TRAFFIC IMPACT STUDY

LAUREL CROSSING
RESIDENTIAL SUBDIVISION

Warrington Township, Bucks County

Pennsylvania

November 23, 2020

HCA

Horner & Canter Associates A Professional Corporation

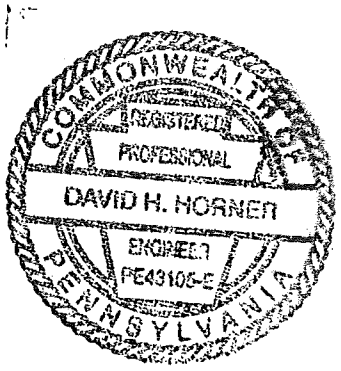
TRANSPORTATION AND TRAFFIC ENGINEERING

TRAFFIC IMPACT STUDY

LAUREL CROSSING
RESIDENTIAL SUBDIVISION

County Line Road (SR 2038)

Warrington Township
Bucks County
Pennsylvania



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EXECUTIVE SUMMARY

Horner & Canter Associates has prepared this Traffic Impact Study for the proposed Laurel Crossing residential subdivision to be located on the north side of County Line Road (SR 2038) in Warrington Township, Bucks County, Pennsylvania. The proposed residential development will consist of 22 single-family homes with access provided via a single roadway intersecting County Line Road (SR 2038) providing all ingress and egress movements at a stop-controlled intersection. Emergency access is also proposed to County Line Road at a separate location.

The study scope pursuant to the review and approval of the Township Engineer included the following off-site intersections:

- County Line Road (SR 2038)/Stump Road
- County Line Road (SR 2038)/Kenas Road (SR 2014)
- County Line Road (SR 2038)/Limekiln Pike (PA Route 152)
- County Line Road (SR 2038)/Limekiln Pike (PA Route 152)/Lower State Road (SR 3003)

Based on this traffic study, we present the following conclusions and recommendations:

1. The proposed development will generate an estimated 20 trips in the AM peak hour and 24 trips in the PM peak hour.

2. Access to the site will be provided via County Line Road (SR 2038). The access intersection will operate at acceptable LOS C or better during both peak periods and is classified as a "low-volume" driveway pursuant to PennDOT's Chapter 441 criteria. The access will not require auxiliary turn lanes and will meet or exceed the sight distance requirements.

3. The proposed site access intersection is subject to the review and approval of PennDOT through the Highway Occupancy Permit (HOP) application process.

4. The development-generated traffic can be accommodated at the study area intersections and the proposed site access with no adverse impact. There are no improvements required at the off-site intersections in conjunction with this development.

INTRODUCTION

Horner & Canter Associates has prepared this Traffic Impact Study for the proposed Laurel Crossing residential subdivision to be located on the north side of County Line Road (SR 2038) in Warrington Township, Bucks County, Pennsylvania (Figure 1). The project site was previously occupied by Montgomery Gardens nursery. The proposed residential development will consist of 22 single-family homes with access provided via a single roadway intersecting County Line Road (SR 2038) providing all ingress and egress movements at a stop-controlled intersection. Emergency access is also proposed to County Line Road at a separate location.

For the purpose of this Traffic Impact Study, the completion and occupancy date of the proposed development is assumed to be 2023.

Scope of Study

The purpose of this Traffic Impact Study is to determine the traffic impact the proposed residential development will have with respect to the conditions on the adjacent roadways and intersections. The study scope was approved in advance by the Township Engineer and includes the following:

- A site inspection and inventory of existing roadway features such as geometric layout, lane configurations, traffic control devices, and other pertinent physical characteristics.

- Conduct of Manual Turning Movement (MTM) counts for the weekday AM (7:00 AM - 9:00 AM) and weekday PM (4:00 PM - 6:00 PM) peak periods at the following intersections which constitute the study area:

    - County Line Road (SR 2038)/Stump Road
    - County Line Road (SR 2038)/Kenas Road (SR 2014)
    - County Line Road (SR 2038)/Limekiln Pike (PA Route 152)
    - County Line Road (SR 2038)/Limekiln Pike (PA Route 152)/Lower State Road (SR 3003)

- Projection of development-generated traffic volumes and distribution of this traffic to the study area roadway network.

- Establishment of future traffic volumes for the study horizon year (2023) including background traffic growth projections and the development-generated traffic.

- Analysis of existing, future No-Build and future Build traffic conditions at the study area intersections and the proposed site access roadway intersecting County Line Road (SR 2038).

- Formulation of conclusions with regard to the traffic impact of the proposed development.

EXISTING CONDITIONS

The study area roadway network was inventoried with regard to the existing physical and operating characteristics as they affect traffic flow. The study area roadway network is described in further detail below.

The site fronts on **County Line Road (SR 2038)**, a State highway classified as an Urban Principal Arterial extending in a northwest-southeast direction. For the purpose of this traffic study, County Line Road is referred to as an east-west roadway. In the vicinity of the site, County Line Road generally provides two through travel lanes in each direction with a two-way, center left-turn lane which becomes a designated left-turn lane at the respective signalized intersections in the corridor. The posted speed limit on County Line Road is 45 miles per hour.

All of the off-site study area intersections are signalized, including the intersections of County Line Road (SR 2038)/Stump Road and County Line Road (SR 2038)/Kenas Road (SR 2014) which are the nearest signalized intersections to the site in both the west and east directions, respectively. Reduced-size copies of the off-site intersection Traffic Signal Plans and associated System Plans that govern the peak period signal phasing/timing throughout the County Line Road corridor are provided for reference in Appendix A.

Existing Traffic Volumes

Since the peak hour traffic conditions reflect the critical periods for evaluation of operating conditions and traffic impact, existing traffic volumes were acquired at the study area intersections through the conduct of peak hour Manual Turning Movement (MTM) traffic counts conducted by our firm. The counts were conducted during the weekday AM (7:00 – 9:00 AM) and weekday PM (4:00 – 6:00 PM) peak periods in October 2020. These count periods were selected to capture both the peak hours of adjacent street traffic and the peak periods of the proposed development. Given the ongoing COVID-19 pandemic and its potential impact on traffic volumes in 2020, we compared the MTM count data with historic data for County Line Road. Based on information made available on PennDOT's iTMS website, County Line Road between Stump Road and Kenas Road carried approximately 19,000 vehicles per day (total both directions) with 1,361 vehicles in the AMJ peak hour and 1,457 vehicles in the PM peak hour in 2017. This data represents the most recent pre-2020 data available for this roadway segment. In comparing the 2020 MTM peak hour traffic data with the 2017 PennDOT data, it was found

that the 2020 peak hour data was comparable in the AM peak hour (1,331 vehicles) and higher in the PM peak hour (1,670 vehicles) than the 2017 data. Based on this comparison, the 2020 data is considered representative and was not factored. The summarized MTM counts as well as the PennDOT data are provided for reference in Appendix B.

The resultant existing peak hour traffic volumes are presented in Figures 2 and 3 for the respective peak periods.

Bicycle and Pedestrian Facilities

There are existing sidewalks along both sides of County Line Road along the site frontage. There are no designated bicycle paths or lanes on County Line Road in proximity to the site. Bicycles utilize the existing shoulders and travel way on County Line Road.

Public Transportation

There is no public transportation available in proximity to the proposed development.

Scheduled Roadway Improvements

Based on a review of the Pennsylvania Transportation Improvement Program (TIP), there are no programmed roadway improvements in the vicinity of the proposed development.

Existing Levels of Service

The operating conditions of the study area intersections was determined through the conduct of a capacity/Level of Service (LOS) analysis using Synchro 10.0 analysis software based on the methodologies contained in the Highway Capacity Manual (HCM 6th Edition). Level of Service (LOS) is a measure of the quality of the traffic flow and generally is expressed as follows:

Level of Service
A - Excellent - Free flow
B - Very Good - Minor adjustments in traffic flows
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

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 controlled and yielding movements, such as exiting movements from a stop sign or the left-turn from a through street into a side street. The delay thresholds for various Levels of Service are contained in Appendix C.

The existing LOS findings are presented in Figure 4. The detailed capacity/LOS analysis worksheets are provided in Appendix D.

SITE TRAFFIC

The determination of the amount of traffic that a proposed development will generate can best be made by comparison with similar sites. The Institute of Transportation Engineers (ITE) publication *Trip Generation Manual, 10th Edition* is a compilation of trip generation studies for a variety of land uses and is considered the primary data source for use of trip generation projections. For the proposed development, Land Use Code 210 – Single-Family Detached Housing was selected as the most appropriate. Table 1 presents the projected development-generated traffic for the site based on the ITE database. The trip generation worksheets are provided in Appendix E.

Table 1
Site Trips

		AM Peak Hour			*PM Peak Hour*		
	Daily	***In***	***Out***	***Total***	***In***	***Out***	***Total***
Single-Family Homes (22 D.U.)	258	5	15	20	15	9	24

The development-generated traffic was distributed to the site access driveway and the study area roadway network based on existing traffic patterns. The site traffic distribution percentages are summarized below:

County Line Road (SR 2038)	
to/from the east	24%
to/from the west	30%
Stump Road	
to/from the north	5%
to/from the south	7%
Lower State Road (SR 3003)	
to/from the north	12%
Limekiln Pike (PA Route 152)	
to/from the north	7%
to/from the south	12%

Kenas Road (SR 2014) to/from the south	3%
	100%

The resultant distributed site trips are depicted in Figure 5.

Trip Generation Comparison

With the proposed residential subdivision, the existing use of the site and the traffic generated by this use are being replaced. The existing use of the site is a nursery and landscape business, with a primary building of 11,520 square feet and 30 employees. To provide a comparison of the existing and proposed uses of the site, the trip generation for the existing use was calculated using the ITE Land Use Code 818 – Nursery (Wholesale). The trip generation comparison is presented in Table 2 below:

Table 2
Trip Generation Comparison

		AM Peak Hour			*PM Peak Hour*		
	Daily	***In***	***Out***	***Total***	***In***	***Out***	***Total***
Single-Family Homes (22 D.U.)	258	5	15	20	15	9	24
Nursery Use (11,520 s.f. building)	449	n/a	n/a	28	n/a	n/a	60
Net Difference	**-191**	**n/a**	**n/a**	**-8**	**n/a**	**n/a**	**-36**

n/a – Ingress/egress data not available

As shown in Table 2, the proposed development will generate less traffic than the existing use.

FUTURE CONDITIONS

To assess the impact of the development-generated traffic volumes on the study area roadway network, the future traffic volumes in the anticipated build-out year of the site (2023) were determined. To account for regional growth that is expected to occur during the intervening period, a background traffic growth rate was applied to the existing traffic volumes. Based on PennDOT's growth rates for the area, a 0.54 percent per year background growth was applied (total 1.63 percent over three years) to the existing 2020 traffic volumes. The resultant 2023 No-Build traffic volumes are presented on Figures 6 and 7 for the respective peak periods.

The total Build 2023 traffic volumes, which include the development-generated traffic volumes distributed to the proposed site access and to the study area roadway network, are presented in Figures 8 and 9 for the two study peak periods, respectively.

Assessment

An assessment of the future 2023 No-Build and Build operating conditions within the study area was completed. The assessment included a Level of Service (LOS) analysis of the study area intersections and the proposed site access in order to determine if the projected traffic volumes can be acceptably accommodated within the study area and whether any roadway or intersection improvements would be required. The future No-Build LOS results are presented in Figure 10. The future Build LOS results are presented in Figure 11. The detailed capacity analysis worksheets for the No-Build and Build conditions analyses are contained in Appendices F and G, respectively.

The Level of Service (LOS) results for each of the study locations are detailed below and summarized in attached Table 2:

County Line Road (SR 2038)/Stump Road - This signalized intersection currently operates at overall LOS D/C during the respective peak hours. All movements at the intersection are operating at acceptable LOS D or better. Under 2023 No-Build and Build conditions the intersection will continue to operate similar to existing conditions.

The site-generated traffic will add less than 1% traffic to the intersection in both peak periods, representing a negligible traffic impact. No improvements are required to mitigate the site-generated traffic.

County Line Road (SR 2038)/Kenas Road (SR 2014) – This signalized intersection currently operates at overall LOS C during both peak hours. All movements at the intersection are operating at acceptable LOS C or better. Under 2023 No-Build and Build conditions the intersection will continue to operate similar to existing conditions.

The site-generated traffic will add less than 1% traffic to the intersection in both peak periods, representing a negligible traffic impact. No improvements are required to mitigate the site-generated traffic.

County Line Road (SR 2038)/Limekiln Pike (PA Route 152) – This signalized intersection currently operates at overall LOS D/C during the respective peak hours. There are some movements that experience LOS E/F conditions which is primarily attributable to the long cycle lengths, the high traffic volumes on County Line Road and the green time allocations necessary to accommodate the complexities of the closely-spaced intersections of County Line Road/Limekiln Pike/Lower State Road. Under 2023 No-Build and Build conditions the intersection will continue to operate similar to existing conditions.

The site-generated traffic will add less than 1% traffic to the intersection in both peak periods, representing a negligible traffic impact. No improvements are required to mitigate the site-generated traffic.

County Line Road (SR 2038)/Limekiln Pike (PA Route 152)/Lower State Road (SR 3003) – This signalized intersection currently operates at overall LOS C/D during the respective peak hours. There are some movements that experience LOS E conditions which is primarily attributable to the long cycle lengths, the high traffic volumes on County Line Road and the green time allocations necessary to accommodate the complexities of the closely-spaced intersections of County Line Road/Limekiln Pike/Lower State Road. Under 2023 No-Build and Build conditions the intersection will continue to operate similar to existing conditions.

The site-generated traffic will add less than 1% traffic to the intersection in both peak periods, representing a negligible traffic impact. No improvements are required to mitigate the site-generated traffic.

County Line Road (SR 2038)/Site Access – A full movement access roadway is proposed to intersect County Line Road (SR 2038). This unsignalized intersection will provide one ingress lane and one egress lane and is classified as a "low-volume driveway" in accordance with PennDOT's Chapter 441 "Access To and Occupancy Of Highways by Driveways and Local Roads" criteria. The access intersection will operate with all movements at acceptable LOS C or better during the peak periods.

10-Second Delay Variance

PennDOT's criteria for determining whether a proposed development's traffic impact at off-site intersections requires mitigation is referred to as the "10-Second Variance" with regard to overall intersection delay. As shown in Table 2, and comparing the No-Build and the Build overall delays, the addition of traffic generated by the Laurel Crossing residential development

will not result in an exceedance of the 10-second delay variance; thus, the PennDOT LOS requirements are met and there are no improvements required.

Sight Distance

Sight distance for exiting vehicles from the site access was measured and compared to the desirable sight distance values of 635 feet looking to the left from the driveway and 570 feet looking right from the driveway based on the posted speed limit of 45 miles per hour on County Line Road. For exiting vehicles looking in both directions as well as left-turn ingress vehicles looking ahead, well over 700 feet is available at the proposed access location. This meets and exceeds all criteria.

Auxiliary Turn Lane Warrant Analysis

County Line Road along the site's frontage currently provides a two-way, center left-turn lane to accommodate ingress left-turning traffic. An auxiliary turn lane warrant analysis using the PennDOT's Publication 46 methodologies was performed for the site access intersection to determine whether dedicated left- or right-turn lanes would be warranted along County Line Road (SR 2038) at this intersection. The results of the analysis indicate that auxiliary turn lanes are not warranted. The analysis results are provided in Appendix H.

Table 3
Intersection Level of Service Summary

		Weekday AM Peak Hour			Weekday PM Peak Hour		
Intersection	**Movement**	**Existing**	**No-Build**	**Build**	**Existing**	**No-Build**	**Build**
County Line Road (SR 2038)/ Stump Road	EB L	C (34.7)	C (34.6)	C (34.6)	C (25.7)	C (26.1)	C (26.0)
	EB T	D (48.7)	D (48.8)	D (48.8)	C (29.9)	C (29.8)	C (29.8)
	EB R	D (36.5)	D (36.4)	D (36.3)	C (22.8)	C (22.6)	C (22.5)
	EB Appr	**D (46.5)**	**D (46.6)**	**D (46.6)**	**C (28.8)**	**C (28.7)**	**C (28.7)**
	WB L	C (26.0)	C (26.0)	C (26.2)	C (29.6)	C (29.3)	C (28.8)
	WB TR	C (33.3)	C (33.2)	C (33.3)	D (40.8)	D (40.7)	D (40.0)
	WB Appr	**C (32.8)**	**C (32.8)**	**C (32.8)**	**D (40.1)**	**D (40.0)**	**D (39.3)**
	NB L	B (17.1)	B (17.2)	B (17.2)	C (20.6)	C (21.0)	C (21.0)
	NB TR	B (16.7)	B (16.8)	B (16.8)	C (20.6)	C (20.9)	C (20.9)
	NB Appr	**B (16.9)**	**B (17.0)**	**B (17.0)**	**C (20.6)**	**C (20.9)**	**C (21.0)**
	SB L	C (25.7)	C (25.7)	C (25.7)	C (28.6)	C (28.8)	C (28.8)
	SB TR	C (23.8)	C (24.0)	C (24.1)	C (24.1)	C (24.4)	C (24.4)
	SB Appr	**C (23.8)**	**C (24.1)**	**C (24.1)**	**C (24.3)**	**C (24.5)**	**C (24.6)**
	Overall	**D (36.8)**	**D (36.9)**	**D (36.9)**	**C (32.5)**	**C (32.4)**	**C (32.1)**
County Line Road (SR 2038)/ Kenas Road (SR 2014)	EB TR	C (30.2)	C (30.5)	C (30.8)	C (23.8)	C (23.6)	C (23.7)
	EB Appr	**C (30.2)**	**C (30.5)**	**C (30.8)**	**C (23.8)**	**C (23.6)**	**C (23.7)**
	WB L	C (22.9)	C (23.0)	C (21.8)	B (17.6)	B (17.5)	B (17.4)
	WB T	C (27.2)	C (27.1)	C (29.1)	B (19.4)	B (19.1)	B (19.1)
	WB Appr	**C (26.8)**	**C (26.7)**	**C (28.4)**	**B (19.3)**	**B (19.0)**	**B (18.9)**
	NB L	B (16.5)	B (16.6)	B (16.6)	C (20.9)	C (21.3)	C (21.4)
	NB R	A (6.2)	A (6.2)	A (6.2)	A (6.3)	A (6.4)	A (6.4)
	NB Appr	**B (11.3)**	**B (11.3)**	**B (11.4)**	**B (12.5)**	**B (12.7)**	**B (12.8)**
	Overall	**C (27.5)**	**C (27.6)**	**C (28.5)**	**C (20.7)**	**C (20.6)**	**C (20.6)**
County Line Road (SR 2038)/ Site Access	EB L	-	-	A (9.1)	-	-	B (10.4)
	SB LR	-	-	B (13.6)	-	-	C (23.4)
	Overall	-	-	**A (0.2)**	-	-	**A (0.2)**

Table 3 (continued)
Intersection Level of Service Summary

		Weekday AM Peak Hour			Weekday PM Peak Hour		
Intersection	**Movement**	**Existing**	**No-Build**	**Build**	**Existing**	**No-Build**	**Build**
County Line Road (SR 2038)/ Limekiln Pike (PA Route 152)	EB L	N/A	N/A	F (85.0)	E (69.0)	E (69.0)	E (70.2)
	EB T	C (33.5)	C (32.3)	C (30.8)	D (38.2)	D (37.5)	D (37.1)
	EB Appr	**C (33.5)**	**C (32.3)**	**C (30.9)**	**D (38.4)**	**D (37.6)**	**D (37.3)**
	WB T	F (80.4)	E (77.3)	E (67.1)	D (46.9)	D (45.2)	D (44.3)
	WB R	A (0.1)	A (0.1)	A (0.1)	A (0.4)	A (0.4)	A (0.4)
	WB Appr	**E (71.2)**	**E (68.5)**	**E (59.5)**	**C (34.0)**	**C (32.8)**	**C (32.2)**
	SB LR	B (13.1)	B (13.6)	B (16.8)	C (20.0)	C (20.6)	C (20.9)
	SB Appr	**B (13.1)**	**B (13.6)**	**B (16.8)**	**C (20.0)**	**C (20.6)**	**C (20.9)**
	Overall	**D (48.2)**	**D (46.5)**	**D (42.2)**	**C (34.1)**	**C (33.3)**	**C (32.8)**
County Line Road (SR 2038)/Lower State Road (SR 3003)/ Limekiln Pike (PA Route 152)	EB L	E (76.4)	E (77.0)	E (76.7)	E (72.0)	E (71.5)	E (71.3)
	EB T	C (22.6)	C (22.9)	C (22.1)	B (17.0)	B (16.9)	B (16.8)
	EB R	A (3.3)	A (3.5)	A (3.9)	A (2.7)	A (2.7)	A (2.7)
	EB Appr	**C (23.6)**	**C (23.9)**	**C (23.5)**	**C (22.9)**	**C (22.8)**	**C (22.7)**
	WB L	D (48.0)	D (48.0)	D (48.0)	D (45.0)	D (44.8)	D (44.8)
	WB TR	E (62.9)	E (62.8)	E (62.8)	E (60.5)	E (60.4)	E (60.4)
	WB Appr	**E (62.9)**	**E (62.8)**	**E (62.8)**	**E (60.4)**	**E (60.3)**	**E (60.3)**
	NB L	E (69.9)	E (69.6)	E (68.8)	E (68.2)	E (68.2)	E (68.2)
	NB TR	B (16.8)	B (17.1)	B (17.2)	C (23.2)	C (23.7)	C (23.8)
	NB Appr	**D (39.0)**	**D (39.1)**	**D (39.0)**	**D (48.2)**	**D (48.4)**	**D (48.5)**
	SB L	C (29.2)	C (29.7)	C (29.8)	D (41.9)	D (42.7)	D (43.0)
	SB T	C (29.6)	C (30.1)	C (30.3)	D (43.4)	D (44.3)	D (44.5)
	SB R	B (10.1)	B (10.6)	A (9.5)	B (15.8)	B (161)	B (16.3)
	SB Appr	**B (19.4)**	**B (19.8)**	**B (19.3)**	**C (28.1)**	**C (28.6)**	**C (28.8)**
	Overall	**C (34.1)**	**C (34.3)**	**C (34.0)**	**D (37.7)**	**D (37.8)**	**D (37.8)**

CONCLUSIONS

The conduct of this Traffic Impact Study for the proposed Laurel Crossing residential subdivision located on the north side of County Line Road (SR 2038) in Warrington Township, Bucks County, has led to the following conclusions and recommendations:

1. The proposed development will generate an estimated 20 trips in the AM peak hour and 24 trips in the PM peak hour.

2. Access to the site will be provided via County Line Road (SR 2038). The access intersection will operate at acceptable LOS C or better during both peak periods and is classified as a "low-volume" driveway pursuant to PennDOT's Chapter 441 criteria. The access will not require auxiliary turn lanes and will meet or exceed the sight distance requirements.

3. The proposed site access intersection is subject to the review and approval of PennDOT through the Highway Occupancy Permit (HOP) application process.

4. The development-generated traffic can be accommodated at the study area intersections and the proposed site access with no adverse impact. There are no improvements required at the off-site intersections in conjunction with this development.

