the following

3 office admin / executives

Labor : 2 managers 6 laborers

Best regards,
Paul

On Mon, Feb 17, 2025 at 10:39 AM Benjamin Mitsmenn <BMitsmenn@pennoni.com> wrote:

Paul,

Do you have the anticipated staff count and number of employees per shift and what the shifts will be?

Thanks!

Benjamin Mitsmenn

Pennoni

[515 Grove Street, Suite 1B | Haddon Heights, NJ 08035](#)

Direct: +1 856-316-1070 | **Mobile:** (609) 532-8114

www.pennoni.com | BMitsmenn@Pennoni.com

From: Paul Ploskonka <paul.ploskonka@athcultivation.com>
Sent: Thursday, February 13, 2025 10:08 AM
To: Benjamin Mitsmenn <BMitsmenn@Pennoni.com>
Cc: Matthew Emling <matthew.emling@athcultivation.com>; Ryan Wigmore. <rwig0413@aol.com>; Spencer Slack

Land Use: 190

Marijuana Cultivation and Processing Facility

Description

A marijuana cultivation and processing facility is a free-standing facility where marijuana is propagated, planted, grown, harvested, dried, cured, graded, labeled, tagged for tracking, or trimmed. A facility can provide all or any combination of these functions. The facility also includes the processing of the raw product into useable marijuana, marijuana concentrates, and marijuana-infused products. Marijuana dispensary (Land Use 882) is a related land use.

Additional Data

The single site in the database provides both the marijuana cultivation and processing functions.

The site was surveyed in the 2010s in Massachusetts.

Source Number

1041

Marijuana Cultivation and Processing Facility (190)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. 1000 Sq. Ft. GFA: 39

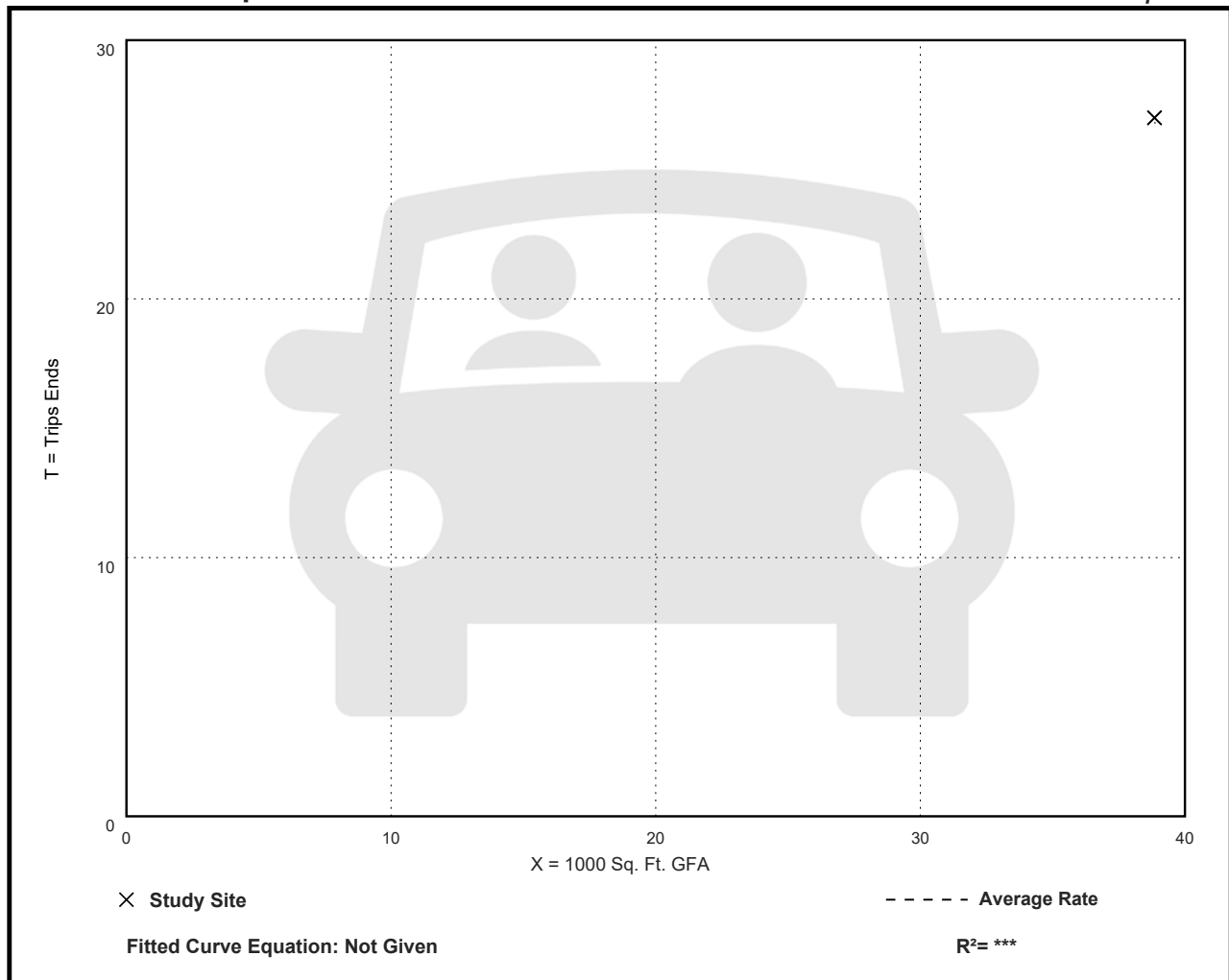
Directional Distribution: 93% entering, 7% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.69	0.69 - 0.69	***