HCA Horner & Canter Associates

TRANSPORTATION AND TRAFFIC ENGINEERING

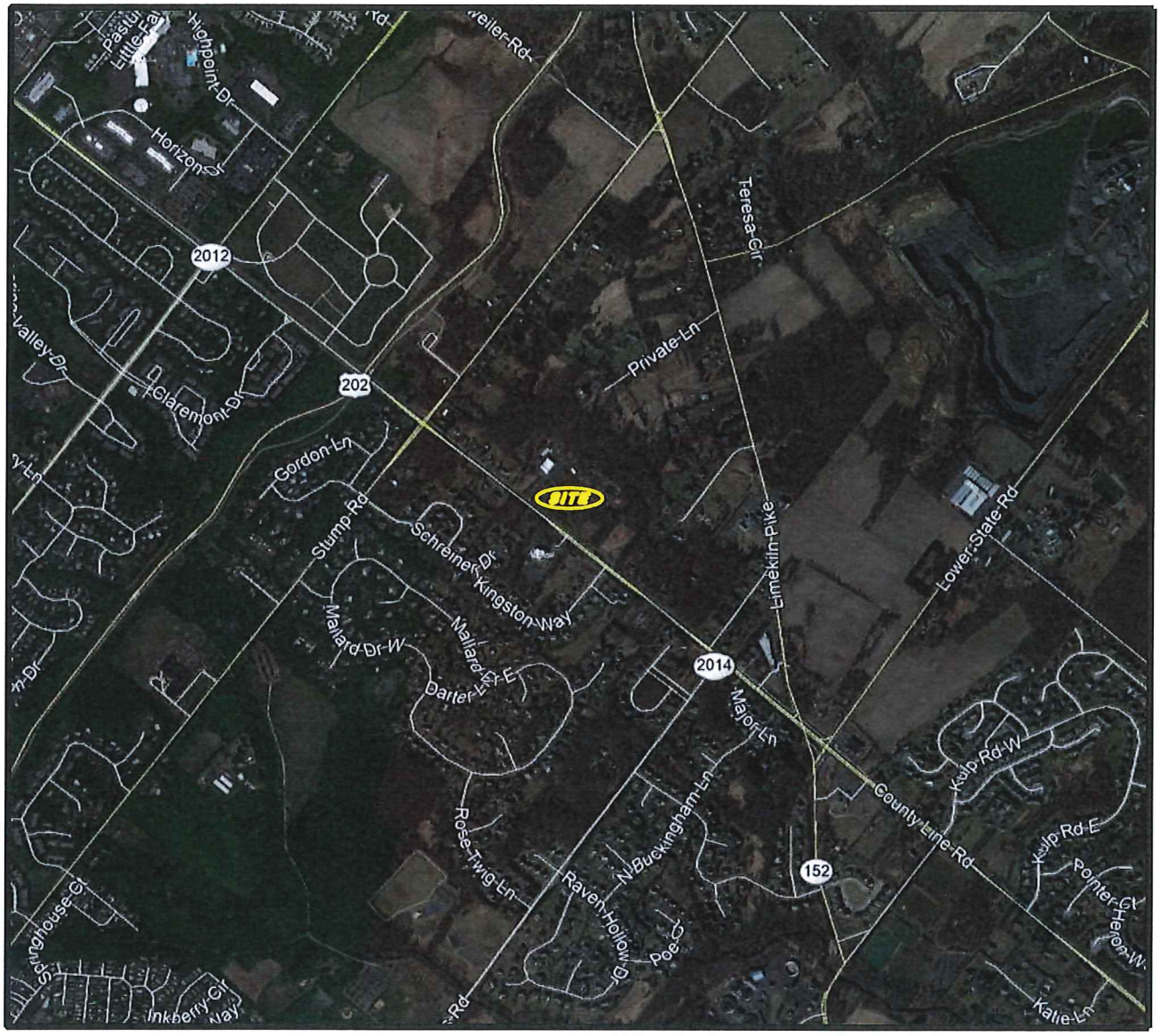


FIGURE 1
SITE LOCATION MAP

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

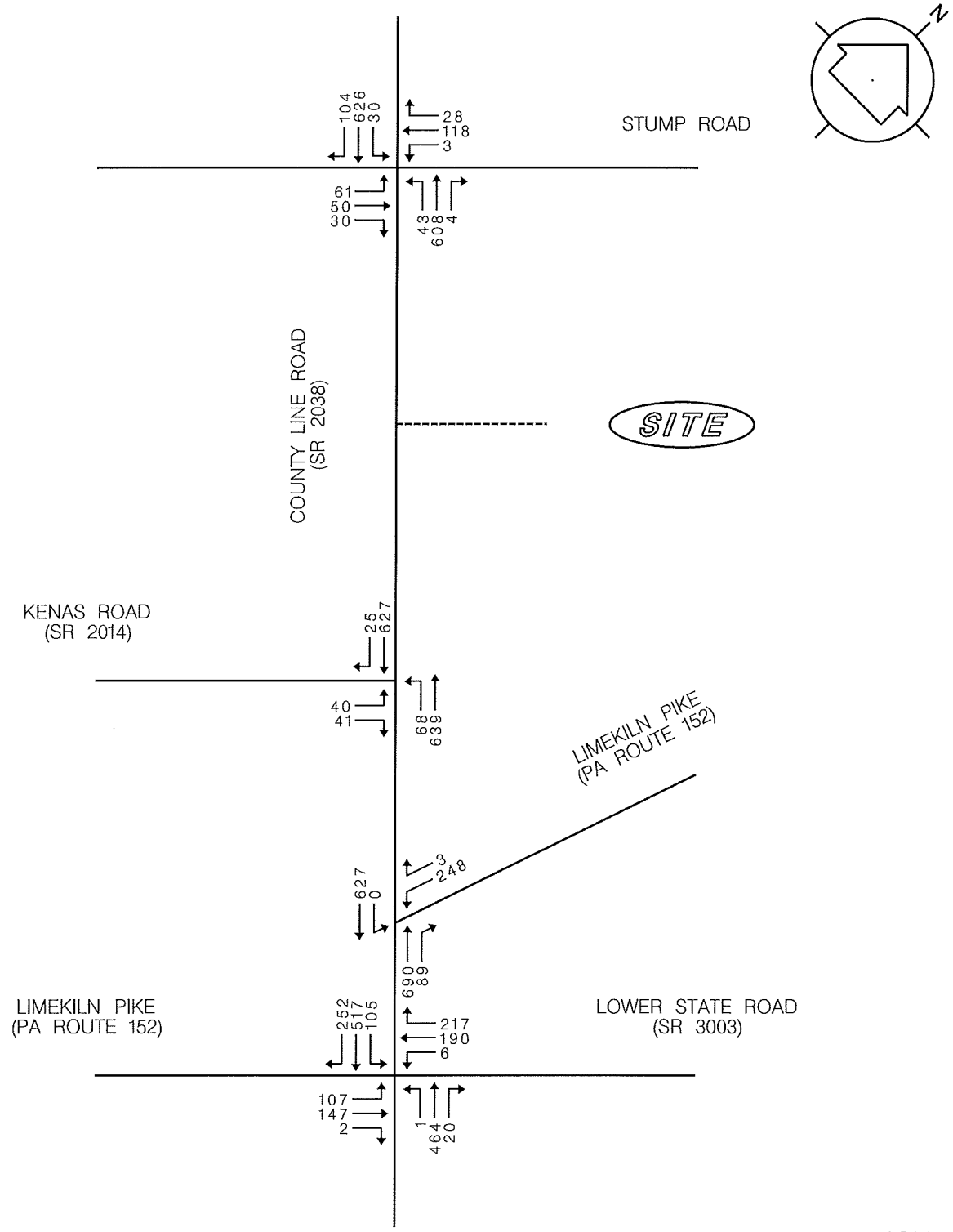


FIGURE 2
EXISTING WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

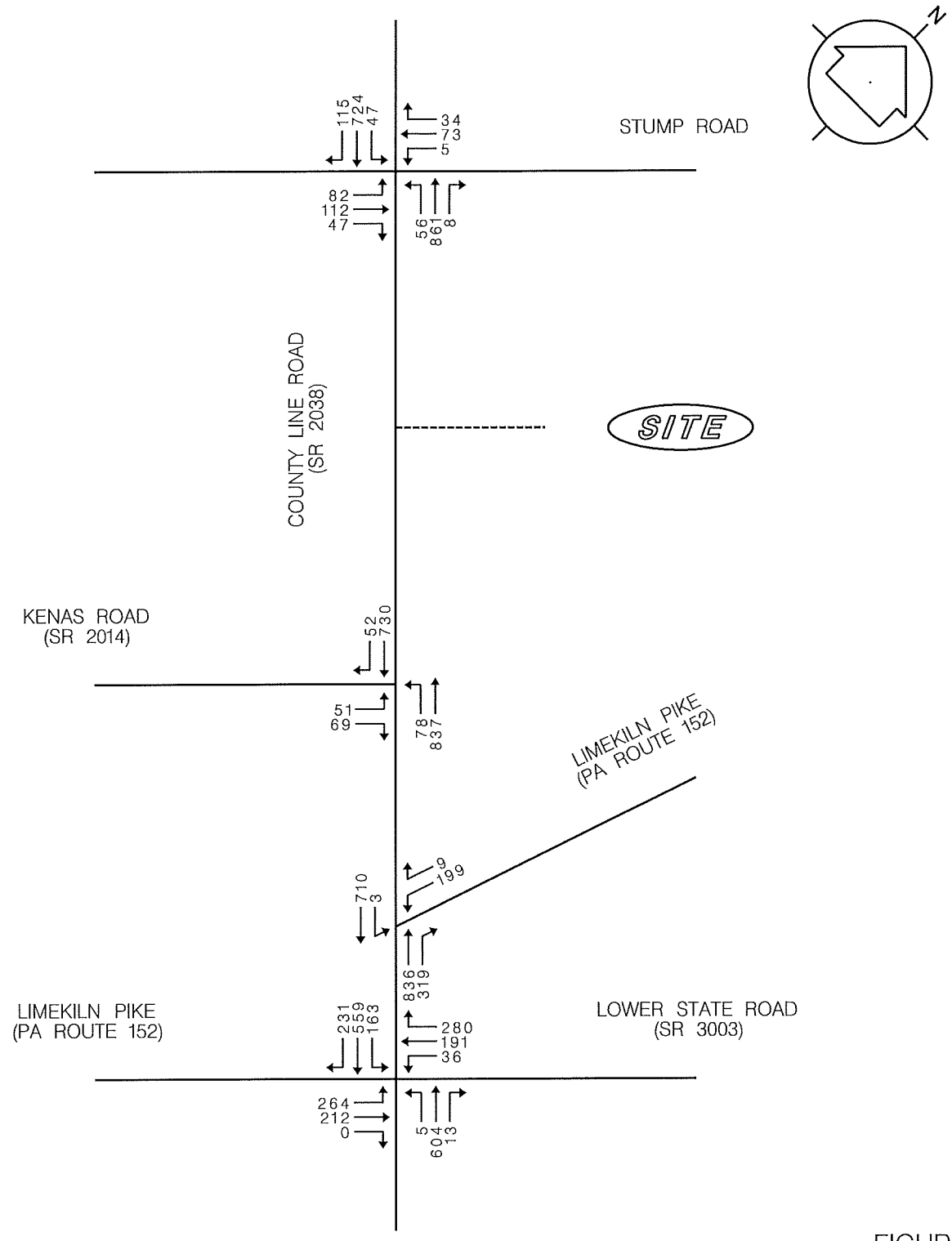
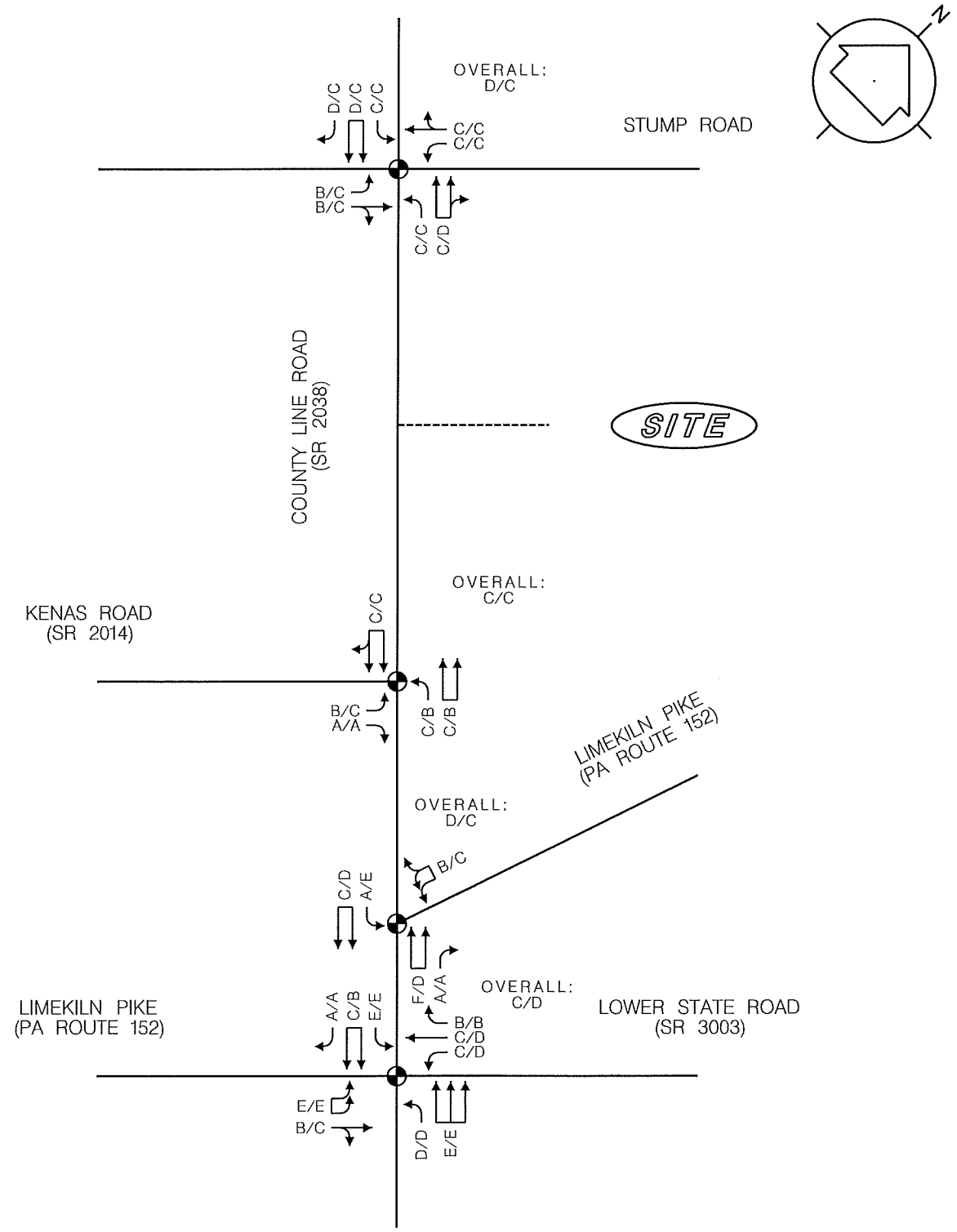


FIGURE 3
EXISTING WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020



LEGEND:

AM/PM PEAK HOUR

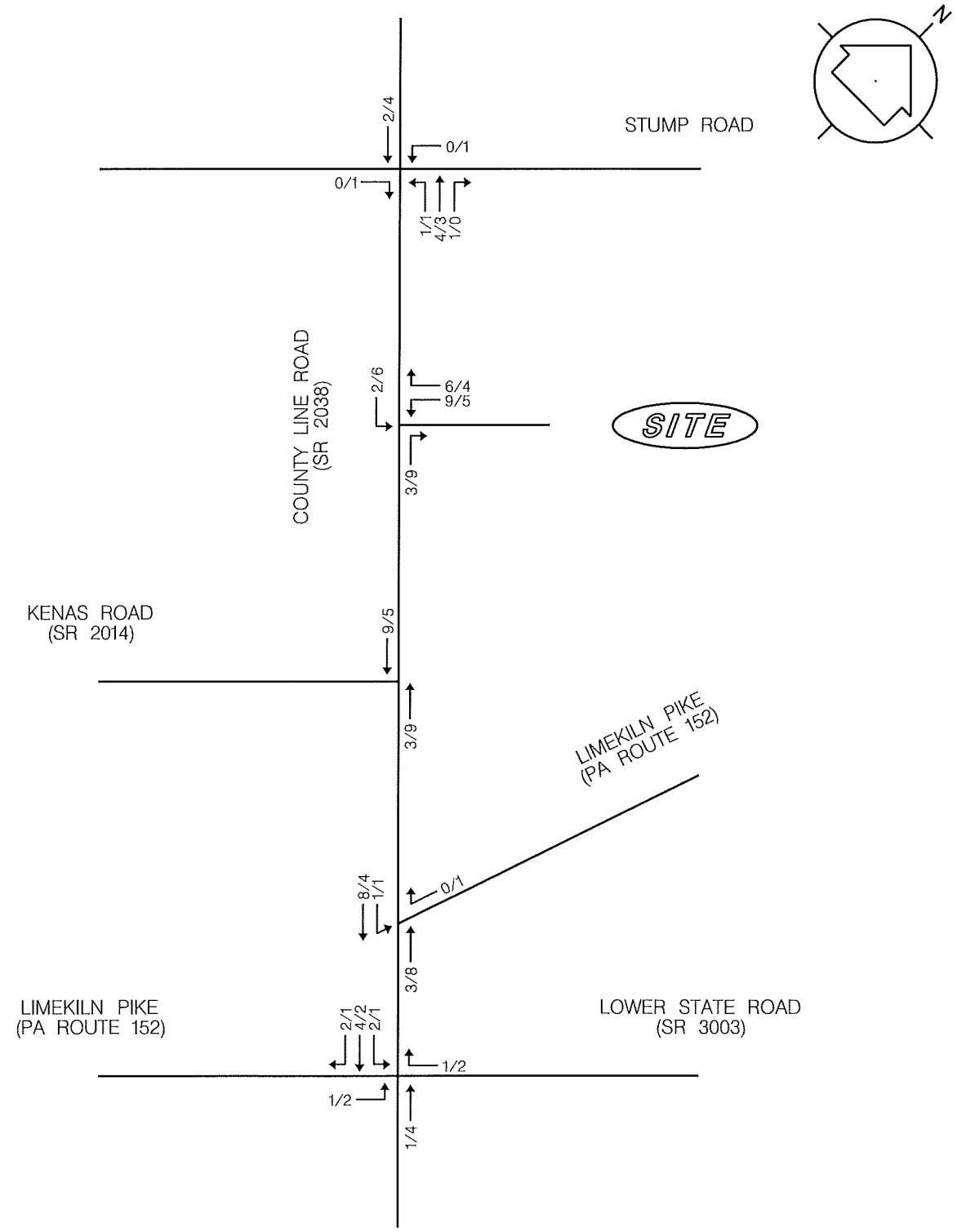
TRAFFIC SIGNAL

FIGURE 4
EXISTING LEVELS OF SERVICE

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020



LEGEND:

← AM/PM PEAK HOUR

FIGURE 5
SITE TRIPS

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

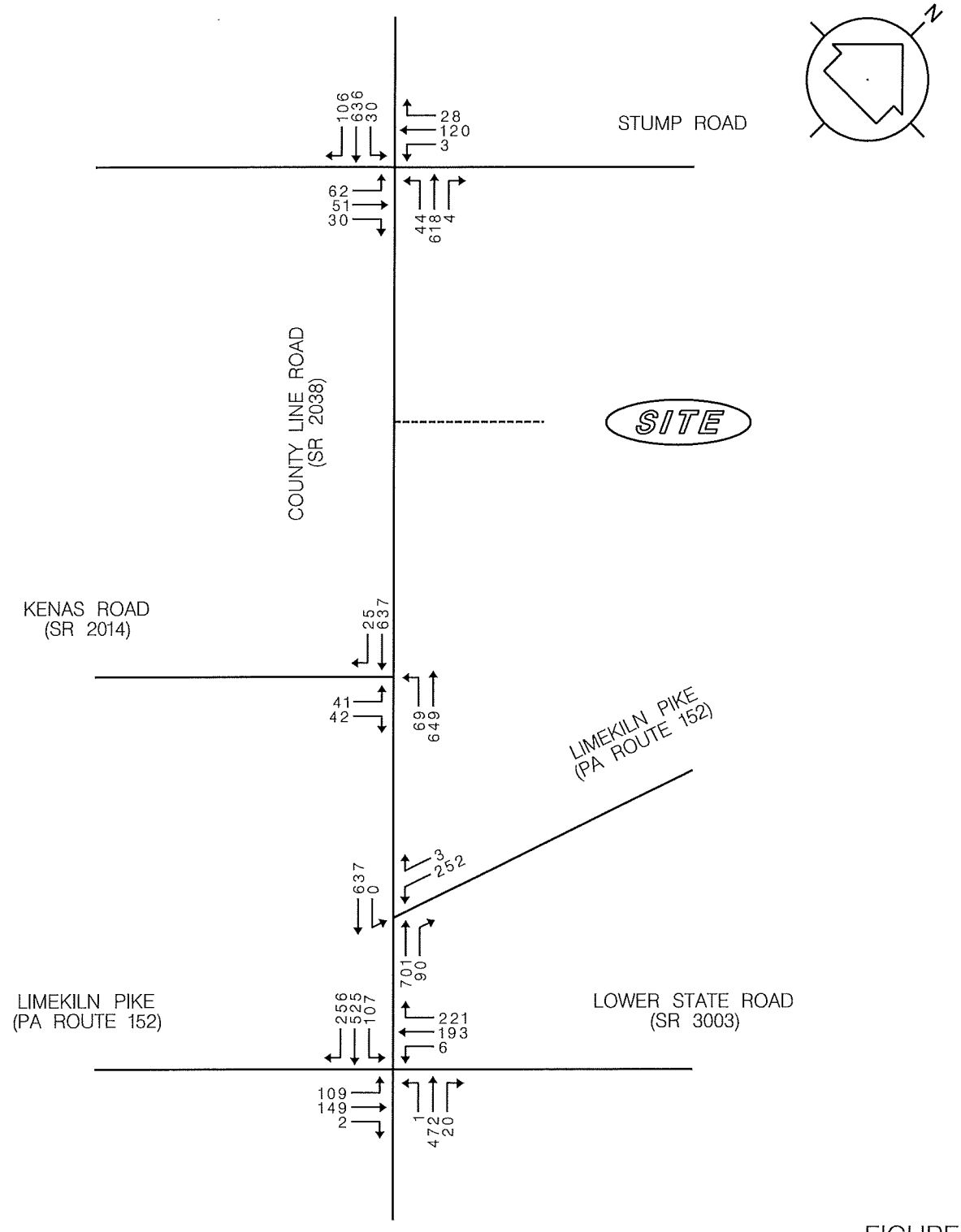


FIGURE 6
NO-BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

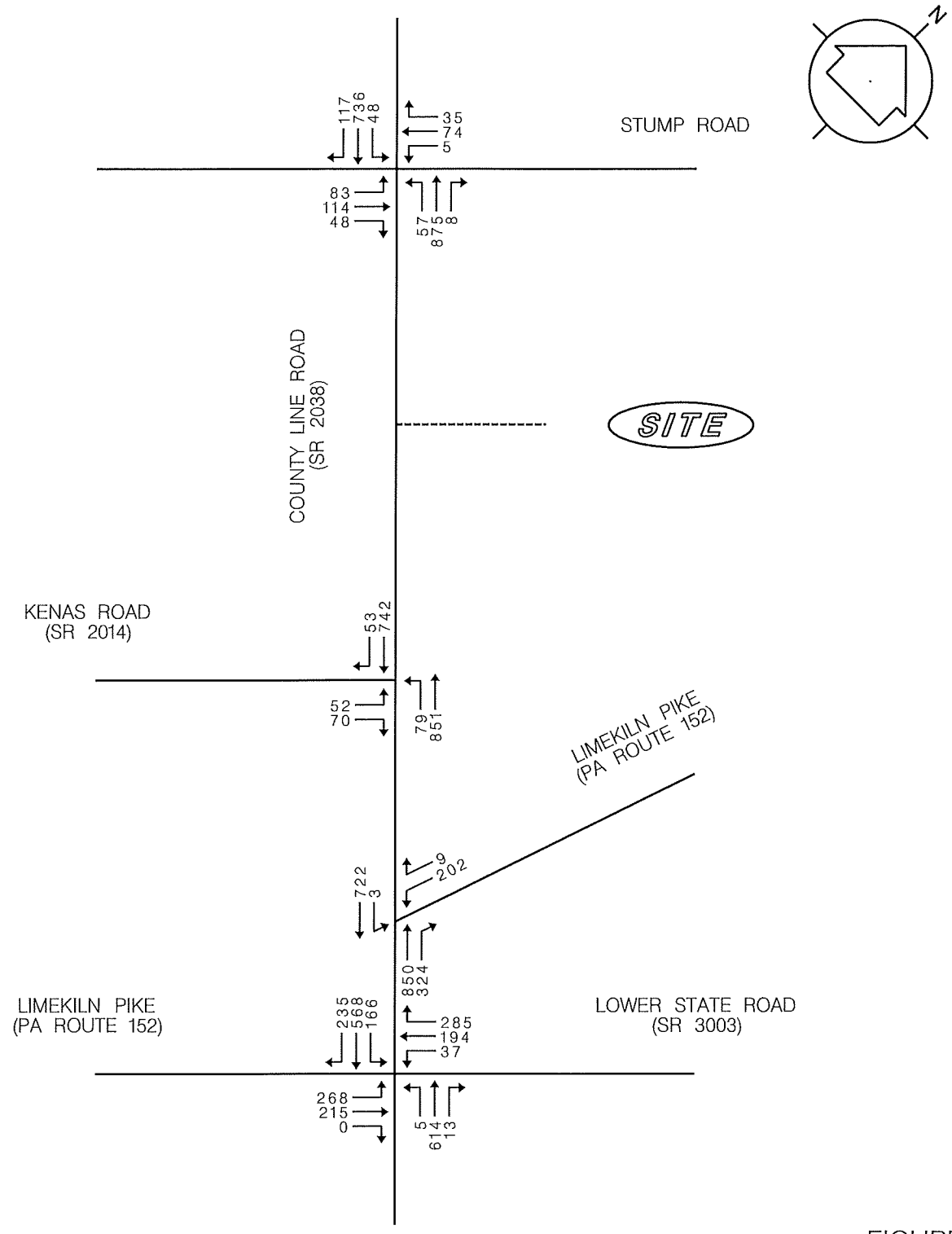


FIGURE 7
NO-BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

HCA *Horner & Canter Associates*

TRANSPORTATION AND TRAFFIC ENGINEERING

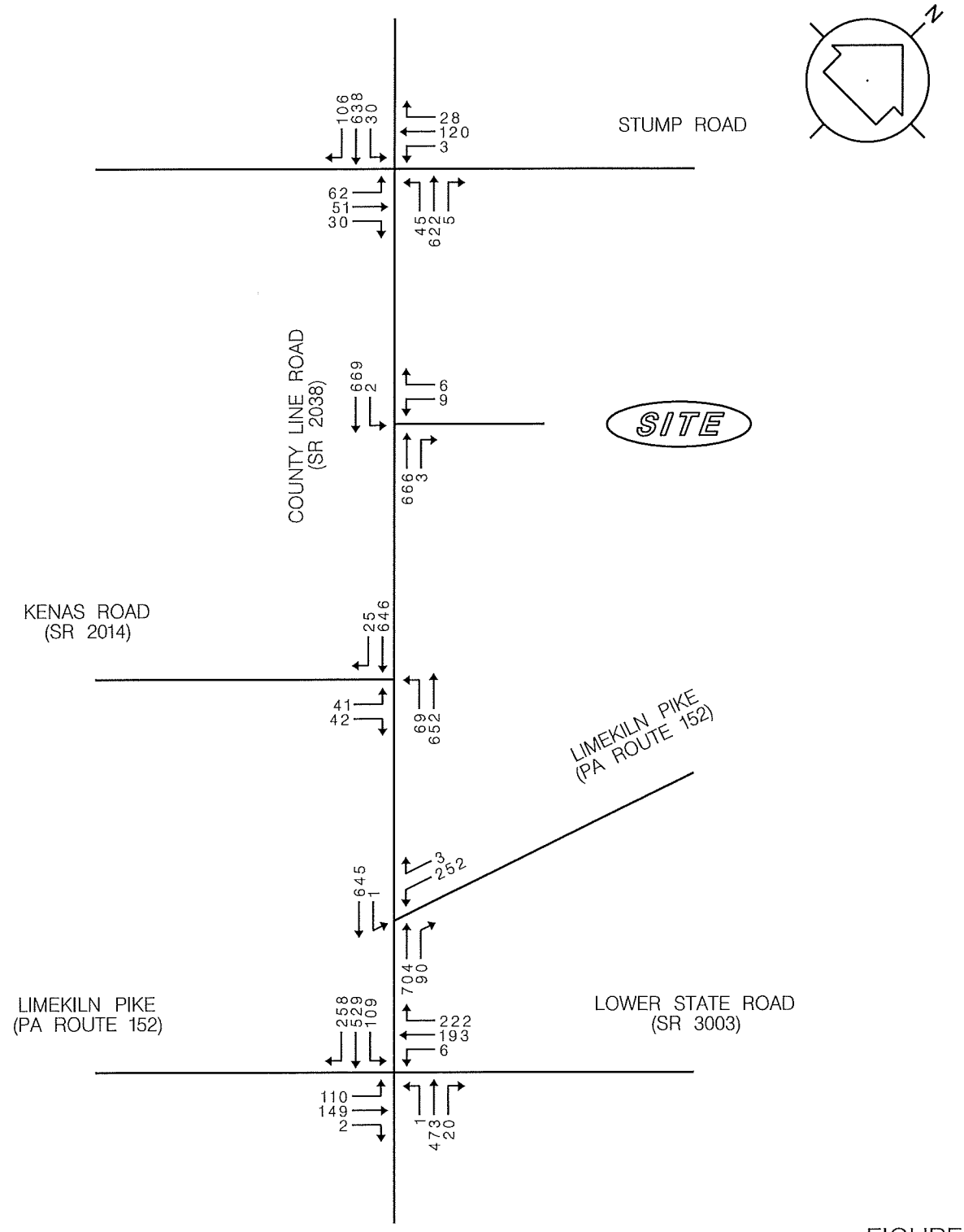


FIGURE 8

BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

HCA *Horner & Canter Associates*

TRANSPORTATION AND TRAFFIC ENGINEERING

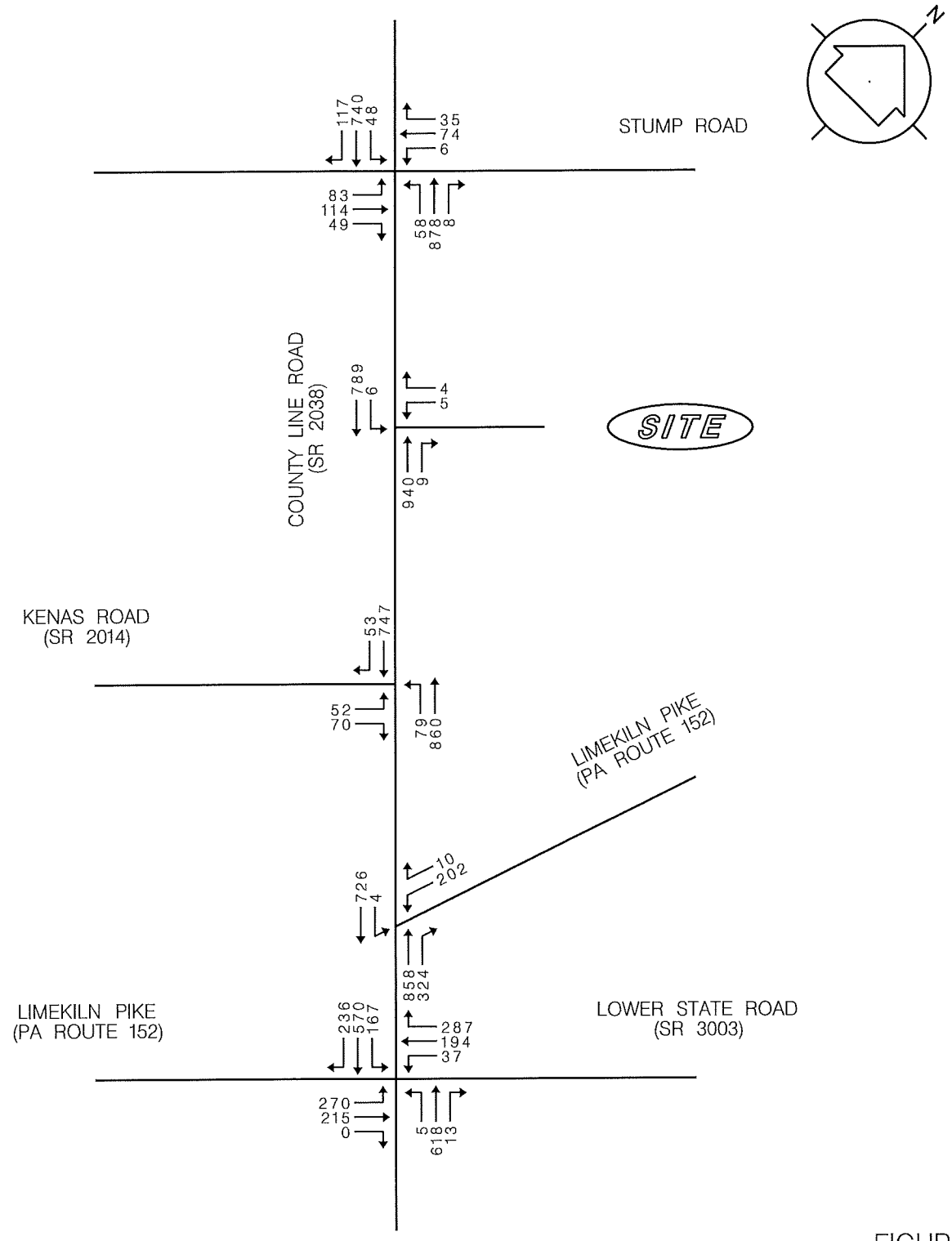


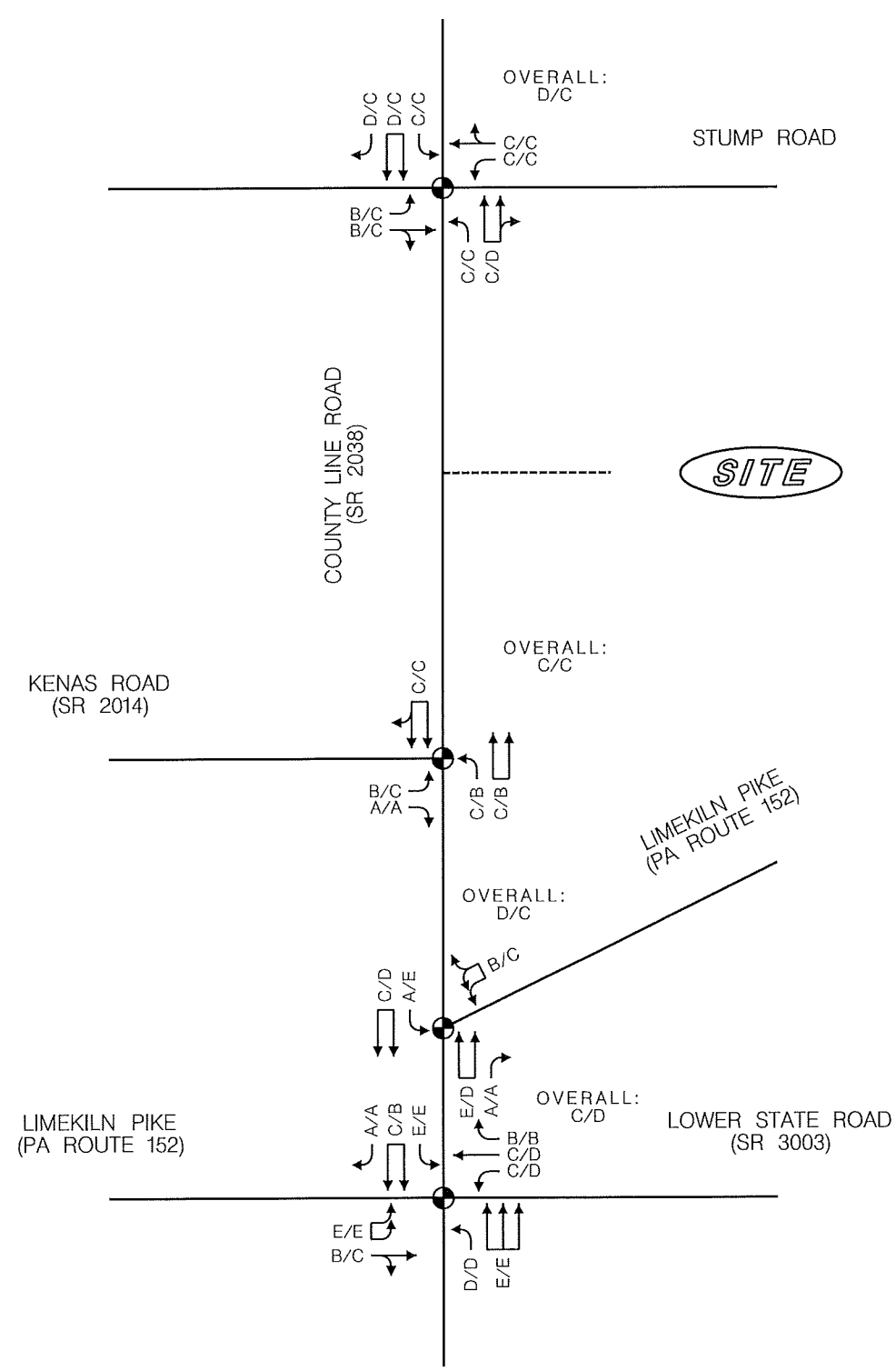
FIGURE 9

BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020



LEGEND:

AM/PM PEAK HOUR

TRAFFIC SIGNAL

FIGURE 10
NO-BUILD LEVELS OF SERVICE

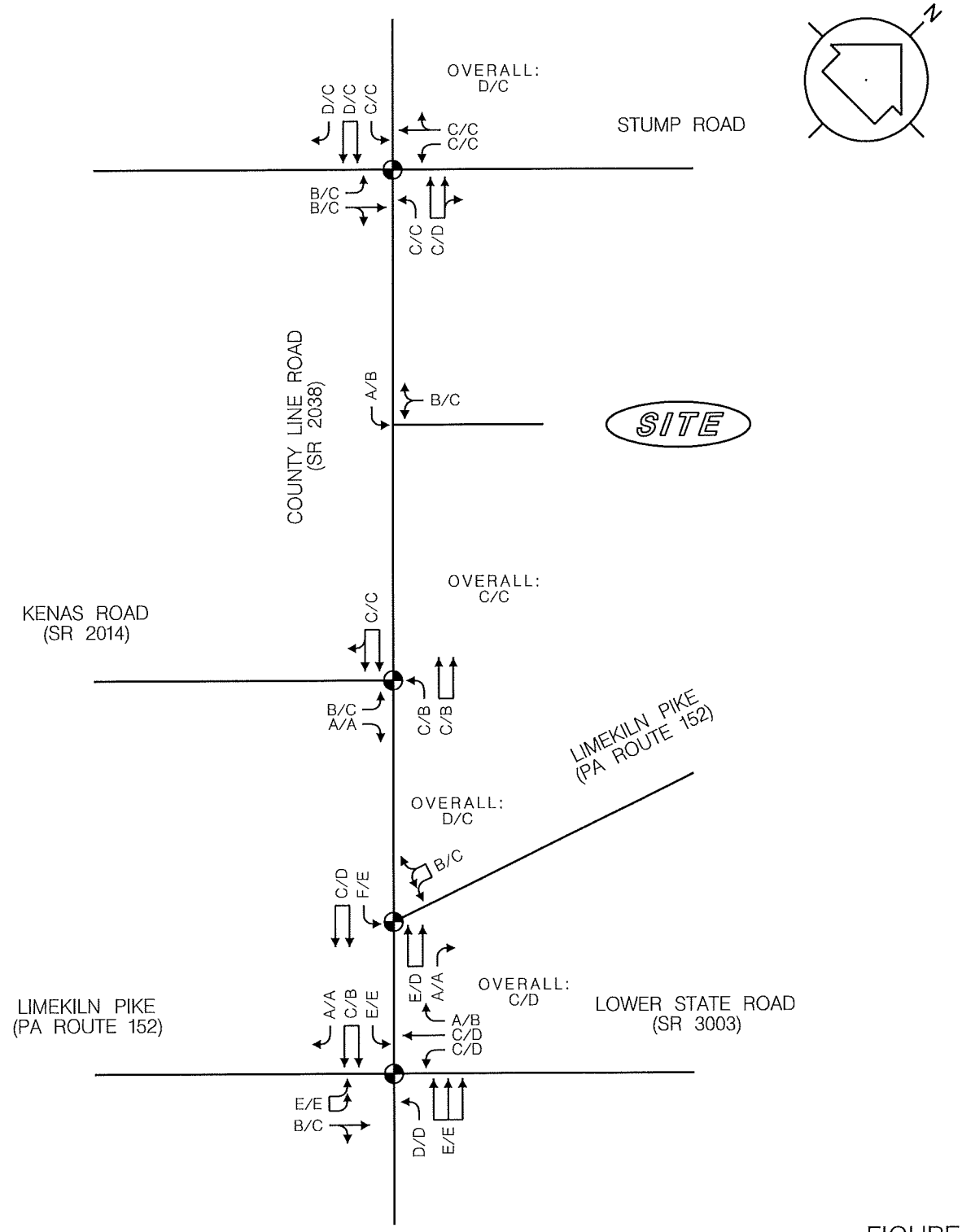
LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

HCA *Horner & Canter Associates*

TRANSPORTATION AND TRAFFIC ENGINEERING



LEGEND:

AM/PM PEAK HOUR

TRAFFIC SIGNAL

FIGURE 11

BUILD LEVELS OF SERVICE

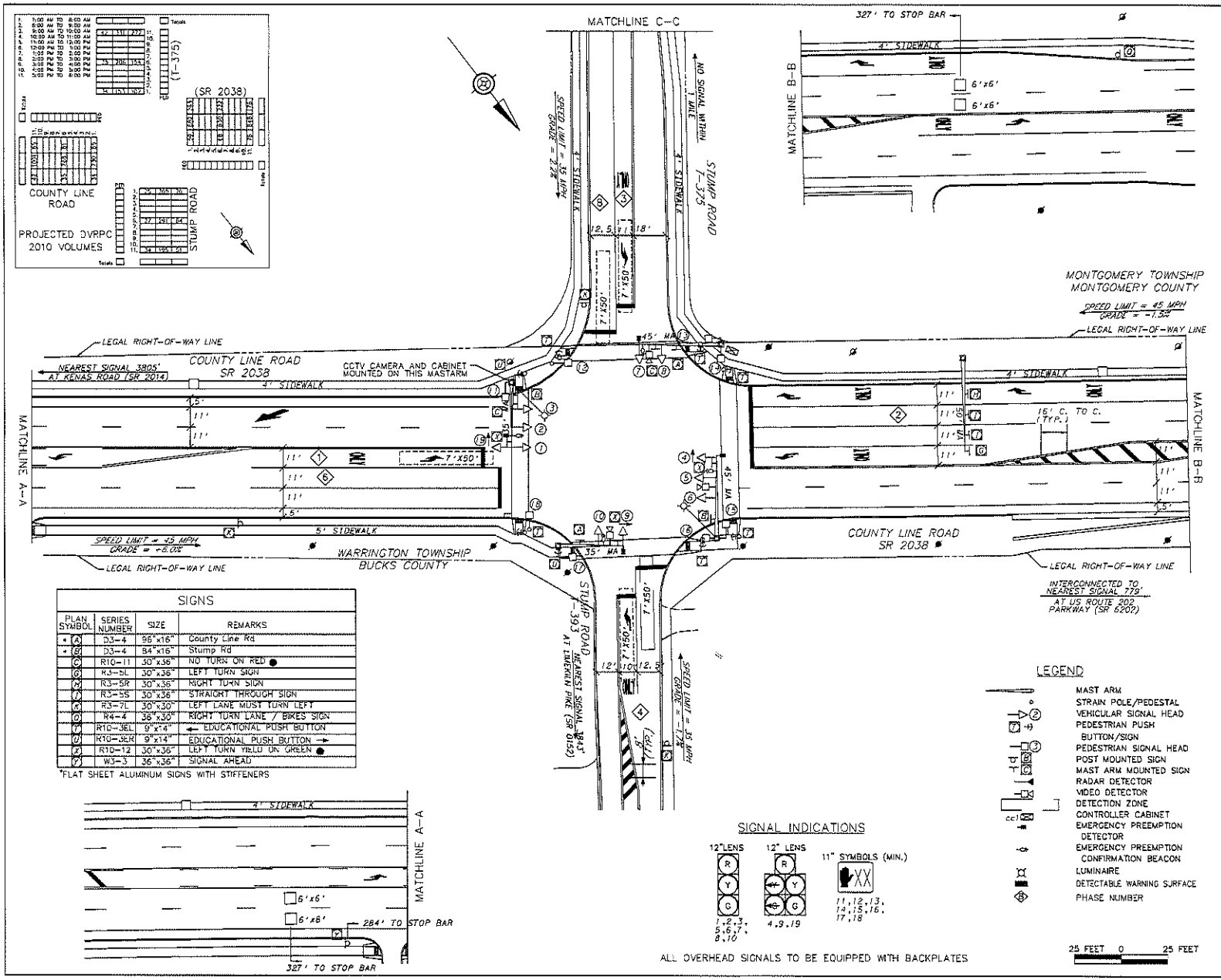
LAUREL CROSSING RESIDENTIAL SUBDIVISION

WARRINGTON TOWNSHIP, BUCKS COUNTY, PA

20-066
NOVEMBER 2020

APPENDIX A

Traffic Signal Plans



SIGNS

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	D3-4	96"x16"	County Line Rd
A	D3-4	84"x16"	Stump Rd
B	R10-11	30"x36"	NO TURN ON RED ●
C	R3-5L	30"x36"	LEFT TURN SIGN
D	R3-5R	30"x36"	RIGHT TURN SIGN
E	R3-5S	30"x36"	STRAIGHT THROUGH SIGN
F	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
G	R4-4	36"x30"	RIGHT TURN LANE / BIKES SIGN
H	R10-3EL	9"x14"	← EDUCATIONAL PUSH BUTTON
J	R10-3ER	9"x14"	EDUCATIONAL PUSH BUTTON →
K	R10-12	30"x36"	LEFT TURN YIELD ON GREEN ●
L	W3-3	36"x36"	SIGNAL AHEAD

*FLAT SHEET ALUMINUM SIGNS WITH STIFFENERS

SIGNAL INDICATIONS

ALL OVERHEAD SIGNALS TO BE EQUIPPED WITH BACKPLATES

LEGEND

- MAST ARM
- STRAIN POLE/PEDESTAL
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON/SIGN
- PEDESTRIAN SIGNAL HEAD
- POST MOUNTED SIGN
- MAST ARM MOUNTED SIGN
- RADAR DETECTOR
- VIDEO DETECTOR
- DETECTION ZONE
- CONTROLLER CABINET
- EMERGENCY PREEMPTION DETECTOR
- EMERGENCY PREEMPTION CONFIRMATION BEACON
- LUMINAIRE
- DETECTABLE WARNING SURFACE
- PHASE NUMBER

25 FEET 0 25 FEET

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

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

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

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

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

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

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PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM PERMIT# 1-0121

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY/WARRINGTON TWPS.

INTERSECTION: COUNTY LINE ROAD (S.R. 2038 AND STUMP ROAD (T-375/T-393)

REVIEWED:

DATE

JOHN B. NAGEL 2/9/2010
MUNICIPAL OFFICIAL DATE

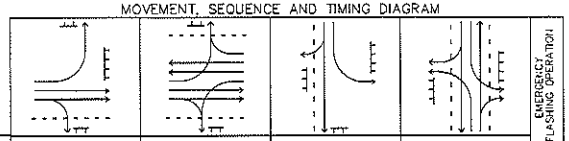
RECOMMENDED:

ASHWIN PATEL 4/8/2010
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS-BUILTS	MT	3/7/14	NBP	6/11/14	APATEL	9/3/14
2							
3							
4							
5							
6							
7							
8							

SHEET 2 OF 3 | PERMIT # 64-2225 | FILE # 2225

MOVEMENT, SEQUENCE AND TIMING DIAGRAM



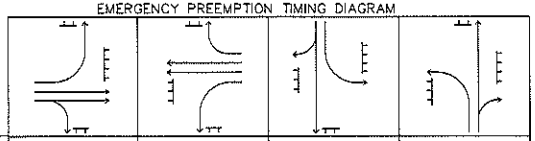
PHASE	1+6				2+6				3+8				4+8				EMERGENCY FLASHING OPERATION
INTERV. / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
2–3	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
4,19	G/➔G	G/➔G	Y⑦	R⑨	G	G	Y	R	R	R	R	R	R	R	R	R	Y
5–6	G	G	Y⑦	R⑨	G	G	Y	R	R	R	R	R	R	R	R	R	Y
7–8	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
9	R	R	R	R	R	R	R	R	G/➔G	G/➔G	Y⑧	R⑨	G	G	Y	R	R
10	R	R	R	R	R	R	R	R	G	G	Y⑧	R⑨	G	G	Y	R	R
12–13	H	H	H	H	H⑩	H⑩	H	H	H	H	H	H	H	H	H	H	OFF
14–15	H	H	R	H	H	H	H	H	H	H	H	H	H⑩	H⑩	H	H	OFF
16–17	H⑩	H⑩	H	H	H⑩	H⑩	H	H	H	H	H	H	H	H	H	H	OFF
11,18	H	H	H	H	H	H	H	H	H⑩	H⑩	H	H	H⑩	H⑩	H	H	OFF
FIXED TIME			5.0	2.0			5.0	2.0			4.0	2.5			4.0	2.5	
MIN GREEN	3				10				3				3				
ADDED INIT.					1.5												
MAX. INIT.					31												
PASSAGE	3				5				3				3				
BEFORE RED					31												
TO REDUCE					16												
MIN. GAP					2.7												
PEDESTRIAN⑤	⑧				7	13			⑧				7	21			
MEMORY	NON–LOCKING				MIN. RECALL				NON–LOCKING				NON–LOCKING				
MAX. 1	7				32				7				31.5				

⑦ UPON PEDESTRIAN ACTUATION ONLY. OTHERWISE HAND SYMBOL AT ALL TIMES
⑧ M. UPON PEDESTRIAN ACTUATION
⑨ FH. UPON PEDESTRIAN ACTUATION
⑩ C IF FOLLOWED BY 2+6
⑪ G/➔Y IF FOLLOWED BY 4+8
⑫ C IF FOLLOWED BY 4+8
⑬ G/➔Y IF FOLLOWED BY 2+6
⑭ TIMING WILL BE AS SHOWN IN PHASE 2+6 OR PHASE 4+8, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6 OR PHASE 4+8.