Data Plot and Equation

Caution – Small Sample Size



Marijuana Cultivation and Processing Facility (190)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. 1000 Sq. Ft. GFA: 39

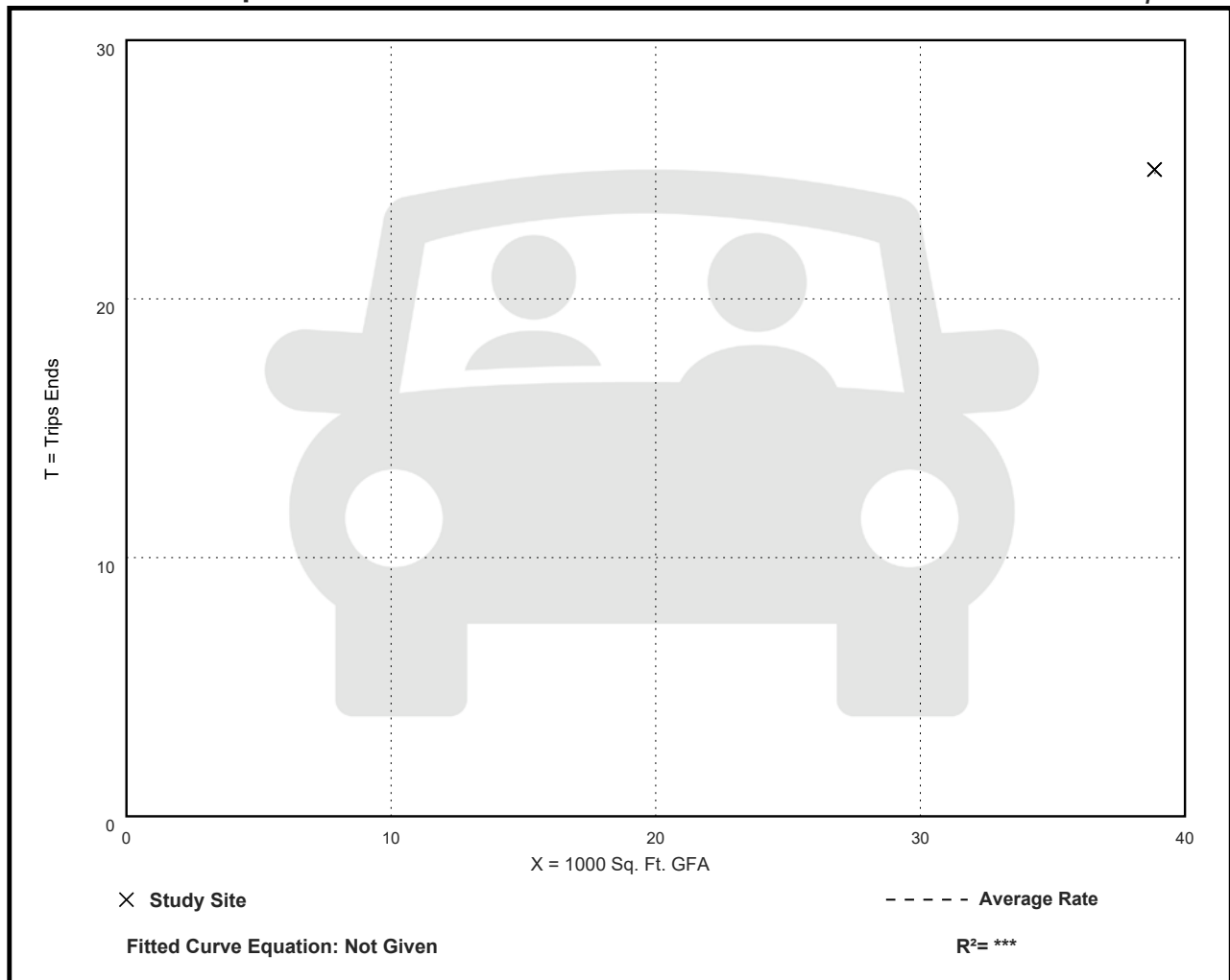
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.64	0.64 - 0.64	***

Data Plot and Equation

Caution – Small Sample Size



Query
Filter

Trip Generation Manual, 11th Ed >

190

(100-199) Industrial >

190 - Marijuana Cultivation and Processing Fa ▾

All Sites >

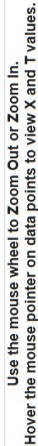
General Urban/Suburban

1000 Sq. Ft. GFA >

Weekday, Peak Hour of Adjacent Street Traffic ▾

Vehicle >

Calculate



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

190

LAND USE GROUP:

(100-199) Industrial

LAND USE :