NOTES:

1. CONTROLLER SHALL DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 3 OR PHASE 4+8.
2. REFER TO COUNTY LINE ROAD SYSTEM/INTERCONNECT PLAN (PERMIT # 1-0121) FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHART.

EMERGENCY PREEMPTION TIMING DIAGRAM



PHASE	6				2				8				4			
INTERV. / SIGNALS		17	18	19		20	21	22		23	24	25		26	27	28
1	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	G	Y⑬	R⑫	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	R	R	R
2,3		R	R	R		G	Y⑬	R⑫		R	R	R		R	R	R
4,19		G/➔G	Y⑬	R⑫		R	R	R		R	R	R		R	R	R
5,6		G	Y⑬	R⑫		R	R	R		R	R	R		R	R	R
7,8		R	R	R		R	R	R		R	R	R		G	Y	R
9		R	R	R		R	R	R		G/➔G	Y	R		R	R	R
10		R	R	R		R	R	R		G	Y	R		R	R	R
12,13		H	H	H		H	H	H		H	H	H		H	H	H
14,15		H	H	H		H	H	H		H	H	H		H	H	H
16,17		H	H	H		H	H	H		H	H	H		H	H	H
11,18		H	H	H		H	H	H		H	H	H		H	H	H
		**	5.0	2.0		**	5.0	2.0		**	4.0	2.5		**	4.0	2.5

⑫ G WHEN RETURNING TO NORMAL OPERATION
⑬ G/➔Y WHEN RETURNING TO NORMAL OPERATION

NOTE: IF PREEMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PREEMPTION.

** FOR DURATION OF PREEMPTION

EMERGENCY PREEMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF COUNTY LINE ROAD AND THE NORTHBOUND AND SOUTHBOUND APPROACHES OF STUMP ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL BEGIN FLASHING WHEN THE EMERGENCY PREEMPTION PHASE DISPLAYS PREEMPTION GREEN FOR THE EMERGENCY VEHICLE APPROACH.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL IMMEDIATELY TERMINATE ALL INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE EMERGENCY PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF SIGNAL IS IN PHASE 1+6 GREEN WHEN ACTIVATED BY PRE-EMPTION PHASE 8, THE GREEN INDICATIONS SHALL REMAIN GREEN FOR THE DURATION OF THE SIGNAL PRE-EMPTION AND THE RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF SIGNAL IS IN PHASE 3+8 GREEN WHEN ACTIVATED BY PRE-EMPTION PHASE 8, THE GREEN INDICATIONS SHALL REMAIN GREEN FOR THE DURATION OF THE SIGNAL PRE-EMPTION AND THE RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS SUBSEQUENTLY PREEMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDESTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

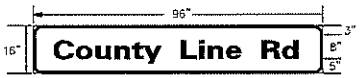
THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS ARE FLASHING WHEN AN EMERGENCY VEHICLE IS DETECTED, ALL SIGNALS SHALL REMAIN FLASHING.

IF ADDITIONAL EMERGENCY PREEMPTION PHASES ARE ACTIVATED WHILE IN PREEMPTION, THE ORIGINAL PREEMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PREEMPTION PHASE.

UPON COMPLETION OF EMERGENCY PREEMPTION PHASE 2, 4, 6 OR 8, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 5 SHALL FOLLOW.

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

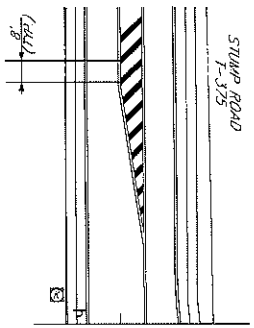


SIGN Ⓐ DETAIL

CLEARVIEW SERIES 3-W
10% REDUCTION
8" UC/6" LC
WHITE REFLECTORIZED LEGEND AND BORDER ON GREEN REFLECTORIZED BACKGROUND
0.8" BORDER
2.5" CORNER RADII

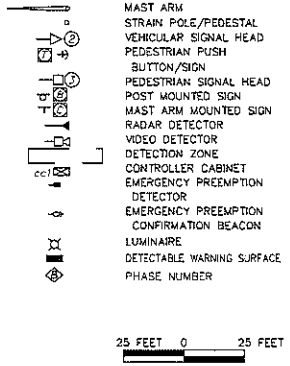
SIGN Ⓑ DETAIL

CLEARVIEW SERIES 3-W
10.6" UC/8" LC
WHITE REFLECTORIZED LEGEND ON GREEN REFLECTORIZED BACKGROUND



MATCHLINE C–C

LEGEND



25 FEET 0 25 FEET

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

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 15 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

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

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

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

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CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8900 SERIES.

SYSTEM PERMIT# 1-0121

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS
MUNICIPALITY: MONTGOMERY/WARRINGTON TWPS.
INTERSECTION: COUNTY LINE ROAD (S.R. 2038 AND STUMP ROAD (T-375/T-393)

REVIEWED:

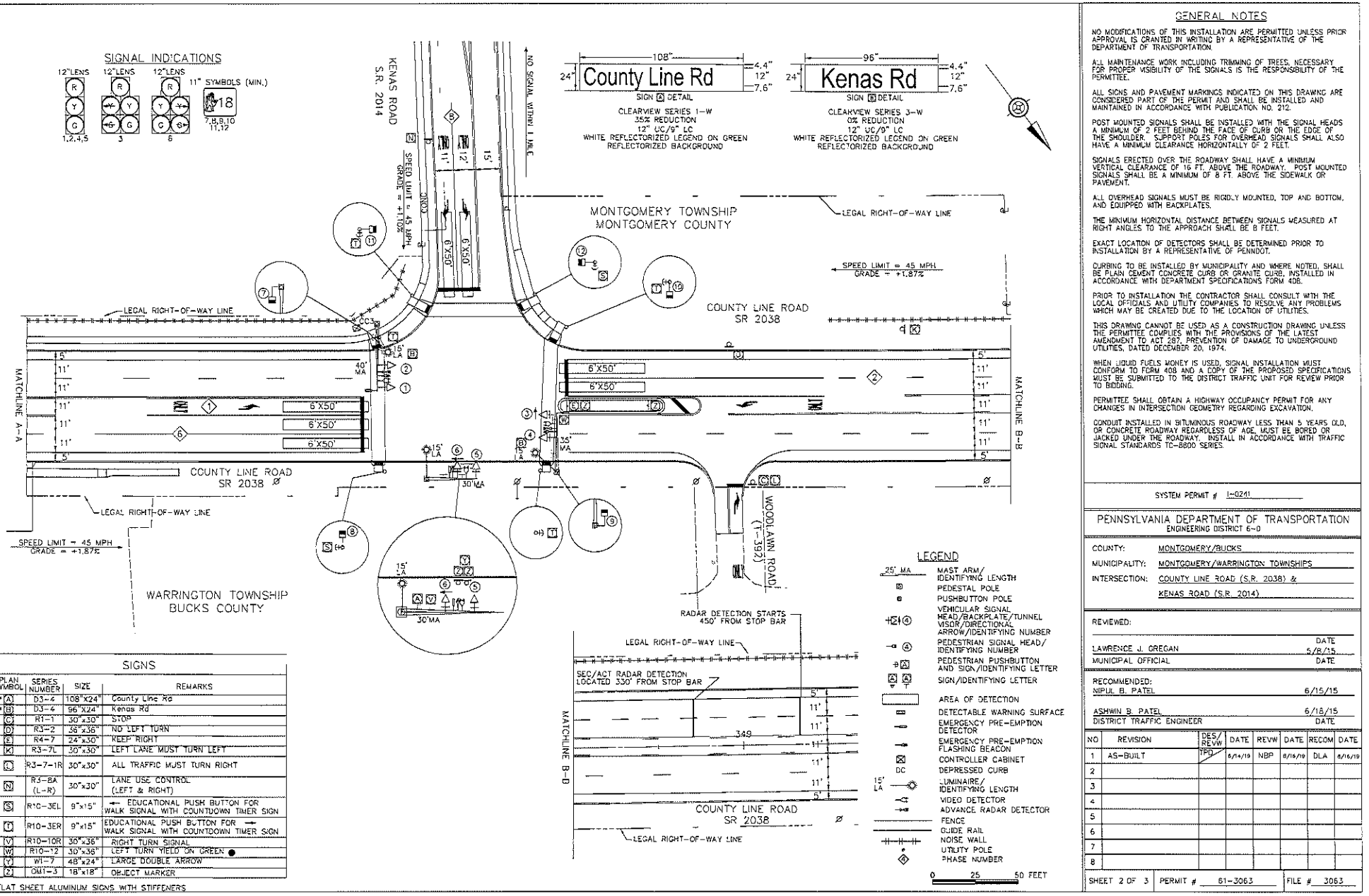
JOHN B. NAGEL — MUNICIPAL OFFICIAL — DATE 2/9/2010

RECOMMENDED:

ASHWIN PATEL — DISTRICT TRAFFIC ENGINEER — DATE 4/8/2010

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS-BUILTS	MT	3/14	NBP	6/11/14	APREL	9/2/14
2							
3							
4							
5							
6							
7							
8							

SHEET 3 OF 3 | PERMIT # 64-2225 | FILE # 2225



SIGNS

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
*A	D3-4	108"X24"	County Line Rd
*B	D3-4	96"X24"	Kenas Rd
C	R1-1	30"x30"	STOP
D	R3-2	36"x36"	NO LEFT TURN
E	R4-7	24"x30"	KEEP RIGHT
K	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
J	R3-7-1R	30"x30"	ALL TRAFFIC MUST TURN RIGHT
N	R3-8A (L-R)	30"x30"	LANE USE CONTROL (LEFT & RIGHT)
S	R10-3EL	9"x15"	← EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
T	R10-3ER	9"x15"	EDUCATIONAL PUSH BUTTON FOR → WALK SIGNAL WITH COUNTDOWN TIMER SIGN
V	R10-10R	36"x36"	RIGHT TURN SIGNAL
W	R10-12	30"x36"	LEFT TURN YIELD ON GREEN ●
Y	W1-7	48"x24"	LARGE DOUBLE ARROW
Z	OM1-3	18"x18"	OBJECT MARKER

*FLAT SHEET ALUMINUM SIGNS WITH STIFFENERS

GENERAL NOTES

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

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SYSTEM PERMIT # 1-0241

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY/WARRINGTON TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (S.R. 2038) & KENAS ROAD (S.R. 2014)

REVIEWED:

LAWRENCE J. GREGAN — DATE 5/8/15
MUNICIPAL OFFICIAL — DATE

RECOMMENDED:
NIPUL B. PATEL — 6/15/15

ASHWIN B. PATEL — 6/18/15
DISTRICT TRAFFIC ENGINEER — DATE

NO	REVISION	DES/ REVW	DATE	REVW	DATE	RECOM	DATE
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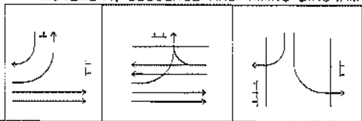
3							
4							
5							
6							
7							
8							

SHEET 2 OF 3 | PERMIT # 61-3063 | FILE # 3063

MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	1+6			2+6				8				EMERGENCY FLASHING OPERATION
SIGNALS \ INTERV.	1	2	3	4	5	6	7	8	9	10	11	
1-2	R	R	R	G	G	Y	R	R	R	R	R	Y
3	←G/G	Y(5)	R(4)	G	G	Y	R	R	R	R	R	Y
4	G	Y(4)	R(4)	G	G	Y	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	G	G	Y	R	R
6	R/G←	Y/G←	R	R	R	R	R	G	G	Y	R	OFF
7-8	H	H	H	H	H	H	H	H(2)	H(3)	H	H	OFF
9-10	H	H	H	H	H	H	H	H(2)	H(3)	H	H	OFF
11-12	H	H	H	H(2)	H(3)	H	H	H	H	H	H	OFF
FIXED TIME	X	4	2	X		4	2	X		4	2	
MINIMUM	3			10				3				
SEC/ACT				2								
MAX INT.				35								
PASSAGE	3			1**				3				
MAX 1	5			19				23				
PEDESTRIAN(1)				7	15			7	20			
MEMORY	NL			MN				NL				

(1) UPON PEDESTRIAN ACTUATION ONLY OTHERWISE HAND SYMBOL AT ALL TIMES
(2) M UPON PEDESTRIAN ACTUATION
(3) FH UPON PEDESTRIAN ACTUATION
(4) G IF FOLLOWED BY 2+6
(5) ←Y/G IF FOLLOWED BY 2+6

NOTE: REFER TO COUNTY LINE ROAD SYSTEM/INTERCONNECT PLAN (PERMIT # I-0241) FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHART.

** ADVANCE DILEMMA ZONE

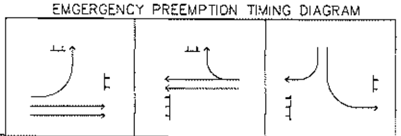
RADAR DETECTION SYSTEM NOTES

ESTIMATED TIME OF ARRIVAL: MIN 2.5 – MAX 5.5 SEC
RANGE OF DETECTION: 0-450 FEET FROM STOP BAR
SPEED BOUNDARY: 27-100 MPH

** DENSITY ZONE NOTES

RANGE OF DETECTION: 0-100 FEET FROM STOP BAR
MINIMUM SPEED BOUNDARY: 5-30 MPH

EMERGENCY PREEMPTION TIMING DIAGRAM



PHASE	6				2				8			
SIGNALS \ INTERV.	SELECTIVE CLEARANCE	12	13	14	SELECTIVE CLEARANCE	15	16	17	SELECTIVE CLEARANCE	18	19	20
1-2		R	R	R		G	Y(R)	R(R)		R	R	R
3		←G/G	Y(S)	R(R)		R	R	R		R	R	R
4		G	Y(R)	R(R)		R	R	R		R	R	R
5		R	R	R		R	R	R		G	Y	R
6		R	R	R		R	R	R		G	Y	R
7-8		H	H	H		H	H	H		H	H	H
9-10		H	H	H		H	H	H		H	H	H
11-12		H	H	H		H	H	H		H	H	H
		**	4	2		**	4	2		**	4	2

(R) G WHEN RETURNING TO NORMAL OPERATION
(S) ←Y/G WHEN RETURNING TO NORMAL OPERATION

NOTE: IF PREEMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PREEMPTION.

** FOR DURATION OF PREEMPTION

EMERGENCY PREEMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF COUNTY LINE ROAD AND THE SOUTHBOUND APPROACH OF KENAS ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL BEGIN FLASHING WHEN THE EMERGENCY PREEMPTION PHASE DISPLAYS PREEMPTION GREEN FOR THE EMERGENCY VEHICLE APPROACH.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL IMMEDIATELY TERMINATE ALL INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE COVERED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE EMERGENCY PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF THE SIGNAL IS IN PHASE 1+6 GREEN WHEN ACTIVITED BY PREEMPTION PHASE 6, OR 8 GREEN WHEN ACTIVATED BY PRE-EMPTION PHASE 8, THE GREEN INDICATIONS SHALL REMAIN GREEN FOR THE DURATION OF THE SIGNAL PREEMPTION AND THE RED INDICTIONS DISPLAYED FOR ALL OTHER PHASES.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS SUBSEQUENTLY PREEMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDESTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

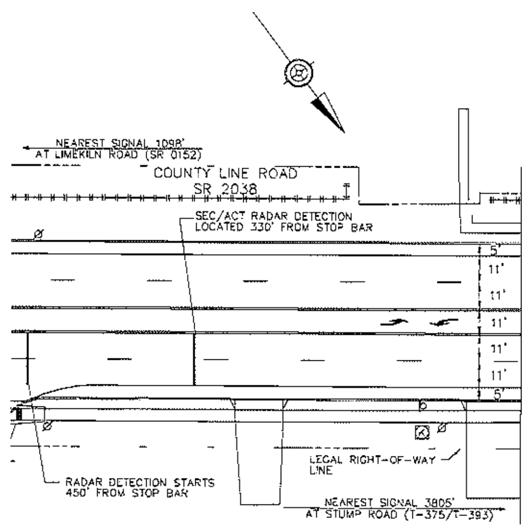
THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS ARE FLASHING WHEN AN EMERGENCY VEHICLE IS DETECTED, ALL SIGNALS SHALL REMAIN FLASHING.

IF ADDITIONAL EMERGENCY PREEMPTION PHASES ARE ACTIVATED WHILE IN PREEMPTION, THE ORIGINAL PREEMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PREEMPTION PHASE.

UPON COMPLETION OF EMERGENCY PREEMPTION PHASE 2, 6, OR 8, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.

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



LEGEND

Symbol	Description
25' MA	MAST ARM/ IDENTIFYING LENGTH
	PEDESTAL POLE
	PUSHBUTTON POLE
(4)	VEHICULAR SIGNAL HEAD/BACKPLATE/TUNNEL VISOR/DIRECTIONAL ARROW/IDENTIFYING NUMBER
(4)	PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
	PEDESTRIAN PUSHBUTTON AND SIGN/IDENTIFYING LETTER
	SIGN/IDENTIFYING LETTER
	AREA OF DETECTION
	DETECTABLE WARNING SURFACE
	EMERGENCY PRE-EMPTION DETECTOR
	EMERGENCY PRE-EMPTION FLASHING BEACON
	CONTROLLER CABINET
DC	DEPRESSED CURB
15' LA	LUMINAIRE/ IDENTIFYING LENGTH
	VIDEO DETECTOR
	FISH EYE CAMERA
	STOP BAR RADAR DETECTOR
	ADVANCE RADAR DETECTOR
	COMMUNICATIONS ANTENNA
	FENCE
	GUIDE RAIL
	NOISE WALL
	UTILITY POLE
	PHASE NUMBER

0 25 50 FEET

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SYSTEM PERMIT # I-0241

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS/MONTGOMERY
MUNICIPALITY: MONTGOMERY/WARRINGTON TOWNSHIPS
INTERSECTION: COUNTY LINE ROAD (S.R. 2038) & KENAS ROAD (S.R. 2014)

REVIEWED:

LAWRENCE J. GREGAN — DATE 5/8/15
MUNICIPAL OFFICIAL — DATE

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ASHWIN B. PATEL — 6/18/15
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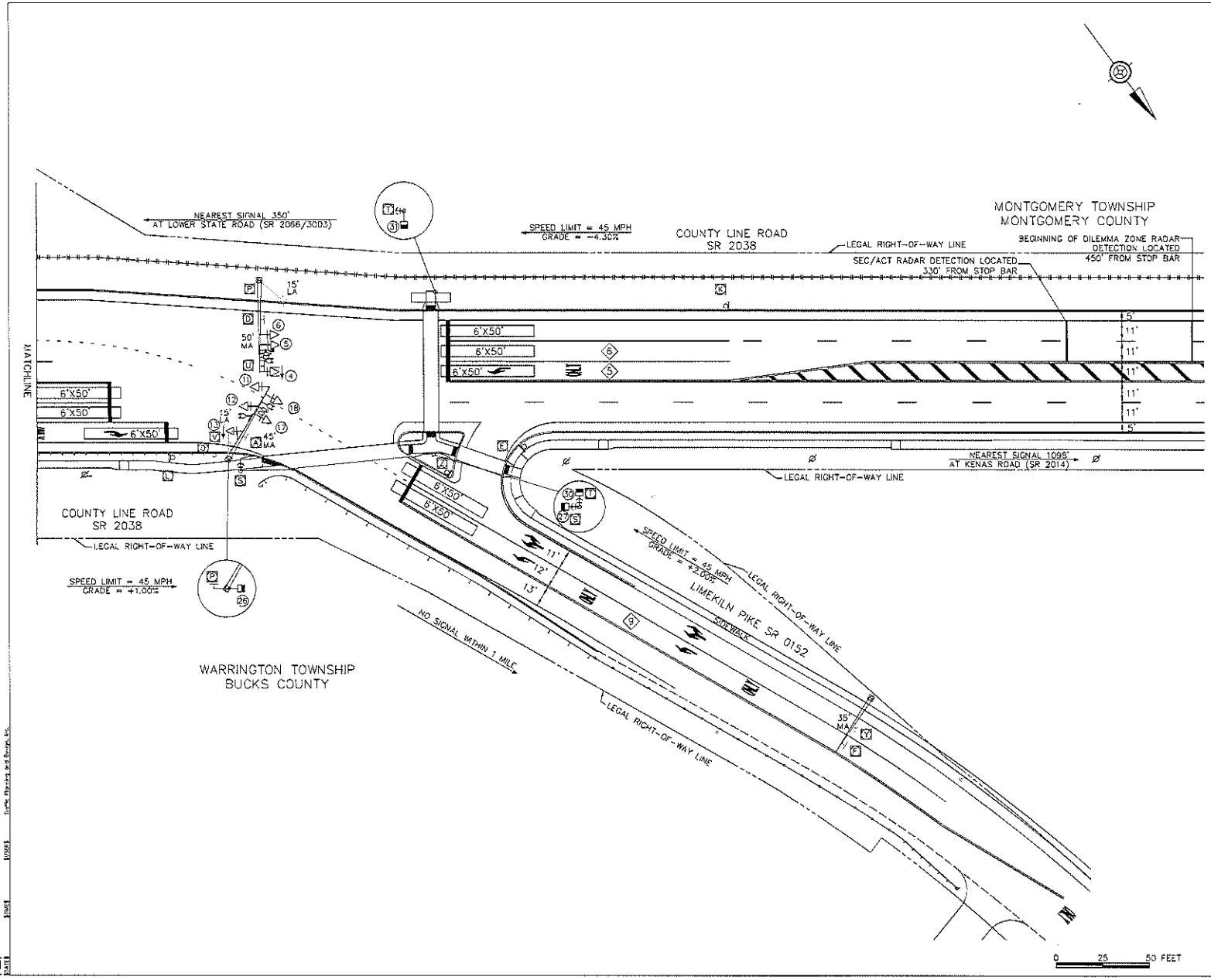
SHEET 3 OF 3 | PERMIT # 61-3063 | FILE # 3063

Traffic Planning and Design, Inc.



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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY/WARRINGTON TWPS.

INTERSECTION: COUNTY LINE ROAD (S.R. 2038)/ & LOWER STATE ROAD (S.R. 3003)/ LIMEKILN PIKE (S.R. 0152)

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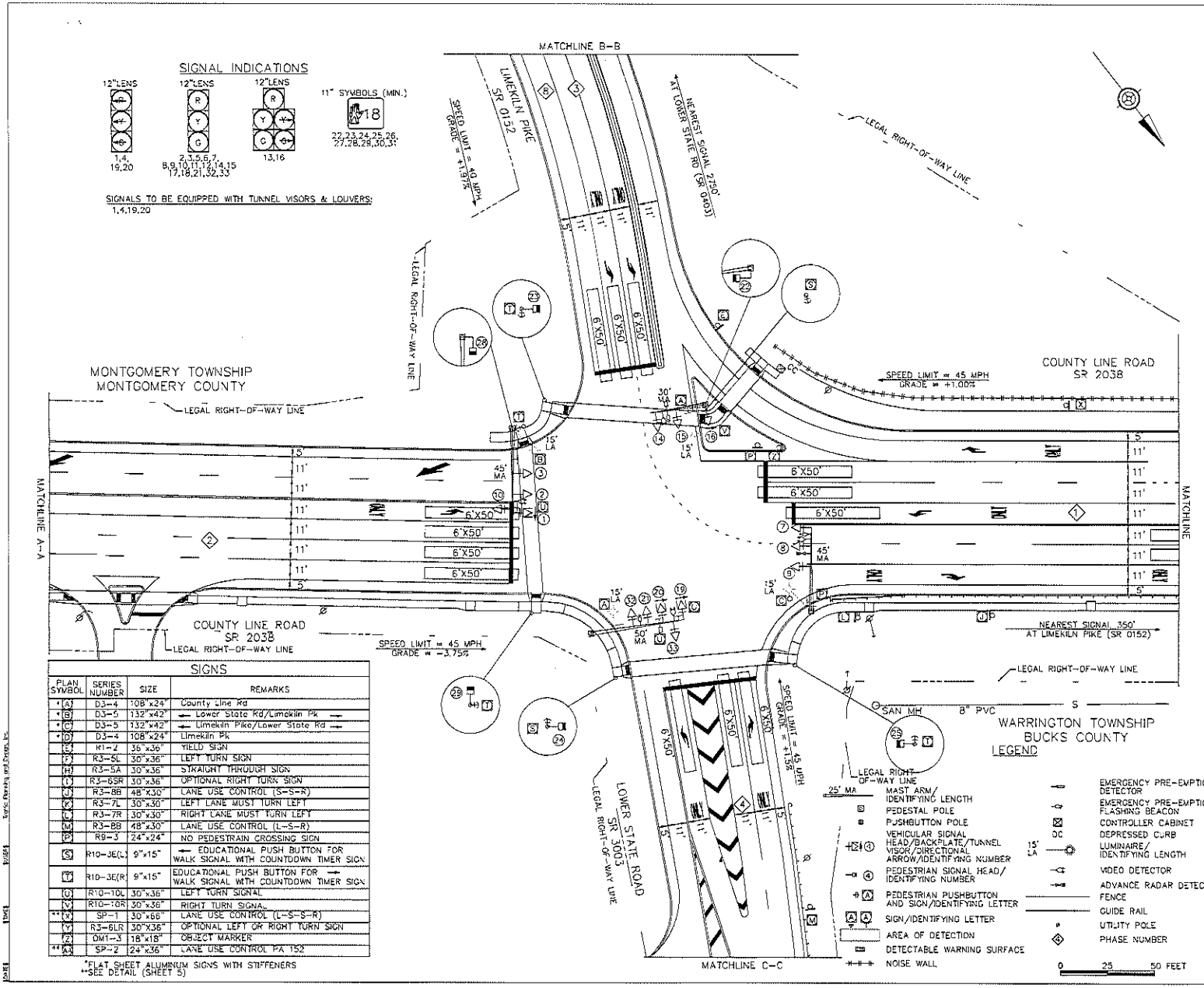
SHEET 3 OF 6 | PERMIT # 61-1739 | FILE # 1739



SIGNS

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
*A	D3-4	108"x24"	County Line Rd
*B	D3-5	132"x42"	← Lower State Rd/Limekiln Pk →
*C	D3-5	132"x42"	← Limekiln Pike/Lower State Rd →
*D	D3-4	108"x24"	Limekiln Pk
E	R1-2	36"x36"	YIELD SIGN
F	R3-5L	30"x36"	LEFT TURN SIGN
H	R3-5A	30"x36"	STRAIGHT THROUGH SIGN
I	R3-6SR	30"x36"	OPTIONAL RIGHT TURN SIGN
J	R3-8B	48"X30"	LANE USE CONTROL (S-S-R)
K	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
L	R3-7R	30"x30"	RIGHT LANE MUST TURN LEFT
M	R3-8B	48"x30"	LANE USE CONTROL (L-S-R)
P	R9-3	24"x24"	NO PEDESTRAIN CROSSING SIGN
S	R10-3E(L)	9"x15"	← EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER SIGN
T	R10-3E(R)	9"x15"	EDUCATIONAL PUSH BUTTON FOR → WALK SIGNAL WITH COUNTDOWN TIMER SIGN
U	R10-10L	30"x36"	LEFT TURN SIGNAL
V	R10-10R	30"x36"	RIGHT TURN SIGNAL
**X	SP-1	30"x66"	LANE USE CONTROL (L-S-S-R)
Y	R3-6LR	30"X36"	OPTIONAL LEFT OR RIGHT TURN SIGN
*Z	OM1-3	18"x18"	OBJECT MARKER
**AA	SP-2	24"x36"	LANE USE CONTROL PA 152

*FLAT SHEET ALUMINUM SIGNS WITH STIFFENERS
**SEE DETAIL (SHEET 5)

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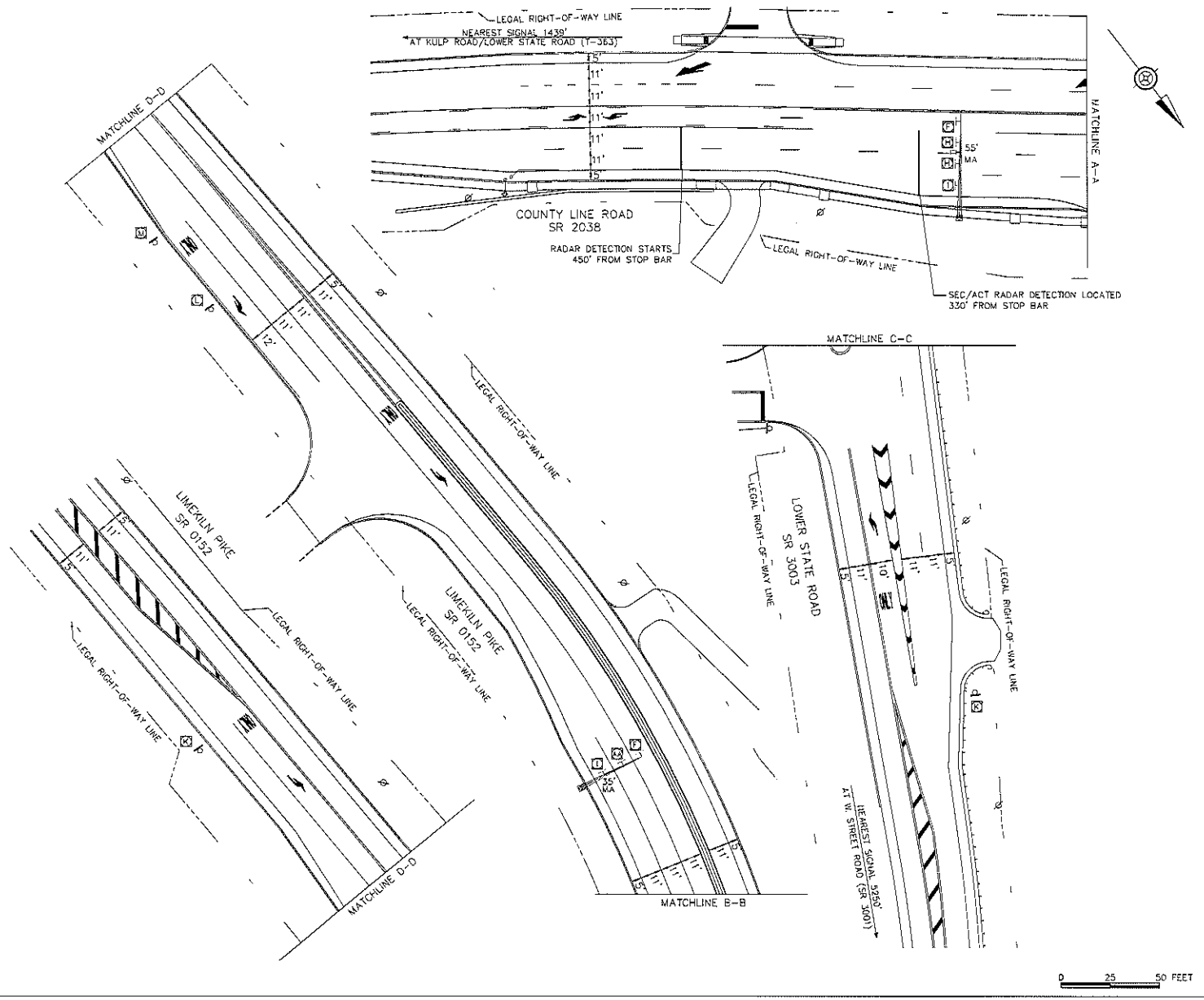
SHEET 2 OF 6 | PERMIT # 61-1739 | FILE # 1739



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

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

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

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SYSTEM PERMIT # I-0241

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY/WARRINGTON TWPS.

INTERSECTION: COUNTY LINE ROAD (S.R. 2038)/ & LOWER STATE ROAD (S.R. 3003)/ LIMEKILN PIKE (S.R. 0152)

REVIEWED:

LAWRENCE J. GRECAN — DATE 5/8/15
MUNICIPAL OFFICIAL — DATE

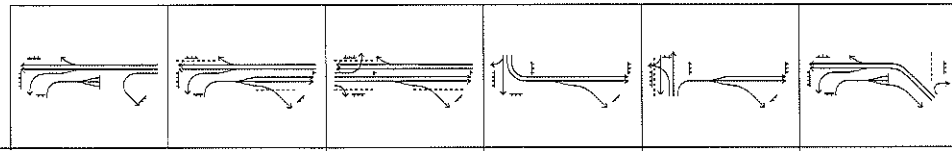
RECOMMENDED:
NIPUL B. PATEL — 6/12/15

ASHWIN B. PATEL — 6/18/15
DISTRICT TRAFFIC ENGINEER — DATE

NO	REVISION	DES/REVW	DATE	REVW	DATE	RECOM	DATE
1	AS-BUILT	TPD	6/14/19	NBP	8/16/19	DLA	8/18/19
2							
3							
4							
5							
6							
7							
8							

SHEET 4 OF 6 | PERMIT # 61-1739 | FILE # 1739

MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	1+5				1+6				2+6				3+8				4+8				9				EMERGENCY FLASHING OPERATION
INTERV. / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20	21	22	23	
1	~~G~~	~~G~~	~~Y~~ (6)	~~R~~ (6)	~~G~~	~~G~~	~~Y~~ (10)	~~R~~ (10)	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~G~~	~~Y~~ (3)	~~R~~ (3)	~~R~~
2–3	G	G	Y (7)	R (7)	G	G	Y (11)	R (11)	G	G	Y (17)	R (17)	R	R	R		R	R	R	R	C	C	Y (4)	R (4)	Y
4	~~G~~	~~G~~	~~Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
5–6	G	G	Y (8)	R (8)	G	G	Y (12)	R (12)	G	G	Y (18)	R (18)	R	R	R		R	R	R	R	R	R	R	R	Y
7–10	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R		R	R	R	R	R	R	R	R	Y
11–12	R	R	R	R	G	G	Y (13)	R (13)	G	G	Y (19)	R (19)	G	Y (20)	R (20)		G	G	Y	R	R	R	R	R	Y
13	R	R	R	R	G	G	Y (14) (15)	R (15) (14)	G	G	Y (14) (19)	R (19) (15)	G	Y (14) (20)	R (20) (15)		G	G	Y (14)	R (15)	R/~~G~~	R/~~G~~	R/~~Y~~	R	OFF
14,15,33	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		G	G	Y	R	R	R	R	R	R
16	R/~~G~~	R/~~G~~	R/~~Y~~ (9)	R (9)	R/~~G~~	R/~~G~~	R/~~Y~~ (16)	R (16)	R	R	R	R	R	R	R		G	G	Y (14)	R (15)	R/~~G~~	R/~~G~~	R/~~Y~~ (5)	R (5)	OFF
17–18	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	C	C	Y	R	R
19–20	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21,32	R	R	R	R	R	R	R	R	R	R	R	R	G	Y (20)	R (20)		G	G	Y	R	R	R	R	R	R
22–23	H	H	H	H	M (2)	FH (2)	H	H	M (2)	FH (2)	H	H	H	H	H		H	H	H	H	H	H	H	H	OFF
24–25	H	H	H	H	H	H	H	H	M (2)	FH (2)	H	H	H	H	H		H	H	H	H	H	H	H	H	OFF
26–27	H	H	H	H	M (2)	FH (2)	H	H	M (2)	FH (2)	H	H	H	H	H		H	H	H	H	H	H	H	H	OFF
28–29	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		H (2)	FH (2)	H	H	H	H	H	H	OFF
30–31	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		H	H	H	H	M (2)	FH (2)	H	H	OFF
FIXED TIME			5	3			5	3			5	3		5	3				5	3			5	3	
MINIMUM	3				3				10				3				3				3				
SEC/ACT.									2																
MAX INT.									35																
PASSAGE	3				3				1**				3				3				3				
MAX 1	4				4				25				16				24				21				
PEDESTRIAN (1)					7	16			7	21							7	21			7	18			
MEMORY	NL				NL				MIN				NL				NL				NL				

(1) UPON PEDESTRIAN ACTUATION ONLY
(2) UPON PEDESTRIAN ACTUATION ONLY OTHERWISE H AT ALL TIMES.
(3) ~~G~~ IF FOLLOWED BY 1+5 OR 1+6
(4) G IF FOLLOWED BY 1+5, 1+6 OR 2+6
(5) R/~~G~~ IF FOLLOWED BY 1+5, 1+6 OR 4+8
(6) ~~G~~ IF FOLLOWED BY 1+5 OR 9
(7) G IF FOLLOWED BY 1+6, 2+6 OR 9
(8) G IF FOLLOWED BY 1+6 OR 2+6
(9) R/~~G~~ IF FOLLOWED BY 1+6, 4+8 OR 9
(10) ~~G~~ IF FOLLOWED BY 1+5 OR 9
(11) G IF FOLLOWED BY 1+5, 2+6 OR 9
(12) G IF FOLLOWED BY 1+5 OR 2+6
(13) G IF FOLLOWED BY 2+6, 3+8 OR 4+8
(14) Y/~~G~~ IF FOLLOWED BY 9
(15) R/~~G~~ IF FOLLOWED BY 9
(16) R/~~G~~ IF FOLLOWED BY 1+5, 4+8 OR 9
(17) G IF FOLLOWED BY 1+5, 1+6 OR 9
(18) G IF FOLLOWED BY 1+5 OR 1+6
(19) G IF FOLLOWED BY 1+6, 3+8 OR 4+8
(20) G IF FOLLOWED BY 4+8

** ADVANCE DILEMMA ZONE
RADAR DETECTION SYSTEM NOTES
ESTIMATED TIME OF ARRIVAL: MIN 2.5 – MAX 5.5 SEC
RANGE OF DETECTION: MIN 0 – MAX 450 FEET FROM STOP BAR
SPEED BOUNDARY: 27–100 MPH

** DENSITY ZONE NOTES
RANGE OF DETECTION: 0–100 FEET FROM STOP BAR
MINIMUM SPEED BOUNDARY: 5–30 MPH

NOTE: REFER TO COUNTY LINE ROAD SYSTEM/INTERCONNECT PLAN (PERMIT # 1–0241) FOR PROGRAM TIMINGS AND WEEKLY PROGRAM CHART.

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6–0

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INTERSECTION: COUNTY LINE ROAD (S.R. 2038)/ &
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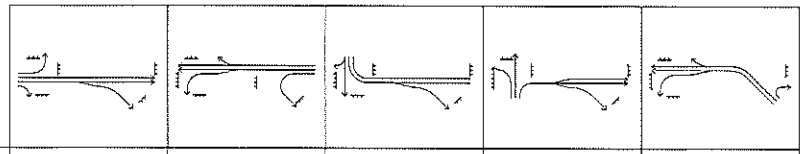
2							
3							
4							
5							
6							
7							
8							

SHEET 5 OF 6 | PERMIT # 61–1739 | FILE # 1739

EMGERGENCY PREEMPTION TIMING DIAGRAM



PHASE	2			6			8			4			9		
INTERV. / SIGNALS	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~
2–3	R	R	R	G	Y(2)	R(2)	R	R	R	R	R	R	G	Y	R
4	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
5–6	R	R	R	G	Y(2)	R(2)	R	R	R	R	R	R	R	R	R
7–10	G	Y(2)	R(2)	R	R	R	R	R	R	R	R	R	R	R	R
11–12	G	Y(2)	R(2)	R	R	R	G	Y	R	G	Y	R	R	R	R
13	G	Y(2)	R(2)	R	R	R	G	Y	R	G	Y	R	R	R	R
14,15,33	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R
16	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R
17–18	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R
19–20	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21,32	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R
22–23	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
24–25	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
26–27	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
28–29	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
30–31	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	**	5	3	**	5	3	**	5	3	**	5	3	**	5	3

SELECTIVE CLEARANCE

(2) G WHEN RETURNING TO NORMAL OPERATION

NOTE: IF PREEMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PREEMPTION.

** FOR DURATION OF PREEMPTION

EMERGENCY PREEMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF COUNTY LINE ROAD AND THE NORTHBOUND & SOUTHBOUND APPROACH OF LIMEKIN PIKE AND THE SOUTHBOUND APPROACH OF LOWER STATE ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL BEGIN FLASHING WHEN THE EMERGENCY PREEMPTION PHASE DISPLAYS PREEMPTION GREEN FOR THE EMERGENCY VEHICLE APPROACH.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL IMMEDIATELY TERMINATE ALL INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE EMERGENCY PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF THE SIGNAL IS IN PHASE 1+5 GREEN WHEN ACTIVITED BY PREEMPTION PHASE 6, 3+8 GREEN WHEN ACTIVATED BY PREEMPTION PHASE 8, 2 GREEN WHEN ACTIVATED BY PREEMPTION PHASE 2, OR 4 GREEN WHEN ACTIVATED BY PREEMPTION PHASE 4, THE GREEN INDICATIONS SHALL REMAIN GREEN FOR THE DURATION OF THE SIGNAL PREEMPTION AND THE RED INDICTIONS DISPLAYED FOR ALL OTHER PHASES.

IF THE SIGNALS HAVE BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS SUBSEQUENTLY PREEMPTED BY AN APPROACHING EMERGENCY VEHICLE, THE PEDESTRIAN WALK (WALKING PERSON) INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PEDESTRIAN CLEARANCE INTERVAL. THIS INTERVAL SHALL TIME OUT, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

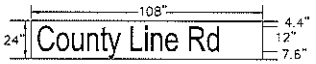
THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS ARE FLASHING WHEN AN EMERGENCY VEHICLE IS DETECTED, ALL SIGNALS SHALL REMAIN FLASHING.

IF ADDITIONAL EMERGENCY PREEMPTION PHASES ARE ACTIVATED WHILE IN PREEMPTION, THE ORIGINAL PREEMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PREEMPTION PHASE.

UPON COMPLETION OF EMERGENCY PREEMPTION PHASE 2, 4, 6, 8 OR 9 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 9 SHALL FOLLOW.

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



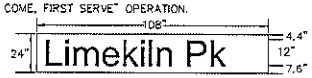
SIGN A DETAIL
CLEARVIEW SERIES 1-W
35% REDUCTION
12" UC/9" LC
WHITE REFLECTORIZED LEGEND ON GREEN REFLECTORIZED BACKGROUND

SIGN B DETAIL
Lower State Rd
CLEARVIEW SERIES 1-W
35% REDUCTION
12" UC/9" LC

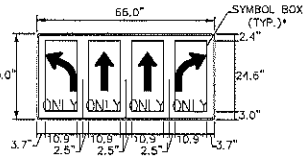
Limekiln Pk
CLEARVIEW SERIES 1-W
0% REDUCTION
12" UC/9" LC
WHITE REFLECTORIZED LEGEND ON GREEN REFLECTORIZED BACKGROUND

SIGN C DETAIL
Limekiln Pk
CLEARVIEW SERIES 1-W
0% REDUCTION
12" UC/9" LC

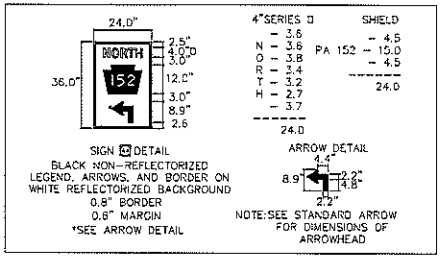
Lower State Rd
CLEARVIEW SERIES 1-W
35% REDUCTION
12" UC/9" LC
WHITE REFLECTORIZED LEGEND ON GREEN REFLECTORIZED BACKGROUND



SIGN D DETAIL
CLEARVIEW SERIES 2-W
0% REDUCTION
12" UC/9" LC
WHITE REFLECTORIZED LEGEND ON GREEN REFLECTORIZED BACKGROUND



SIGN E DETAIL
BLACK NON-REFLECTORIZED LEGEND, ARROWS, AND BORDER ON WHITE REFLECTORIZED BACKGROUND
0.8" BORDER
0.4" MARGIN
*SEE PUB 236, SIGN R3-8A FOR SIGN SYMBOL DETAILS



SIGN G DETAIL
BLACK NON-REFLECTORIZED LEGEND, ARROWS, AND BORDER ON WHITE REFLECTORIZED BACKGROUND
0.8" BORDER
0.8" MARGIN
*SEE ARROW DETAIL

NOTE: SEE STANDARD ARROW FOR DIMENSIONS OF ARROWHEAD

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ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS
MUNICIPALITY: MONTGOMERY/WARRINGTON TWPS.
INTERSECTION: COUNTY LINE ROAD (S.R. 2038)/ & LOWER STATE ROAD (S.R. 3003)/ LIMEKILN PIKE (S.R. 0152)

REVIEWED:

LAWRENCE J. GREGAN, MUNICIPAL OFFICIAL — DATE 5/8/15

RECOMMENDED:
NIPUL B. PATEL: 6/12/15

ASHWIN B. PATEL: DISTRICT TRAFFIC ENGINEER — 6/18/15

NO	REVISION	DES/REVW	DATE	REVW	DATE	RECOM	DATE
1	AS-BUILT	TPD	6/14/19	NBP	6/16/19	DLA	6/16/19
2							
3							
4							
5							
6							
7							
8							

SHEET 6 OF 6 | PERMIT # 61-1739 | FILE # 1739

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY/BUCKS	2038	WD2	14 OF 20
HORSHAM, MONTGOMERY, & WARRINGTON TOWNSHIPS				

REVISION NUMBER	REVISIONS	DATE	BY

* PHASE 1 RUNS CONCURRENT WITH PHASES 5,6,OR 9.
** PHASE 8 RUNS CONCURRENT WITH PHASES 3 OR 4.

GENERAL NOTES

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REFER TO TRAFFIC SIGNAL PERMIT DRAWING FOR INDIVIDUAL INTERSECTION OPERATION, GEOMETRY, PHASING AND CRITICAL TIMES.

FOR CONSTRUCTION AND INSPECTION THE SYSTEM PERMIT SHOULD ALWAYS BE ACCOMPANIED WITH TRAFFIC SIGNAL PERMIT DRAWING.

TEST THE SYSTEM AT LOCAL INTERSECTION LEVEL, SUBSYSTEM LEVEL, MASTER CONTROLLER LEVEL AND PERSONAL COMPUTER REMOTE DIAL UP LEVEL.

GATHER THE SYSTEM FAILURE CRITICAL ALARMS REPORT AND ARCHIVE THEM WHERE APPLICABLE.

SET UP PENNDOT DISTRICT 6-0 COMPUTER WITH THE SYSTEM DATABASE AND GRAPHICS. MODIFY THE DATABASE AND GRAPHICS FOR SYSTEMS REVISIONS.

ASSIGN LOOP DETECTORS AND PROGRAM THE CONTROLLERS TO GATHER TRAFFIC VOLUMES IN 15 MINUTE INTERVALS, WHERE APPLICABLE.

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

OBTAIN POLE ATTACHMENT PERMIT FOR AERIAL FIBER OPTIC INSTALLATION.

MAINTAIN MASTER CONTROLLER COMMUNICATION SUCH AS PHONE DROPS.