190 - Marijuana Cultivation and Processing Fa

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

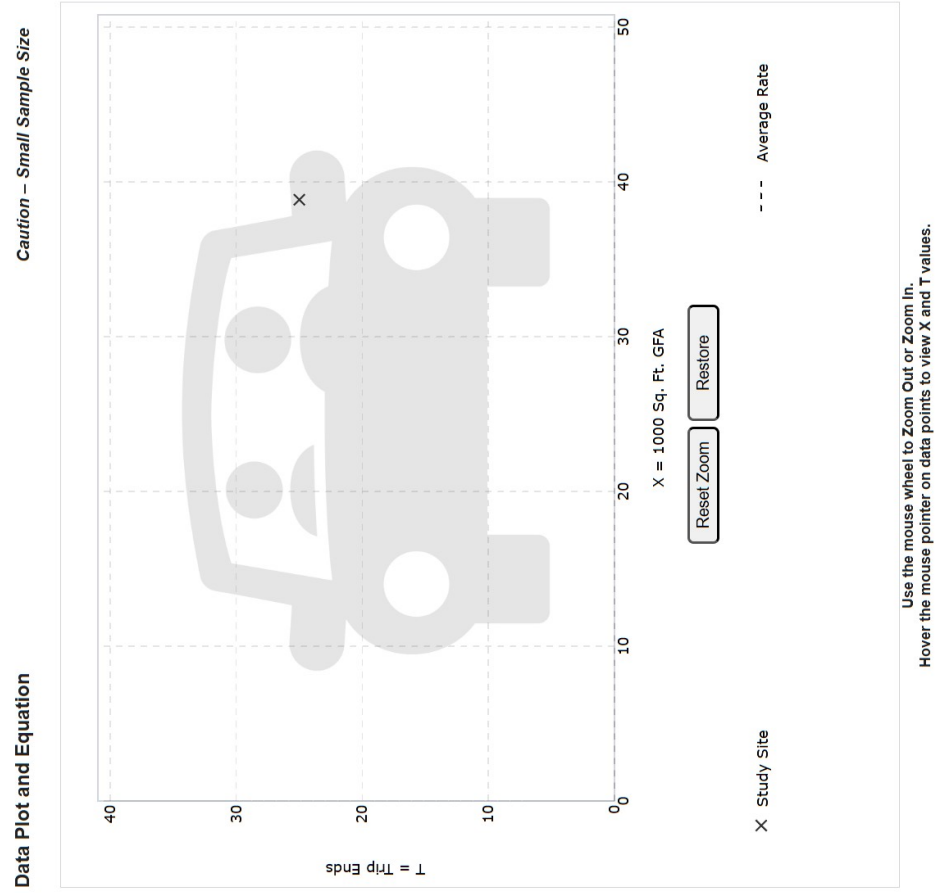
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

302.87

Calculate



DATA STATISTICS	
Land Use:	Marijuana Cultivation and Processing Facility (190) Click for Description and Data Plots
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	1
Avg. 1000 Sq. Ft. GFA:	39
Average Rate:	0.64
Range of Rates:	0.64 - 0.64
Standard Deviation:	***
Fitted Curve Equation:	Not Given
R ² :	***
Directional Distribution:	28% entering, 72% exiting
Calculated Trip Ends:	Average Rate: 194 (Total), 64 (Entry), 140 (Exit)

Appendix F:
2027 Build Conditions Analysis and LOS Summaries



Intersection

Int Delay, s/veh 0.3

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 7 7 7 480 431 7

Future Vol, veh/h 7 7 7 480 431 7

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 91 91 97 97

Heavy Vehicles, % 0 0 0 14 13 0

Mvmt Flow 8 8 8 527 444 7

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 991 448 452 0 - 0

Stage 1 448 - - - - -

Stage 2 543 - - - - -

Critical Hdwy 6.4 6.2 4.1 - - -

Critical Hdwy Stg 1 5.4 - - - - -

Critical Hdwy Stg 2 5.4 - - - - -

Follow-up Hdwy 3.5 3.3 2.2 - - -

Pot Cap-1 Maneuver 275 615 1120 - - -

Stage 1 648 - - - - -

Stage 2 586 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 273 615 1120 - - -

Mov Cap-2 Maneuver 273 - - - - -

Stage 1 642 - - - - -

Stage 2 586 - - - - -

Approach EB NB SB

HCM Ctrl Dly, s/v 14.93 0.12 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 26 - 378 - -

HCM Lane V/C Ratio 0.007 - 0.04 - -

HCM Ctrl Dly (s/v) 8.2 0 14.9 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0 - 0.1 - -

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	7	7	618	816	7
Future Vol, veh/h	7	7	7	618	816	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	97	97
Heavy Vehicles, %	0	0	0	10	19	0
Mvmt Flow	8	8	8	679	841	7

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1539	845	848	0	-	0
Stage 1	845	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	129	366	798	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	366	798	-	-	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	499	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	25.83	0.11	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	20	-	188	-	-
HCM Lane V/C Ratio	0.01	-	0.081	-	-
HCM Ctrl Dly (s/v)	9.6	0	25.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-