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

THE DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 181, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES EFFECTIVE DATE MARCH 29, 2007.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM FILE # 1-0241

SYSTEM NOTES:

1. PROGRAM TO BE SELECTED BY TRAFFIC RESPONSIVE OPERATIONS AND ADJUSTED BY ADAPTIVE SIGNAL CONTROL.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF YELLOW (PHASE 2+6) AT THE INTERSECTION OF COUNTY LINE RD (SR 2038) & LOWER STATE RD (SR 3003) / LIMEKILN PIKE (SR 0152).
3. SYSTEM LIMITS: 3 INTERSECTIONS MONITOR LOCATED IN MONTGOMERY TOWNSHIP BUILDING
4. PRIMARY COORDINATION: FIBER OPTIC CABLE SECONDARY COORDINATION: TBC
5. SYSTEM DESIGNED FOR ECONOLITE CENTRACS ATMS WITH ACS LITE MODULE.
6. TRAFFIC RESPONSIVE OPPERATION TO SELECT PREPROGRAMED CYCLE/SPLIT/OFFSET PLANS.
7. CYCLE CHANGES SHALL NOT OCCUR AT A RATE OF LESS THAN 15 MINUTES.
8. TRAFFIC RESPONSIVE SETTINGS:
   OCCUPANCY SCALING FACTOR, K=25%
   MAX V+KO=600
   SMOOTHING FACTOR=20%
   MODE=HIGHEST DETECTOR VALUE
   VOLUME SCALING=120% (EB) AND 100% (WB)
   OCCUPANCY SCALING=100% (EB AND WB)

DETECTOR NOTES:

1. VIDEO DETECTION UTILIZED FOR STOP BAR PRESENCE DETECTION ON ALL APPROACHES FOR ALL SIGNALS.
2. DIGITAL WAVE RADAR DETECTION UTILIZED FOR MAIN APPROACHES OF INTERSECTIONS 1-3.
3. ALL DETECTION ZONES ARE NOT TO SCALE

LEGEND:

- VIDEO DETECTION ZONE
- X-⊠ INTERSECTION - DETECTION ZONE
- ØX PHASE NUMBER
- □ ADVANCE RADAR DETECTION ZONE
- X-⊗ INTERSECTION - DETECTION ZONE
- CC1⊠ CONTROLLER CABINET

250 FEET 0 250 FEET

SYSTEM PLAN
TRAFFIC SIGNAL PLAN

PAUL G. ARCHIBALD — COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS
MUNICIPALITY: HORSHAM, MONTGOMERY, & WARRINGTON TOWNSHIPS
INTERSECTION: COUNTY LINE ROAD (SR 2038) TRAFFIC SIGNAL SYSTEM

REVIEWED:

MONTGOMERY TOWNSHIP OFFICIAL 5/8/15 DATE

WARRINGTON TOWNSHIP OFFICIAL 6/3/2015 DATE

RECOMMENDED:

MUNICIPAL SIGNALS ENGINEER 6/12/15 DATE

DISTRICT TRAFFIC ENGINEER 6/15/15 DATE

PLOTTED: 4/29/2015 10:41:29 AM

OPERATOR: trf_njo
FILE NAME: \\Hignds1\Eng\District 6-0\4876 (County Line Road) WD2\Submissions\00-In-Progress\Signals\Signals04--Signal System.dgn

TRAFFIC RESPONSIVE DETECTOR ASSIGNMENT												
CHANNELS	1	2	3	4	5	6	7	8	9	10	11	12
DIRECTION 1 (DR1)	1 (9)		2 (22)		3 (10)							
DIRECTION 2 (DR2)		1 (10)		2 (23)		3 (11)						
GROUP 1 (GP1)												
GROUP 2 (GP2)												
SPLIT DEMAND 1 (NA1)												
SPLIT DEMAND 2 (NA2)												
OPTION 1												
OPTION 2												

WEEKLY PROGRAM CHART					
EVENT	DAY	TIME	PROGRAM	CYCLE	REMARKS
1	1-5	06:00	LEVEL 1	140	AM PEAK
2	1-5	10:00	LEVEL 3	-	-
3	1-5	16:00	LEVEL 2	140	PM PEAK
4	1-5	19:00	MAX 1	-	-
5	6-7	00:00	LEVEL 3	-	-

MONDAY = DAY 1

CYCLE/OFFSET/SPLIT

	LEVEL 1			PHASE									CYCLE	OFFSET		
	INTERSECTION	FILE #	MASTER	1	2	3	4	5	6	7	8	9		EASTBOUND	BALANCED	WESTBOUND
1	COUNTY LINE ROAD (SR 2038) & KENAS ROAD (SR 2014)	3063		13(LEAD)	28				41		29		70		56	
2	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (SR 3003)/LIMEKILN PIKE (SR 0152)	1739			36	20	38	14(LEAD)				32	140		0	
3	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (T-363)/KULP ROAD	2174		11(LEAD)	36		23		47		23		70		48	

	LEVEL 2			PHASE									CYCLE	OFFSET		
	INTERSECTION	FILE #	MASTER	1	2	3	4	5	6	7	8	9		EASTBOUND	BALANCED	WESTBOUND
1	COUNTY LINE ROAD (SR 2038) & KENAS ROAD (SR 2014)	3063		11(LEAD)	30				41		29		70		9	
2	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (SR 3003)/LIMEKILN PIKE (SR 0152)	1739			36	30	32	12(LEAD)				30	140		0	
3	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (T-363)/KULP ROAD	2174		11(LEAD)	36		23		47		23		70		53	

	LEVEL 3			PHASE									CYCLE	OFFSET		
	INTERSECTION	FILE #	MASTER	1	2	3	4	5	6	7	8	9		EASTBOUND	BALANCED	WESTBOUND
1	COUNTY LINE ROAD (SR 2038) & KENAS ROAD (SR 2014)	3063		10(LEAD)	22				32		28		60		5	
2	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (SR 3003)/LIMEKILN PIKE (SR 0152)	1739			32	16	32	11(LEAD)				29	120		0	
3	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (T-363)/KULP ROAD	2174		11(LEAD)	25		24		36		24		60		49	

	LEVEL 4			PHASE									CYCLE	OFFSET		
	INTERSECTION	FILE #	MASTER	1	2	3	4	5	6	7	8	9		EASTBOUND	BALANCED	WESTBOUND
1	COUNTY LINE ROAD (SR 2038) & KENAS ROAD (SR 2014)	3063		12(LEAD)	39				51		29		80		14	
2	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (SR 3003)/LIMEKILN PIKE (SR 0152)	1739			57	28	32	14(LEAD)				29	160		0	
3	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (T-363)/KULP ROAD	2174		11(LEAD)	46		23		57		23		80		60	

	LEVEL 5			PHASE									CYCLE	OFFSET		
	INTERSECTION	FILE #	MASTER	1	2	3	4	5	6	7	8	9		EASTBOUND	BALANCED	WESTBOUND
1	COUNTY LINE ROAD (SR 2038) & KENAS ROAD (SR 2014)	3063		12(LEAD)	39				51		29		80		64	
2	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (SR 3003)/LIMEKILN PIKE (SR 0152)	1739			32	42	32	14(LEAD)				40	160		0	
3	COUNTY LINE ROAD (SR 2038) & LOWER STATE ROAD (T-363)/KULP ROAD	2174		11(LEAD)	46		23		57		23		80		75	

SYSTEM PLAN
TRAFFIC SIGNAL PLAN

PAUL G. ARCHIBALD

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY/BUCKS	2038	W02	15 OF 20
HORSHAM, MONTGOMERY, & WARRINGTON TOWNSHIPS				

REVISION NUMBER	REVISIONS	DATE	BY

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SYSTEM FILE # I-0241

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: HORSHAM, MONTGOMERY, & WARRINGTON TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (SR 2038) TRAFFIC SIGNAL SYSTEM

REVIEWED:

MONTGOMERY TOWNSHIP OFFICIAL 5/8/15 DATE

WARRINGTON TOWNSHIP OFFICIAL 6/3/2015 DATE

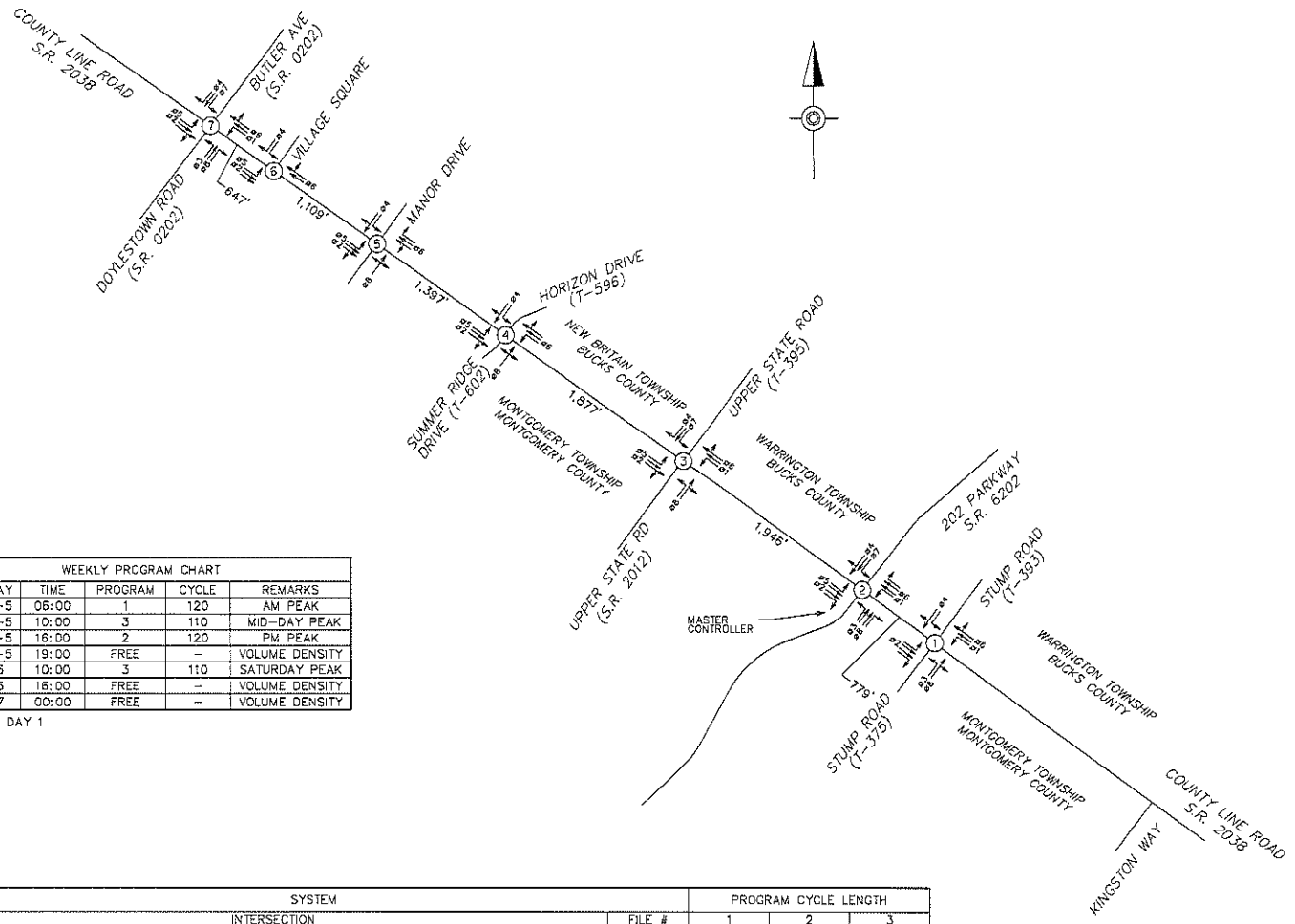
RECOMMENDED:

MUNICIPAL SIGNALS ENGINEER 6/11/15 DATE

DISTRICT TRAFFIC ENGINEER 6/15/15 DATE

PLOTTED: 4/29/2015 10:44:39 AM

OPERATOR: trf_njd
FILE NAME: \\Highdot1\Eng\District 6-0\4876 (County Line Road)\W02\Submissions\00-In-Progress\Signals\Signals04--Signal System.dgn



WEEKLY PROGRAM CHART					
EVENT	DAY	TIME	PROGRAM	CYCLE	REMARKS
1	1-5	06:00	1	120	AM PEAK
2	1-5	10:00	3	110	MID-DAY PEAK
3	1-5	16:00	2	120	PM PEAK
4	1-5	19:00	FREE	–	VOLUME DENSITY
5	6	10:00	3	110	SATURDAY PEAK
6	6	16:00	FREE	–	VOLUME DENSITY
7	7	00:00	FREE	–	VOLUME DENSITY

MONDAY = DAY 1

SYSTEM			PROGRAM CYCLE LENGTH		
	INTERSECTION	FILE #	1	2	3
1	COUNTY LINE ROAD (SR 2038) & STUMP ROAD (T-393/375)	64-2225	120	120	110
2	COUNTY LINE ROAD (SR 2038) & 202 PARKWAY (SR 6202)	3706	120	120	110
3	COUNTY LINE ROAD (SR 2038) & UPPER STATE ROAD (T-395/SR 2012)	1966	120	120	110
4	COUNTY LINE ROAD (SR 2038) & HORIZON DRIVE (T-596)/SUMMER RIDGE DRIVE (T-602)	3707	120	120	110
5	COUNTY LINE ROAD (SR 2038) & MANOR DRIVE	61-3395	120	120	110
6	COUNTY LINE ROAD (SR 2038) & VILLAGE SQUARE ENTRANCE DRIVE	61-2320	120	120	110
7	COUNTY LINE ROAD (SR 2038) & BUTLER AVENUE/DOYLESTOWN ROAD (SR 0202)	61-0336	120	120	110

500 FEET 0 500 FEET

SYSTEM PLAN
TRAFFIC SIGNAL PLAN

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY/BUCKS	2038	WD1	1 OF 3
MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS				

REVISION NUMBER	REVISIONS	DATE	BY

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SYSTEM FILE # I-0121

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (SR 2038) TRAFFIC SIGNAL SYSTEM

REVIEWED:

MONTGOMERY TOWNSHIP OFFICIAL DATE

NEW BRITAIN TOWNSHIP OFFICIAL DATE

RECOMMENDED:

MUNICIPAL SIGNALS ENGINEER DATE

DISTRICT TRAFFIC ENGINEER DATE

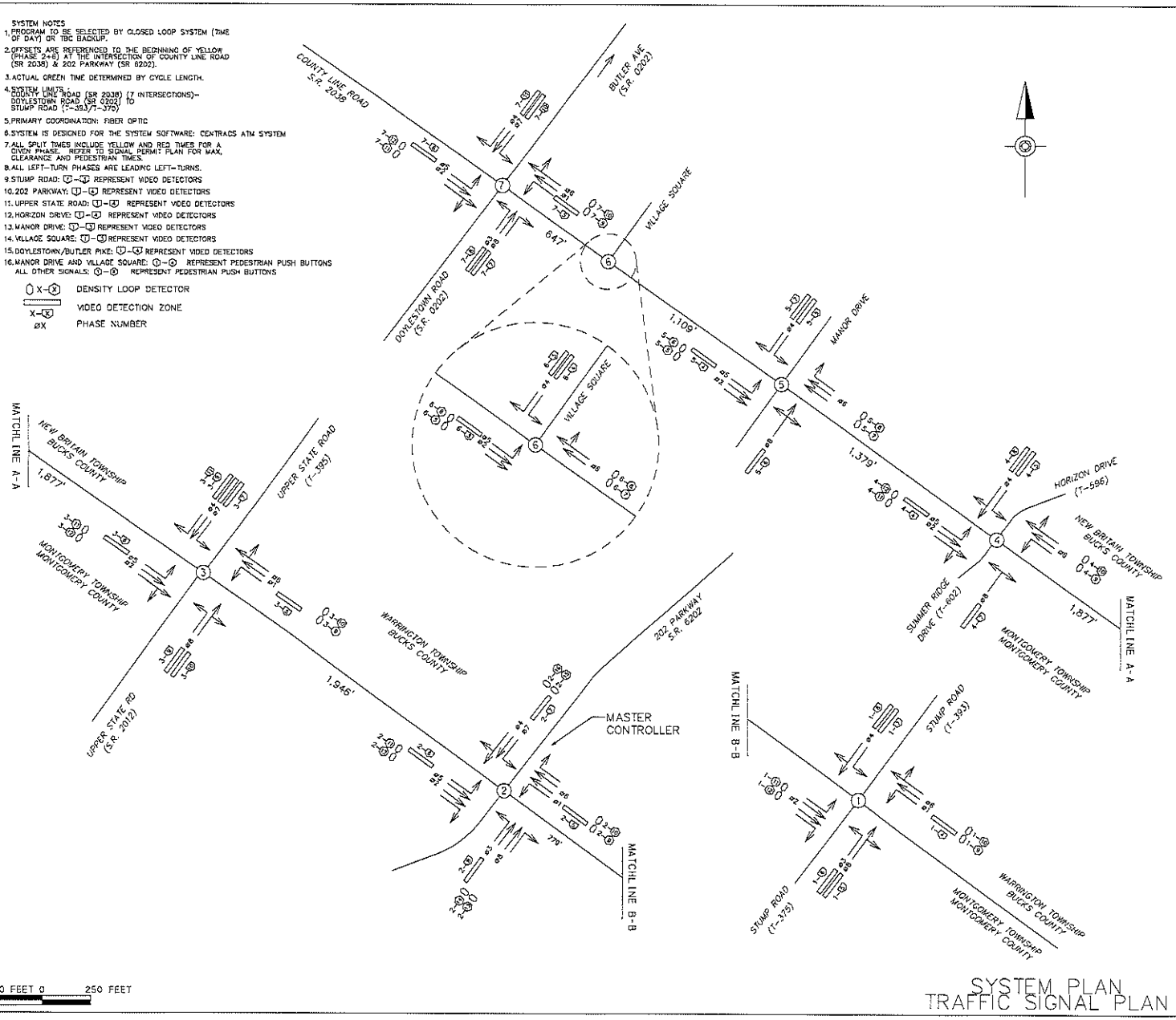
SYSTEM NOTES

1. PROGRAM TO BE SELECTED BY CLOSED LOOP SYSTEM (TIME OF DAY) OR TBC BACKUP.
2. OFFSETS ARE REFERENCED TO THE BEGINNING OF YELLOW (PHASE 2+6) AT THE INTERSECTION OF COUNTY LINE ROAD (SR 2038) & 202 PARKWAY (SR 6202).
3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
4. SYSTEM LIMITS : COUNTY LINE ROAD (SR 2038) (7 INTERSECTIONS)- DOYLESTOWN ROAD (SR 0202) TO STUMP ROAD (T-393/T-375)
5. PRIMARY COORDINATION: FIBER OPTIC
6. SYSTEM IS DESIGNED FOR THE SYSTEM SOFTWARE: CONTRACS ATM SYSTEM
7. ALL SPLIT TIMES INCLUDE YELLOW AND RED TIMES FOR A GIVEN PHASE. REFER TO SIGNAL PERMIT PLAN FOR MAX, CLEARANCE AND PEDESTRIAN TIMES.
8. ALL LEFT-TURN PHASES ARE LEADING LEFT-TURNS.
9. STUMP ROAD: ⓨ-ⓩ REPRESENT VIDEO DETECTORS
10. 202 PARKWAY: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
11. UPPER STATE ROAD: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
12. HORIZON DRIVE: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
13. MANOR DRIVE: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
14. VILLAGE SQUARE: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
15. DOYLESTOWN/BUTLER PIKE: ⓘ-ⓟ REPRESENT VIDEO DETECTORS
16. MANOR DRIVE AND VILLAGE SQUARE: ⓘ-ⓟ REPRESENT PEDESTRIAN PUSH BUTTONS
ALL OTHER SIGNALS: ⓘ-ⓟ REPRESENT PEDESTRIAN PUSH BUTTONS

X-Ⓧ DENSITY LOOP DETECTOR

X-Ⓧ VIDEO DETECTION ZONE

øX PHASE NUMBER



250 FEET 0 250 FEET

SYSTEM PLAN
TRAFFIC SIGNAL PLAN

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY/BUCKS	2038	W01	2 OF 3
MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS				

REVISION NUMBER	REVISIONS	DATE	BY

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TEST THE SYSTEM AT LOCAL INTERSECTION LEVEL, SUBSYSTEM LEVEL, MASTER CONTROLLER LEVEL AND PERSONAL COMPUTER REMOTE DIAL UP LEVEL.

GATHER THE SYSTEM FAILURE CRITICAL ALARMS REPORT AND ARCHIVE THEM WHERE APPLICABLE.

SET UP PENNDOT DISTRICT 6-0 COMPUTER WITH THE SYSTEM DATABASE AND GRAPHICS. MODIFY THE DATABASE AND GRAPHICS FOR SYSTEMS REVISIONS.

ASSIGN LOOP DETECTORS AND PROGRAM THE CONTROLLERS TO GATHER TRAFFIC VOLUMES IN 15 MINUTE INTERVALS, WHERE APPLICABLE.

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SYSTEM FILE #

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (SR 2038) TRAFFIC SIGNAL SYSTEM

REVIEWED:

MONTGOMERY TOWNSHIP OFFICIAL DATE

NEW BRITAIN TOWNSHIP OFFICIAL DATE

RECOMMENDED:

MUNICIPAL SIGNALS ENGINEER DATE

DISTRICT TRAFFIC ENGINEER DATE

PLOTTED: 1/9/2014 10:05:11 AM

PROGRAM 1			PHASE									CYCLE	OFFSET	REFERENCE INTERVAL
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9			
1	COUNTY LINE ROAD (SR 2038) & STUMP ROAD (T-393/375)	64-2225	14(LEAD)	45	14(LEAD)	42		59		61		120	11	7
2	COUNTY LINE ROAD (SR 2038) & 202 PARKWAY (SR 6202)	3706	20(LEAD)	43	14(LEAD)	43	14(LEAD)	49	20(LEAD)	37		120	0	14
3	COUNTY LINE ROAD (SR 2038) & UPPER STATE ROAD (T-395/SR 2012)	1966	14(LEAD)	45		61	14(LEAD)	45	18(LEAD)	43		120	41	14
4	COUNTY LINE ROAD (SR 2038) & HORIZON DRIVE (T-596)/SUMMER RIDGE DRIVE (T-602)	3707		83		37	28(LEAD)	55		37		120	89	7
5	COUNTY LINE ROAD (SR 2038) & MANOR DRIVE	61-3395		79		41	23(LEAD)	56		41		120	8	6
6	COUNTY LINE ROAD (SR 2038) & VILLAGE SQUARE ENTRANCE DRIVE	61-2320		79		41	24(LEAD)	55				120	13	6
7	COUNTY LINE ROAD (SR 2038) & BUTLER AVENUE/DOYLESTOWN ROAD (SR 0202)	61-0336	22(LEAD)	40	15(LEAD)	43	14(LEAD)	48	25(LEAD)	33		120	103	14

PROGRAM 2			PHASE									CYCLE	OFFSET	REFERENCE INTERVAL
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9			
1	COUNTY LINE ROAD (SR 2038) & STUMP ROAD (T-393/375)	64-2225	14(LEAD)	49	23(LEAD)	34		63		57		120	8	7
2	COUNTY LINE ROAD (SR 2038) & 202 PARKWAY (SR 6202)	3706	20(LEAD)	43	19(LEAD)	38	15(LEAD)	48	20(LEAD)	37		120	0	14
3	COUNTY LINE ROAD (SR 2038) & UPPER STATE ROAD (T-395/SR 2012)	1966	16(LEAD)	45		59	14(LEAD)	47	18(LEAD)	41		120	48	14
4	COUNTY LINE ROAD (SR 2038) & HORIZON DRIVE (T-596)/SUMMER RIDGE DRIVE (T-602)	3707		86		34	19(LEAD)	67		34		120	83	7
5	COUNTY LINE ROAD (SR 2038) & MANOR DRIVE	61-3395		85		35	18(LEAD)	67		35		120	8	6
6	COUNTY LINE ROAD (SR 2038) & VILLAGE SQUARE ENTRANCE DRIVE	61-2320		88		32	19(LEAD)	69				120	1	6
7	COUNTY LINE ROAD (SR 2038) & BUTLER AVENUE/DOYLESTOWN ROAD (SR 0202)	61-0336	23(LEAD)	40	14(LEAD)	43	16(LEAD)	47	17(LEAD)	40		120	112	14

PROGRAM 3			PHASE									CYCLE	OFFSET	REFERENCE INTERVAL
	INTERSECTION	FILE #	1	2	3	4	5	6	7	8	9			
1	COUNTY LINE ROAD (SR 2038) & STUMP ROAD (T-393/375)	64-2225	14(LEAD)	41	15(LEAD)	40		55		55		110	9	7
2	COUNTY LINE ROAD (SR 2038) & 202 PARKWAY (SR 6202)	3706	16(LEAD)	39	16(LEAD)	39	14(LEAD)	41	18(LEAD)	37		110	0	14
3	COUNTY LINE ROAD (SR 2038) & UPPER STATE ROAD (T-395/SR 2012)	1966	15(LEAD)	39		56	14(LEAD)	40	18(LEAD)	38		110	43	14
4	COUNTY LINE ROAD (SR 2038) & HORIZON DRIVE (T-596)/SUMMER RIDGE DRIVE (T-602)	3707		75		35	23(LEAD)	52		35		110	79	7
5	COUNTY LINE ROAD (SR 2038) & MANOR DRIVE	61-3395		72		38	20(LEAD)	52		35		110	15	6
6	COUNTY LINE ROAD (SR 2038) & VILLAGE SQUARE ENTRANCE DRIVE	61-2320		73		37	20(LEAD)	53				110	28	6
7	COUNTY LINE ROAD (SR 2038) & BUTLER AVENUE/DOYLESTOWN ROAD (SR 0202)	61-0336	15(LEAD)	43	15(LEAD)	37	18(LEAD)	40	19(LEAD)	33		110	0	14

SYSTEM PLAN
TRAFFIC SIGNAL PLAN

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY/BUCKS	2038	WD1	3 OF 3
MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS				

REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

REFER TO TRAFFIC SIGNAL PERMIT DRAWING FOR INDIVIDUAL INTERSECTION OPERATION, GEOMETRY, PHASING AND CRITICAL TIMES.

FOR CONSTRUCTION AND INSPECTION THE SYSTEM PERMIT SHOULD ALWAYS BE ACCOMPANIED WITH TRAFFIC SIGNAL PERMIT DRAWING.

TEST THE SYSTEM AT LOCAL INTERSECTION LEVEL, SUBSYSTEM LEVEL, MASTER CONTROLLER LEVEL AND PERSONAL COMPUTER REMOTE DIAL UP LEVEL.

GATHER THE SYSTEM FAILURE CRITICAL ALARMS REPORT AND ARCHIVE THEM WHERE APPLICABLE.

SET UP PENNDOT DISTRICT 6-0 COMPUTER WITH THE SYSTEM DATABASE AND GRAPHICS, MODIFY THE DATABASE AND GRAPHICS FOR SYSTEMS REVISIONS.

ASSIGN LOOP DETECTORS AND PROGRAM THE CONTROLLERS TO GATHER TRAFFIC VOLUMES IN 15 MINUTE INTERVALS, WHERE APPLICABLE.

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

OBTAIN POLE ATTACHMENT PERMIT FOR AERIAL FIBER OPTIC INSTALLATION.

MAINTAIN MASTER CONTROLLER COMMUNICATION SUCH AS PHONE DROPS.

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

THE DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 181, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES EFFECTIVE DATE MARCH 29, 2007.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE,
MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

SYSTEM FILE # I-0121

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS

MUNICIPALITY: MONTGOMERY, NEW BRITAIN & WARRINGTON TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (SR 2038) TRAFFIC SIGNAL SYSTEM

REVIEWED:

MONTGOMERY TOWNSHIP OFFICIAL — DATE

NEW BRITAIN TOWNSHIP OFFICIAL — DATE

RECOMMENDED:

MUNICIPAL SIGNALS ENGINEER — DATE

DISTRICT TRAFFIC ENGINEER — DATE

OPERATOR: trf_rdg
FILE NAME: \\pfnghdat1\Eng\District 6-0\4876 (County Line Road)\WD1\02-Permit Plans\County Line Rd (SR 2038) System Plan_03.dwg

APPENDIX B

Traffic Counts

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Stump Rd.
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Thursday/Clear/E-13/GP

File Name : 20-066-004
Site Code : 20066004
Start Date : 10/1/2020
Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

	Stump Rd. Southbound			County Line Rd. Westbound			Stump Rd. Northbound			County Line Rd. Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	1	27	6	3	119	2	13	5	7	2	138	19	342
07:15 AM	0	32	12	10	153	1	7	11	6	7	171	31	441
07:30 AM	0	34	6	16	149	1	16	11	5	11	169	20	438
07:45 AM	2	29	5	9	158	0	14	14	9	9	135	22	406
Total	3	122	29	38	579	4	50	41	27	29	613	92	1627
08:00 AM	1	23	5	8	148	2	24	14	10	3	151	31	420
08:15 AM	1	24	6	6	142	1	20	12	7	7	166	32	424
08:30 AM	2	24	7	7	149	1	9	9	8	5	135	23	379
08:45 AM	0	17	4	2	146	1	20	9	12	4	117	14	346
Total	4	88	22	23	585	5	73	44	37	19	569	100	1569
*** BREAK ***													
04:00 PM	0	17	10	10	131	2	22	12	7	10	144	15	380
04:15 PM	0	23	8	12	204	0	32	22	7	9	164	24	505
04:30 PM	1	17	5	11	196	2	31	23	17	11	162	23	499
04:45 PM	0	26	10	10	232	1	14	24	7	12	156	22	514
Total	1	83	33	43	763	5	99	81	38	42	626	84	1898
05:00 PM	1	19	6	12	219	4	20	36	9	13	154	33	526
05:15 PM	1	14	6	15	204	2	25	22	12	10	223	33	567
05:30 PM	3	14	12	19	206	1	23	30	19	12	191	27	557
05:45 PM	0	12	5	9	200	1	22	26	3	5	182	30	495
Total	5	59	29	55	829	8	90	114	43	40	750	123	2145
Grand Total	13	352	113	159	2756	22	312	280	145	130	2558	399	7239
Apprch %	2.7	73.6	23.6	5.4	93.8	0.7	42.3	38	19.7	4.2	82.9	12.9	
Total %	0.2	4.9	1.6	2.2	38.1	0.3	4.3	3.9	2	1.8	35.3	5.5	
Passenger and 2 Axle Vehicles	13	348	112	154	2651	20	305	278	141	127	2475	392	7016
% Passenger and 2 Axle Vehicles	100	98.9	99.1	96.9	96.2	90.9	97.8	99.3	97.2	97.7	96.8	98.2	96.9
Buses and Heavy Vehicles	0	4	1	5	105	2	7	2	4	3	83	7	223
% Buses and Heavy Vehicles	0	1.1	0.9	3.1	3.8	9.1	2.2	0.7	2.8	2.3	3.2	1.8	3.1

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Stump Rd.
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Thursday/Clear/E-13/GP

File Name : 20-066-004
Site Code : 20066004
Start Date : 10/1/2020

	Stump Rd. Southbound				County Line Rd. Westbound				Stump Rd. Northbound				County Line Rd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	32	**12**	**44**	10	153	1	164	7	11	6	24	7	**171**	**31**	**209**	**441**
07:30 AM	0	**34**	6	40	**16**	149	1	166	16	11	5	32	**11**	169	20	200	438
07:45 AM	**2**	29	5	36	9	**158**	0	**167**	14	**14**	9	37	9	135	22	166	406
08:00 AM	1	23	5	29	8	148	**2**	158	**24**	14	**10**	**48**	3	151	31	185	420
Total Volume	3	118	28	149	43	608	4	655	61	50	30	141	30	626	104	760	1705
% App. Total	2	79.2	18.8		6.6	92.8	0.6		43.3	35.5	21.3		3.9	82.4	13.7		
PHF	.375	.868	.583	.847	.672	.962	.500	.981	.635	.893	.750	.734	.682	.915	.839	.909	.967
Passenger and 2 Axle Vehicles	3	116	28	147	40	571	3	614	58	50	29	137	29	587	102	718	1616
% Passenger and 2 Axle Vehicles	100	98.3	100	98.7	93.0	93.9	75.0	93.7	95.1	100	96.7	97.2	96.7	93.8	98.1	94.5	94.8
Buses and Heavy Vehicles	0	2	0	2	3	37	1	41	3	0	1	4	1	39	2	42	89
% Buses and Heavy Vehicles	0	1.7	0	1.3	7.0	6.1	25.0	6.3	4.9	0	3.3	2.8	3.3	6.2	1.9	5.5	5.2
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**26**	10	**36**	10	**232**	1	**243**	14	24	7	45	12	156	22	190	514
05:00 PM	1	19	6	26	12	219	**4**	235	20	**36**	9	65	**13**	154	**33**	200	526
05:15 PM	1	14	6	21	15	204	2	221	**25**	22	12	59	10	**223**	33	**266**	**567**
05:30 PM	**3**	14	**12**	29	**19**	206	1	226	23	30	**19**	**72**	12	191	27	230	557
Total Volume	5	73	34	112	56	861	8	925	82	112	47	241	47	724	115	886	2164
% App. Total	4.5	65.2	30.4		6.1	93.1	0.9		34	46.5	19.5		5.3	81.7	13		
PHF	.417	.702	.708	.778	.737	.928	.500	.952	.820	.778	.618	.837	.904	.812	.871	.833	.954
Passenger and 2 Axle Vehicles	5	72	33	110	56	848	8	912	82	110	46	238	46	717	114	877	2137
% Passenger and 2 Axle Vehicles	100	98.6	97.1	98.2	100	98.5	100	98.6	100	98.2	97.9	98.8	97.9	99.0	99.1	99.0	98.8
Buses and Heavy Vehicles	0	1	1	2	0	13	0	13	0	2	1	3	1	7	1	9	27
% Buses and Heavy Vehicles	0	1.4	2.9	1.8	0	1.5	0	1.4	0	1.8	2.1	1.2	2.1	1.0	0.9	1.0	1.2

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Kenas Rd./ Woodlawn Ave.
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Wednesday/Clear/E-06/GD

File Name : 20-066-003
Site Code : 20066003
Start Date : 9/30/2020
Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

	Woodlawn Ave Southbound			County Line Rd. Westbound			Kenas Rd. Northbound			County Line Rd. Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	1	14	124	1	0	0	15	0	152	2	309
07:15 AM	0	0	1	14	154	4	11	0	11	0	159	2	356
07:30 AM	0	0	0	17	186	0	4	0	6	0	144	2	359
07:45 AM	0	0	1	22	130	3	15	0	12	0	203	3	389
Total	0	0	3	67	594	8	30	0	44	0	658	9	1413
08:00 AM	0	0	0	15	160	0	14	0	10	0	124	9	332
08:15 AM	1	0	2	14	158	2	7	0	13	0	155	11	363
08:30 AM	0	0	1	9	129	1	5	0	13	1	154	6	319
08:45 AM	0	0	0	7	143	6	9	0	8	2	137	4	316
Total	1	0	3	45	590	9	35	0	44	3	570	30	1330
*** BREAK ***													
04:00 PM	0	0	0	21	187	5	5	0	16	0	175	7	416
04:15 PM	0	0	0	16	179	7	13	0	13	0	164	10	402
04:30 PM	0	0	0	12	172	7	12	0	16	0	184	13	416
04:45 PM	0	0	0	23	205	10	14	0	16	0	178	11	457
Total	0	0	0	72	743	29	44	0	61	0	701	41	1691
05:00 PM	0	0	0	13	180	8	11	0	17	1	179	11	420
05:15 PM	0	0	0	29	227	10	11	0	18	0	176	16	487
05:30 PM	0	0	0	13	184	13	15	0	18	0	197	14	454
05:45 PM	1	0	0	25	216	5	8	0	22	0	138	9	424
Total	1	0	0	80	807	36	45	0	75	1	690	50	1785
Grand Total	2	0	6	264	2734	82	154	0	224	4	2619	130	6219
Apprch %	25	0	75	8.6	88.8	2.7	40.7	0	59.3	0.1	95.1	4.7	
Total %	0	0	0.1	4.2	44	1.3	2.5	0	3.6	0.1	42.1	2.1	
Passenger and 2 Axle Vehicles	2	0	6	245	2590	80	149	0	212	4	2510	128	5926
% Passenger and 2 Axle Vehicles	100	0	100	92.8	94.7	97.6	96.8	0	94.6	100	95.8	98.5	95.3
Buses and Heavy Vehicles	0	0	0	19	144	2	5	0	12	0	109	2	293
% Buses and Heavy Vehicles	0	0	0	7.2	5.3	2.4	3.2	0	5.4	0	4.2	1.5	4.7

Horner & Canter Associates
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105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Kenas Rd./ Woodlawn Ave.
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Wednesday/Clear/E-06/GD

File Name : 20-066-003
Site Code : 20066003
Start Date : 9/30/2020

	Woodlawn Ave Southbound				County Line Rd. Westbound				Kenas Rd. Northbound				County Line Rd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	17	**186**	0	**203**	4	0	6	10	0	144	2	146	359
07:45 AM	0	0	1	1	**22**	130	**3**	155	**15**	0	12	**27**	0	**203**	3	**206**	**389**
08:00 AM	0	0	0	0	15	160	0	175	14	0	10	24	0	124	9	133	332
08:15 AM	**1**	0	**2**	**3**	14	158	2	174	7	0	**13**	20	0	155	**11**	166	363
Total Volume	1	0	3	4	68	634	5	707	40	0	41	81	0	626	25	651	1443
% App. Total	25	0	75		9.6	89.7	0.7		49.4	0	50.6		0	96.2	3.8		
PHF	.250	.000	.375	.333	.773	.852	.417	.871	.667	.000	.788	.750	.000	.771	.568	.790	.927
Passenger and 2 Axle Vehicles	1	0	3	4	58	584	4	646	38	0	36	74	0	585	24	609	1333
% Passenger and 2 Axle Vehicles	100	0	100	100	85.3	92.1	80.0	91.4	95.0	0	87.8	91.4	0	93.5	96.0	93.5	92.4
Buses and Heavy Vehicles	0	0	0	0	10	50	1	61	2	0	5	7	0	41	1	42	110
% Buses and Heavy Vehicles	0	0	0	0	14.7	7.9	20.0	8.6	5.0	0	12.2	8.6	0	6.5	4.0	6.5	7.6
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	23	205	10	238	14	0	16	30	0	178	11	189	457
05:00 PM	0	0	0	0	13	180	8	201	11	0	17	28	1	179	11	191	420
05:15 PM	0	0	0	0	**29**	**227**	10	**266**	11	0	**18**	29	0	176	**16**	192	**487**
05:30 PM	0	0	0	0	13	184	**13**	210	**15**	0	18	**33**	0	**197**	14	**211**	454
Total Volume	0	0	0	0	78	796	41	915	51	0	69	120	1	730	52	783	1818
% App. Total	0	0	0		8.5	87	4.5		42.5	0	57.5		0.1	93.2	6.6		
PHF	.000	.000	.000	.000	.672	.877	.788	.860	.850	.000	.958	.909	.250	.926	.813	.928	.933
Passenger and 2 Axle Vehicles	0	0	0	0	75	782	40	897	50	0	68	118	1	717	51	769	1784
% Passenger and 2 Axle Vehicles	0	0	0	0	96.2	98.2	97.6	98.0	98.0	0	98.6	98.3	100	98.2	98.1	98.2	98.1
Buses and Heavy Vehicles	0	0	0	0	3	14	1	18	1	0	1	2	0	13	1	14	34
% Buses and Heavy Vehicles	0	0	0	0	3.8	1.8	2.4	2.0	2.0	0	1.4	1.7	0	1.8	1.9	1.8	1.9

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

SB: Limekiln Pike
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Wednesday/Clear/E13-/GP

File Name : 20-066-002
Site Code : 20066002
Start Date : 9/30/2020
Page No : 1

Groups Printed- Passenger and Heavy Vehicles - Buses and Heavy Vehicles

	Limekiln Pike Southbound		County Line Rd. Westbound		County Line Rd. Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00 AM	46	1	126	21	0	172	366
07:15 AM	63	0	171	34	1	142	411
07:30 AM	68	0	190	15	0	149	422
07:45 AM	54	0	155	35	0	194	438
Total	231	1	642	105	1	657	1637
08:00 AM	70	1	173	15	0	123	382
08:15 AM	56	2	172	24	0	161	415
08:30 AM	65	0	141	32	0	171	409
08:45 AM	45	1	149	30	0	128	353
Total	236	4	635	101	0	583	1559
*** BREAK ***							
04:00 PM	47	2	200	74	0	154	477
04:15 PM	34	2	212	64	2	158	472
04:30 PM	59	4	196	88	0	171	518
04:45 PM	37	2	214	71	0	200	524
Total	177	10	822	297	2	683	1991
05:00 PM	58	1	188	88	2	159	496
05:15 PM	45	2	238	72	1	180	538
05:30 PM	50	2	200	73	1	180	506
05:45 PM	28	7	215	61	2	130	443
Total	181	12	841	294	6	649	1983
Grand Total	825	27	2940	797	9	2572	7170
Apprch %	96.8	3.2	78.7	21.3	0.3	99.7	
Total %	11.5	0.4	41	11.1	0.1	35.9	
Passenger and Heavy Vehicles	810	26	2879	788	9	2517	7029
% Passenger and Heavy Vehicles	98.2	96.3	97.9	98.9	100	97.9	98
Buses and Heavy Vehicles	15	1	61	9	0	55	141
% Buses and Heavy Vehicles	1.8	3.7	2.1	1.1	0	2.1	2

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

SB: Limekiln Pike
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Wednesday/Clear/E13-/GP

File Name : 20-066-002
Site Code : 20066002
Start Date : 9/30/2020

	Limekiln Pike Southbound			County Line Rd. Westbound			County Line Rd. Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	68	0	68	**190**	15	**205**	0	149	149	422
07:45 AM	54	0	54	155	**35**	190	0	**194**	**194**	**438**
08:00 AM	**70**	1	**71**	173	15	188	0	123	123	382
08:15 AM	56	**2**	58	172	24	196	0	161	161	415
Total Volume	248	3	251	690	89	779	0	627	627	1657
% App. Total	98.8	1.2		88.6	11.4		0	100		
PHF	.886	.375	.884	.908	.636	.950	.000	.808	.808	.946
Passenger and Heavy Vehicles	245	3	248	664	84	748	0	607	607	1603
% Passenger and Heavy Vehicles	98.8	100	98.8	96.2	94.4	96.0	0	96.8	96.8	96.7
Buses and Heavy Vehicles	3	0	3	26	5	31	0	20	20	54
% Buses and Heavy Vehicles	1.2	0	1.2	3.8	5.6	4.0	0	3.2	3.2	3.3
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	**59**	**4**	**63**	196	**88**	284	0	171	171	518
04:45 PM	37	2	39	214	71	285	0	**200**	**200**	524
05:00 PM	58	1	59	188	88	276	**2**	159	161	496
05:15 PM	45	2	47	**238**	72	**310**	1	180	181	**538**
Total Volume	199	9	208	836	319	1155	3	710	713	2076
% App. Total	95.7	4.3		72.4	27.6		0.4	99.6		
PHF	.843	.563	.825	.878	.906	.931	.375	.888	.891	.965
Passenger and Heavy Vehicles	197	9	206	833	317	1150	3	702	705	2061
% Passenger and Heavy Vehicles	99.0	100	99.0	99.6	99.4	99.6	100	98.9	98.9	99.3
Buses and Heavy Vehicles	2	0	2	3	2	5	0	8	8	15
% Buses and Heavy Vehicles	1.0	0	1.0	0.4	0.6	0.4	0	1.1	1.1	0.7

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2C, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Lower State Rd.
EB/WB: County Line Rd.
Warrington Twp./Bucks Co./PA
Wednesday/Clear/E-01/BP

File Name : 20-066-001
Site Code : 20066001
Start Date : 9/30/2020
Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

	Lower State Rd Southbound			County Line Rd. Westbound			Lower State Rd. Northbound			County Line Rd. Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	27	41	0	89	1	12	30	0	34	146	50	430
07:15 AM	1	52	55	0	117	6	26	32	0	27	113	61	490
07:30 AM	2	51	63	1	136	3	19	35	0	28	136	62	536
07:45 AM	0	49	44	0	94	3	38	47	2	26	146	64	513
Total	3	179	203	1	436	13	95	144	2	115	541	237	1969
08:00 AM	3	38	55	0	117	8	24	33	0	24	122	65	489
08:15 AM	5	45	55	1	105	4	29	41	0	22	126	56	489
08:30 AM	7	34	58	0	94	2	23	48	0	18	150	71	505
08:45 AM	5	32	44	1	108	5	27	33	1	21	120	38	435
Total	20	149	212	2	424	19	103	155	1	85	518	230	1918
*** BREAK ***													
04:00 PM	4	34	65	1	143	9	54	42	0	27	130	60	569
04:15 PM	4	51	74	3	132	1	60	62	0	35	126	35	583
04:30 PM	5	38	71	1	136	2	59	64	0	36	154	60	626
04:45 PM	9	51	63	1	143	0	72	52	0	37	135	58	621
Total	22	174	273	6	554	12	245	220	0	135	545	213	2399
05:00 PM	8	36	55	3	152	0	68	47	0	45	142	70	626
05:15 PM	11	52	95	0	162	8	72	58	0	34	127	59	678
05:30 PM	8	52	67	1	147	5	52	55	0	47	155	44	633
05:45 PM	4	31	52	0	157	1	59	29	0	26	109	24	492
Total	31	171	269	4	618	14	251	189	0	152	533	197	2429
Grand Total	76	673	957	13	2032	58	694	708	3	487	2137	877	8715
Apprch %	4.5	39.4	56.1	0.6	96.6	2.8	49.4	50.4	0.2	13.9	61	25	
Total %	0.9	7.7	11	0.1	23.3	0.7	8	8.1	0	5.6	24.5	10.1	
Passenger and 2 Axle Vehicles	69	660	906	13	2027	48	690	700	3	453	2120	870	8559
% Passenger and 2 Axle Vehicles	90.8	98.1	94.7	100	99.8	82.8	99.4	98.9	100	93	99.2	99.2	98.2
Buses and Heavy Vehicles	7	13	51	0	5	10	4	8	0	34	17	7	156
% Buses and Heavy Vehicles	9.2	1.9	5.3	0	0.2	17.2	0.6	1.1	0	7	0.8	0.8	1.8

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Warrington Twp./Bucks Co./PA
Wednesday/Clear/E-01/BP

File Name : 20-066-001
Site Code : 20066001
Start Date : 9/30/2020

	Lower State Rd Southbound				County Line Rd. Westbound				Lower State Rd. Northbound				County Line Rd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	**52**	55	108	0	117	6	123	26	32	0	58	27	113	61	201	490
07:30 AM	2	51	**63**	**116**	1	**136**	3	**140**	19	35	0	54	**28**	136	62	226	**536**
07:45 AM	0	49	44	93	0	94	3	97	**38**	**47**	**2**	**87**	26	**146**	64	**236**	513
08:00 AM	**3**	38	55	96	0	117	**8**	125	24	33	0	57	24	122	**65**	211	489
Total Volume	6	190	217	413	1	464	20	485	107	147	2	256	105	517	252	874	2028
% App. Total	1.5	46	52.5		0.2	95.7	4.1		41.8	57.4	0.8		12	59.2	28.8		
PHF	.500	.913	.861	.890	.250	.853	.625	.866	.704	.782	.250	.736	.938	.885	.969	.926	.946
Passenger and 2 Axle Vehicles	2	182	194	378	1	463	18	482	107	144	2	253	91	510	247	848	1961
% Passenger and 2 Axle Vehicles	33.3	95.8	89.4	91.5	100	99.8	90.0	99.4	100	98.0	100	98.8	86.7	98.6	98.0	97.0	96.7
Buses and Heavy Vehicles	4	8	23	35	0	1	2	3	0	3	0	3	14	7	5	26	67
% Buses and Heavy Vehicles	66.7	4.2	10.6	8.5	0	0.2	10.0	0.6	0	2.0	0	1.2	13.3	1.4	2.0	3.0	3.3
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	9	51	63	123	1	143	0	144	**72**	52	0	124	37	135	58	230	621
05:00 PM	8	36	55	99	**3**	152	0	155	68	47	0	115	45	142	**70**	**257**	626
05:15 PM	**11**	**52**	**95**	**158**	0	**162**	**8**	**170**	72	**58**	0	**130**	34	127	59	220	**678**
05:30 PM	8	52	67	127	1	147	5	153	52	55	0	107	**47**	**155**	44	246	633
Total Volume	36	191	280	507	5	604	13	622	264	212	0	476	163	559	231	953	2558
% App. Total	7.1	37.7	55.2		0.8	97.1	2.1		55.5	44.5	0		17.1	58.7	24.2		
PHF	.818	.918	.737	.802	.417	.932	.406	.915	.917	.914	.000	.915	.867	.902	.825	.927	.943
Passenger and 2 Axle Vehicles	35	190	280	505	5	604	12	621	264	210	0	474	161	556	231	948	2548
% Passenger and 2 Axle Vehicles	97.2	99.5	100	99.6	100	100	92.3	99.8	100	99.1	0	99.6	98.8	99.5	100	99.5	99.6
Buses and Heavy Vehicles	1	1	0	2	0	0	1	1	0	2	0	2	2	3	0	5	10
% Buses and Heavy Vehicles	2.8	0.5	0	0.4	0	0	7.7	0.2	0	0.9	0	0.4	1.2	0.5	0	0.5	0.4

TMS Site 25005: Traffic Monitoring Report

Location Description: 350 Feet East of Mill Creek Rd. (Class Count Btwn Sign Posts)

Details	
Type of Count	MACHINE CLASS
Type of Site	Portable
Schedule	1 TIME/YR
Duration	24 HRS
Frequency Cycle	03
Cycle Year	03

Location	
County	BUCKS (09)
Route	2038
Segment	0082
Offset	0100
Latitude	40.25137
Longitude	-75.20401

Map

Traffic Data

Date	Volume	Truck Volume	Truck %	Volume Graph
Aug 03, 2020*	14,379	987	6.9	
Jun 13, 2017	19,026			
July 30, 2014	21,024	1,827	8.7	
Aug 10, 2011	18,600			
July 13, 2006	19,836			
Apr 19, 2001	19,628			
Apr 09, 1996	19,320			
Apr 18, 1995	16,560			
May 25, 1994	16,040			
May 05, 1993	16,217			

TMS Site 25005: Traffic Monitoring Report

Location Description: 350 Feet East of Mill Creek Rd. (Class Count Btwn Sign Posts)

Details	
Type of Count	MACHINE CLASS
Type of Site	Portable
Schedule	1 TIME/YR
Duration	24 HRS
Frequency Cycle	03
Cycle Year	03

Location	
County	BUCKS (09)
Route	2038
Segment	0082
Offset	0100
Latitude	40.25137
Longitude	-75.20401

Map

Traffic Data

Hour	Volume	Volume Graph
12:00 AM	105	
01:00 AM	58	
02:00 AM	57	
03:00 AM	66	
04:00 AM	166	
05:00 AM	491	
06:00 AM	1,049	
07:00 AM	1,361	
08:00 AM	1,300	
09:00 AM	1,041	
10:00 AM	912	
11:00 AM	973	
12:00 PM	1,017	
01:00 PM	975	
02:00 PM	1,078	
03:00 PM	1,283	
04:00 PM	1,374	
05:00 PM	1,457	
06:00 PM	1,216	
07:00 PM	1,013	
08:00 PM	782	
09:00 PM	612	
10:00 PM	417	
11:00 PM	223	

APPENDIX C

Level of Service Delay Thresholds

Level of Service Criteria

Level of Service at intersections is defined in terms of DELAY. Delay is a measure of driver discomfort, frustration, and lost travel time, thus the rating of delay from highly acceptable LOS A to unacceptable LOS F.

At traffic signals, delay is a complex measure and is dependent on a number of variables including signal progression, the cycle length, the green-time ratio, clearance times, trucks, pedestrians, parking, and signal phasing.

At unsignalized intersections, delay is dependent on the available gaps in the two-way flow of the uninterrupted traffic movement, intersection width, and queuing.

Intersection LOS

	Signalized	Unsignalized
LOS A	Less than 10.0 sec/veh	Less than 10.0 sec/veh
B	10.0 to 20.0 sec/veh	10.0 to 15.0 sec/veh
C	20.0 to 35.0 sec/veh	15.0 to 25.0 sec/veh
D	35.0 to 55.0 sec/veh	25.0 to 35.0 sec/veh
E	55.0 to 80.0 sec/veh	35.0 to 50.0 sec/veh
F	Greater than 80.0 sec/veh	Greater than 50.0 sec/veh

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

- **LEVEL-OF-SERVICE A** describes operations with very low delay, i.e., less than 10.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

- **LEVEL-OF-SERVICE B** describes operations with delay in the range of 10.0 to 20.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

- **LEVEL-OF-SERVICE C** describes operations with delay in the range of 20.0 to 35.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

- **LEVEL-OF-SERVICE D** describes operations with delay in the range of 35.0 to 55.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

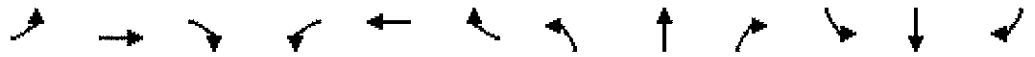
- **LEVEL-OF-SERVICE E** describes operations with delay in the range of 55.0 to 80.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

- **LEVEL-OF-SERVICE F** describes operations with delay in excess of 80.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

APPENDIX D

Existing Capacity/LOS Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	626	104	43	608	4	61	50	30	3	118	28
Future Volume (vph)	30	626	104	43	608	4	61	50	30	3	118	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96		1.00		0.99	0.99		0.99	1.00	
Frt			0.850		0.999			0.944			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1621	3150	1464	1499	3018	0	1559	1705	0	1612	1788	0
Flt Permitted	0.412			0.185			0.585			0.703		
Satd. Flow (perm)	698	3150	1411	292	3018	0	954	1705	0	1182	1788	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						11	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			3800			500			500	
Travel Time (s)		7.6			57.6			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	6%	2%	7%	6%	25%	5%	0%	3%	0%	2%	0%
Adj. Flow (vph)	31	645	107	44	627	4	63	52	31	3	122	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	645	107	44	631	0	63	83	0	3	151	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

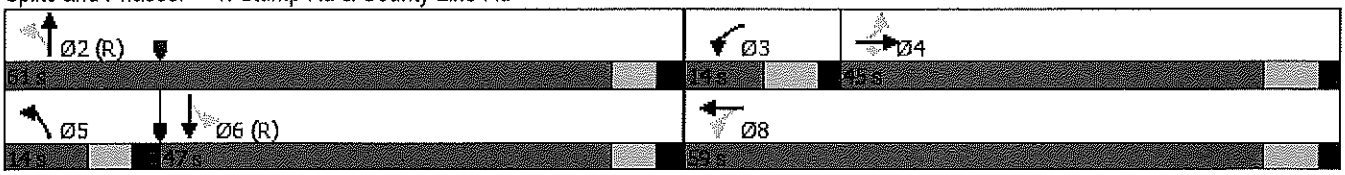


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Minimum Split (s)	25.0	25.0	25.0	9.0	25.0		8.5	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	45.0	14.0	59.0		14.0	61.0		47.0	47.0	
Total Split (%)	37.5%	37.5%	37.5%	11.7%	49.2%		11.7%	50.8%		39.2%	39.2%	
Maximum Green (s)	38.0	38.0	38.0	7.0	52.0		7.5	54.5		40.5	40.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	31.0	31.0	31.0	42.2	42.2		64.3	64.3		52.8	52.8	
Actuated g/C Ratio	0.26	0.26	0.26	0.35	0.35		0.54	0.54		0.44	0.44	
v/c Ratio	0.17	0.79	0.29	0.26	0.59		0.11	0.09		0.01	0.19	
Control Delay	34.7	48.7	36.5	26.0	33.3		17.1	16.7		25.7	23.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.7	48.7	36.5	26.0	33.3		17.1	16.7		25.7	23.8	
LOS	C	D	D	C	C		B	B		C	C	
Approach Delay		46.5			32.8			16.9			23.8	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	19	244	66	22	199		24	32		1	71	
Queue Length 95th (ft)	43	291	109	43	234		55	67		9	132	
Internal Link Dist (ft)		420			3720			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	221	997	446	173	1308		550	913		520	793	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.65	0.24	0.25	0.48		0.11	0.09		0.01	0.19	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 36.8	Intersection LOS: D
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Stump Rd & County Line Rd



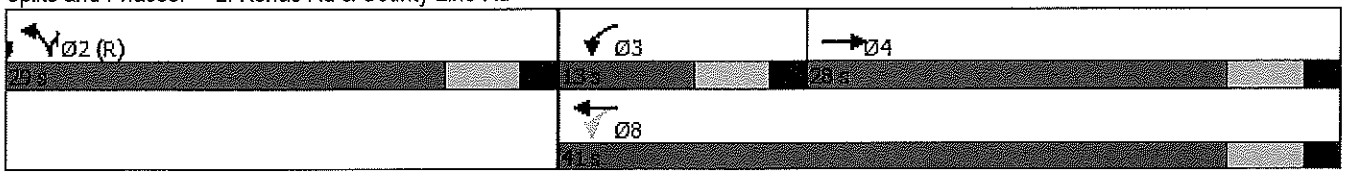
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	627	25	68	639	40	41
Future Volume (vph)	627	25	68	639	40	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.994					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3040	0	1423	3030	1620	1314
Flt Permitted			0.196		0.950	
Satd. Flow (perm)	3040	0	293	3030	1611	1314
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					44
Link Speed (mph)	45			45	45	
Link Distance (ft)	3800			1090	500	
Travel Time (s)	57.6			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	15%	8%	5%	12%
Adj. Flow (vph)	674	27	73	687	43	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	701	0	73	687	43	44
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (%)	40.0%		18.6%	58.6%	41.4%	41.4%
Maximum Green (s)	22.0		7.0	35.0	23.0	23.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	20.2		30.5	30.5	27.5	27.5
Actuated g/C Ratio	0.29		0.44	0.44	0.39	0.39
v/c Ratio	0.80		0.31	0.52	0.07	0.08
Control Delay	30.2		22.9	27.2	16.5	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.2		22.9	27.2	16.5	6.2
LOS	C		C	C	B	A
Approach Delay	30.2			26.8	11.3	
Approach LOS	C			C	B	
Queue Length 50th (ft)	140		38	183	12	0
Queue Length 95th (ft)	198		91	250	33	20
Internal Link Dist (ft)	3720			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	959		240	1515	637	543
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.73		0.30	0.45	0.07	0.08

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.80
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 53.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Kenas Rd & County Line Rd



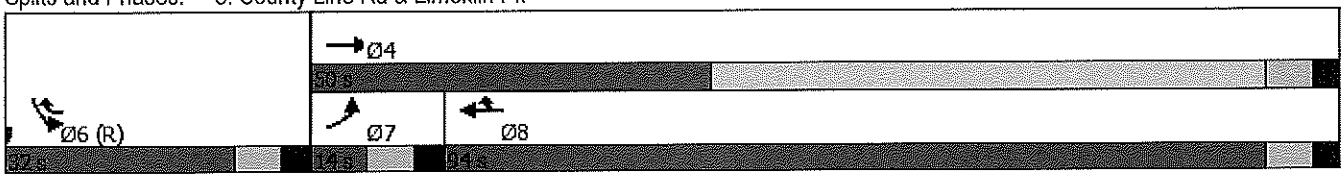
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	627	690	89	248	3
Future Volume (vph)	0	627	690	89	248	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor					1.00	
Frt				0.850	0.998	
Flt Protected					0.953	
Satd. Flow (prot)	1705	3146	3163	1388	3254	0
Flt Permitted					0.953	
Satd. Flow (perm)	1705	3146	3163	1388	3254	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				94	1	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	4%	6%	1%	0%
Adj. Flow (vph)	0	660	726	94	261	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	660	726	94	264	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	14.0	50.0	94.0		32.0	
Total Split (%)	10.0%	35.7%	67.1%		22.9%	
Maximum Green (s)	6.0	42.0	86.0		24.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)		39.7	39.7	140.0	84.3	
Actuated g/C Ratio		0.28	0.28	1.00	0.60	
v/c Ratio		0.74	0.81	0.07	0.13	
Control Delay		33.5	80.4	0.1	13.1	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		33.5	80.4	0.1	13.1	
LOS		C	F	A	B	
Approach Delay		33.5	71.2		13.1	
Approach LOS		C	E		B	
Queue Length 50th (ft)		200	310	0	51	
Queue Length 95th (ft)		213	357	0	84	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)				270	330	
Base Capacity (vph)		2247	1942	1388	1960	
Starvation Cap Reductn		0	300	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.29	0.44	0.07	0.13	

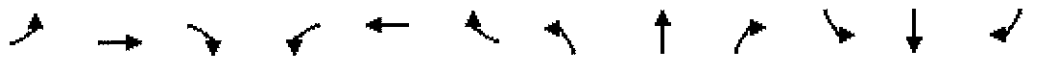
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.81
Intersection Signal Delay: 48.2 Intersection LOS: D
Intersection Capacity Utilization 48.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: County Line Rd & Limekiln Pk



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	517	252	1	464	20	107	147	2	6	190	217
Future Volume (vph)	105	517	252	1	464	20	107	147	2	6	190	217
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.994			0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	3257	1443	1620	4601	0	3175	1686	0	980	1656	1319
Flt Permitted	0.950			0.449			0.950			0.657		
Satd. Flow (perm)	1442	3257	1386	759	4601	0	3128	1686	0	678	1656	1319
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			265		4			1				101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	1%	2%	0%	0%	10%	0%	2%	0%	67%	4%	11%
Adj. Flow (vph)	111	544	265	1	488	21	113	155	2	6	200	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	544	265	1	509	0	113	157	0	6	200	228
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

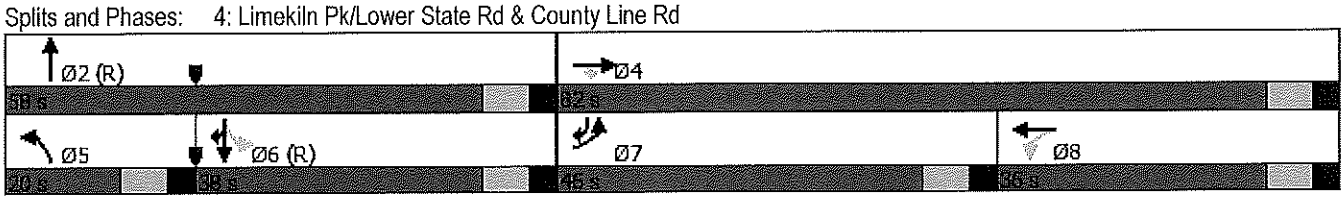


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	46.0	82.0	82.0	36.0	36.0		20.0	58.0		38.0	38.0	
Total Split (%)	32.9%	58.6%	58.6%	25.7%	25.7%		14.3%	41.4%		27.1%	27.1%	
Maximum Green (s)	38.0	74.0	74.0	28.0	28.0		12.0	50.0		30.0	30.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	16.0	45.0	45.0	20.9	20.9		10.3	79.0		60.7	60.7	84.8
Actuated g/C Ratio	0.11	0.32	0.32	0.15	0.15		0.07	0.56		0.43	0.43	0.61
v/c Ratio	0.67	0.52	0.42	0.01	0.74		0.48	0.17		0.02	0.28	0.27
Control Delay	76.4	22.5	3.2	48.0	62.9		68.9	16.8		29.2	29.6	8.7
Queue Delay	0.0	0.1	0.2	0.0	0.0		1.0	0.0		0.0	0.0	1.5
Total Delay	76.4	22.6	3.3	48.0	62.9		69.9	16.8		29.2	29.6	10.1
LOS	E	C	A	D	E		E	B		C	C	B
Approach Delay		23.6			62.9			39.0			19.4	
Approach LOS		C			E			D			B	
Queue Length 50th (ft)	68	101	0	1	163		52	65		3	115	48
Queue Length 95th (ft)	136	123	9	6	198		83	126		14	211	109
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1721	857	151	923		278	951		294	718	1029
Starvation Cap Reductn	0	347	138	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	1		50	0		0	0	617
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.28	0.40	0.37	0.01	0.55		0.50	0.17		0.02	0.28	0.55

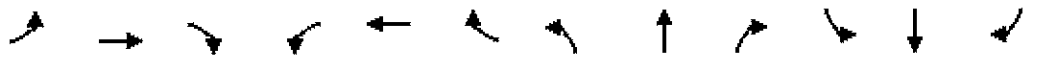
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 34.1	Intersection LOS: C
Intersection Capacity Utilization 65.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	724	115	56	861	8	82	112	47	5	73	34
Future Volume (vph)	47	724	115	56	861	8	82	112	47	5	73	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		0.99	0.99		0.99	0.99	
Frt			0.850		0.999			0.956			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1637	3306	1479	1603	3140	0	1636	1716	0	1612	1749	0
Flt Permitted	0.312			0.190			0.538			0.651		
Satd. Flow (perm)	536	3306	1431	320	3140	0	922	1716	0	1098	1749	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						24	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			3800			500			500	
Travel Time (s)		7.6			57.6			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	1%	0%	2%	0%	0%	2%	2%	0%	1%	3%
Adj. Flow (vph)	49	762	121	59	906	8	86	118	49	5	77	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	762	121	59	914	0	86	167	0	5	113	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

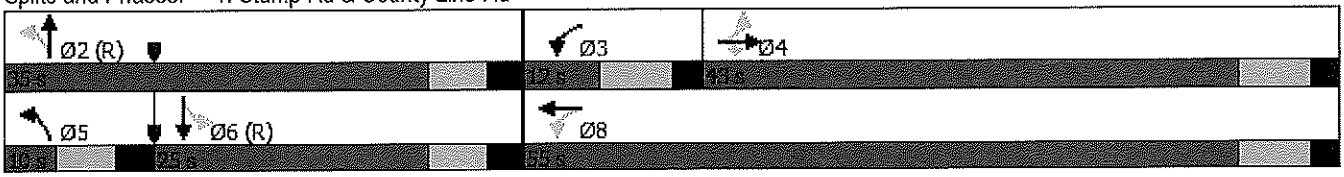


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0	1.0	1.0	3.0		1.0	5.0		1.0	1.0	
Minimum Split (s)	25.0	25.0	25.0	8.0	25.0		8.0	25.0		25.0	25.0	
Total Split (s)	43.0	43.0	43.0	12.0	55.0		10.0	35.0		25.0	25.0	
Total Split (%)	47.8%	47.8%	47.8%	13.3%	61.1%		11.1%	38.9%		27.8%	27.8%	
Maximum Green (s)	36.0	36.0	36.0	5.0	48.0		3.5	28.5		18.5	18.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	29.5	29.5	29.5	39.1	39.1		37.4	37.4		26.7	26.7	
Actuated g/C Ratio	0.33	0.33	0.33	0.43	0.43		0.42	0.42		0.30	0.30	
v/c Ratio	0.28	0.70	0.26	0.28	0.67		0.20	0.23		0.02	0.21	
Control Delay	25.7	29.9	22.8	29.6	40.8		20.6	20.6		28.6	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.7	29.9	22.8	29.6	40.8		20.6	20.6		28.6	24.1	
LOS	C	C	C	C	D		C	C		C	C	
Approach Delay		28.8			40.1			20.6			24.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	21	201	51	0	295		30	62		2	41	
Queue Length 95th (ft)	47	233	84	64	346		70	123		12	90	
Internal Link Dist (ft)		420			3720			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	214	1322	572	210	1675		435	712		325	535	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.58	0.21	0.28	0.55		0.20	0.23		0.02	0.21	

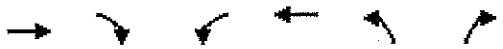
Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70
Intersection Signal Delay: 32.5 Intersection LOS: C
Intersection Capacity Utilization 60.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Stump Rd & County Line Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	730	52	78	837	51	69
Future Volume (vph)	730	52	78	837	51	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3170	0	1574	3209	1668	1457
Flt Permitted			0.173		0.950	
Satd. Flow (perm)	3170	0	286	3209	1656	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					74
Link Speed (mph)	45			45	45	
Link Distance (ft)	3800			1090	500	
Travel Time (s)	57.6			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	4%	2%	2%	1%
Adj. Flow (vph)	785	56	84	900	55	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	841	0	84	900	55	74
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

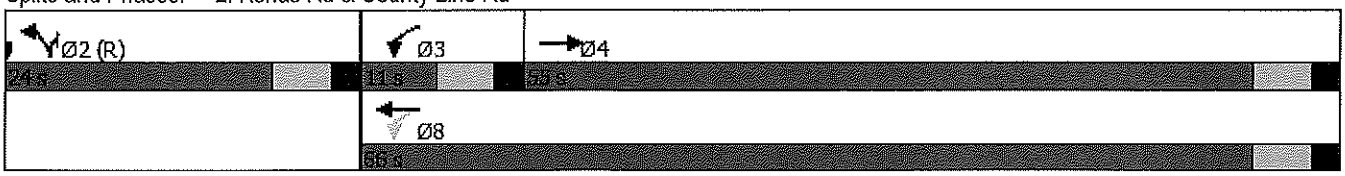


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		11.0	24.0	24.0	24.0
Total Split (s)	55.0		11.0	66.0	24.0	24.0
Total Split (%)	61.1%		12.2%	73.3%	26.7%	26.7%
Maximum Green (s)	49.0		5.0	60.0	18.0	18.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	32.6		41.4	41.4	36.6	36.6
Actuated g/C Ratio	0.36		0.46	0.46	0.41	0.41
v/c Ratio	0.73		0.41	0.61	0.08	0.12
Control Delay	23.8		17.6	19.4	20.9	6.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.8		17.6	19.4	20.9	6.3
LOS	C		B	B	C	A
Approach Delay	23.8			19.3	12.5	
Approach LOS	C			B	B	
Queue Length 50th (ft)	262		25	186	19	0
Queue Length 95th (ft)	316		41	197	51	31
Internal Link Dist (ft)	3720			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	1731		203	2139	678	636
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.49		0.41	0.42	0.08	0.12

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.73
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Kenas Rd & County Line Rd



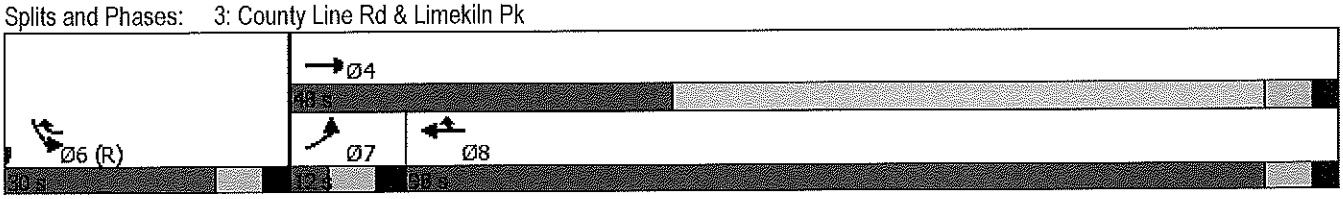
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	710	836	319	199	9
Future Volume (vph)	3	710	836	319	199	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor	0.99				1.00	
Frt				0.850	0.994	
Flt Protected	0.950				0.954	
Satd. Flow (prot)	1620	3208	3257	1457	3242	0
Flt Permitted	0.950				0.954	
Satd. Flow (perm)	1610	3208	3257	1457	3242	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				329	3	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	3	732	862	329	205	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	732	862	329	214	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	12.0	48.0	98.0		30.0	
Total Split (%)	8.6%	34.3%	70.0%		21.4%	
Maximum Green (s)	4.0	40.0	90.0		22.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	4.0	51.1	48.7	136.0	72.9	
Actuated g/C Ratio	0.03	0.36	0.35	0.97	0.52	
v/c Ratio	0.07	0.63	0.76	0.23	0.13	
Control Delay	69.0	38.2	46.8	0.3	20.0	
Queue Delay	0.0	0.0	0.1	0.0	0.0	
Total Delay	69.0	38.2	46.9	0.4	20.0	
LOS	E	D	D	A	C	
Approach Delay		38.4	34.0		20.0	
Approach LOS		D	C		C	
Queue Length 50th (ft)	3	300	288	0	46	
Queue Length 95th (ft)	14	253	224	0	100	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)	150			270	330	
Base Capacity (vph)	46	2337	2093	1425	1690	
Starvation Cap Reductn	0	0	265	168	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.31	0.47	0.26	0.13	

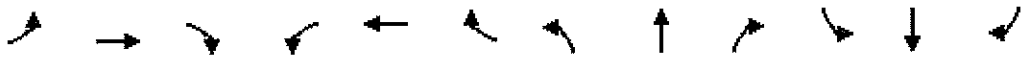
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.76
Intersection Signal Delay: 34.1 Intersection LOS: C
Intersection Capacity Utilization 52.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: County Line Rd & Limekiln Pk



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	559	231	5	604	13	264	212	0	36	191	280
Future Volume (vph)	163	559	231	5	604	13	264	212	0	36	191	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.997							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1628	3257	1472	1620	4629	0	3175	1706	0	1589	1706	1464
Flt Permitted	0.950			0.427			0.950			0.617		
Satd. Flow (perm)	1616	3257	1414	722	4629	0	3128	1706	0	1032	1706	1464
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			246		2							101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	0%	0%	8%	0%	1%	0%	3%	1%	0%
Adj. Flow (vph)	173	595	246	5	643	14	281	226	0	38	203	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	595	246	5	657	0	281	226	0	38	203	298
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

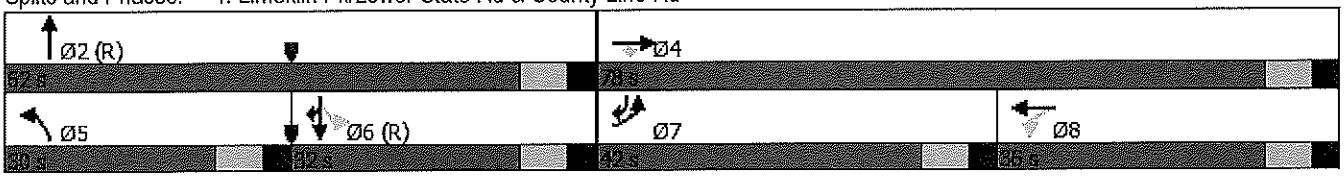


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	42.0	78.0	78.0	36.0	36.0		30.0	62.0		32.0	32.0	
Total Split (%)	30.0%	55.7%	55.7%	25.7%	25.7%		21.4%	44.3%		22.9%	22.9%	
Maximum Green (s)	34.0	70.0	70.0	28.0	28.0		22.0	54.0		24.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	20.2	53.9	53.9	25.7	25.7		17.6	70.1		44.5	44.5	72.7
Actuated g/C Ratio	0.14	0.38	0.38	0.18	0.18		0.13	0.50		0.32	0.32	0.52
v/c Ratio	0.74	0.47	0.35	0.04	0.77		0.70	0.26		0.12	0.37	0.37
Control Delay	71.9	16.8	2.4	45.0	60.5		68.2	23.2		41.9	43.4	15.5
Queue Delay	0.1	0.2	0.3	0.0	0.0		0.0	0.0		0.0	0.0	0.3
Total Delay	72.0	17.0	2.7	45.0	60.5		68.2	23.2		41.9	43.4	15.8
LOS	E	B	A	D	E		E	C		D	D	B
Approach Delay		22.9			60.4			48.2			28.1	
Approach LOS		C			E			D			C	
Queue Length 50th (ft)	102	75	0	4	210		128	116		25	143	100
Queue Length 95th (ft)	157	112	19	16	246		172	207		65	260	197
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1628	830	147	949		499	854		328	542	942
Starvation Cap Reductn	13	397	190	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	257
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.45	0.48	0.38	0.03	0.69		0.56	0.26		0.12	0.37	0.44

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 37.7	Intersection LOS: D
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



APPENDIX E

Trip Generation Worksheets

Single-Family Detached Housing
(210)

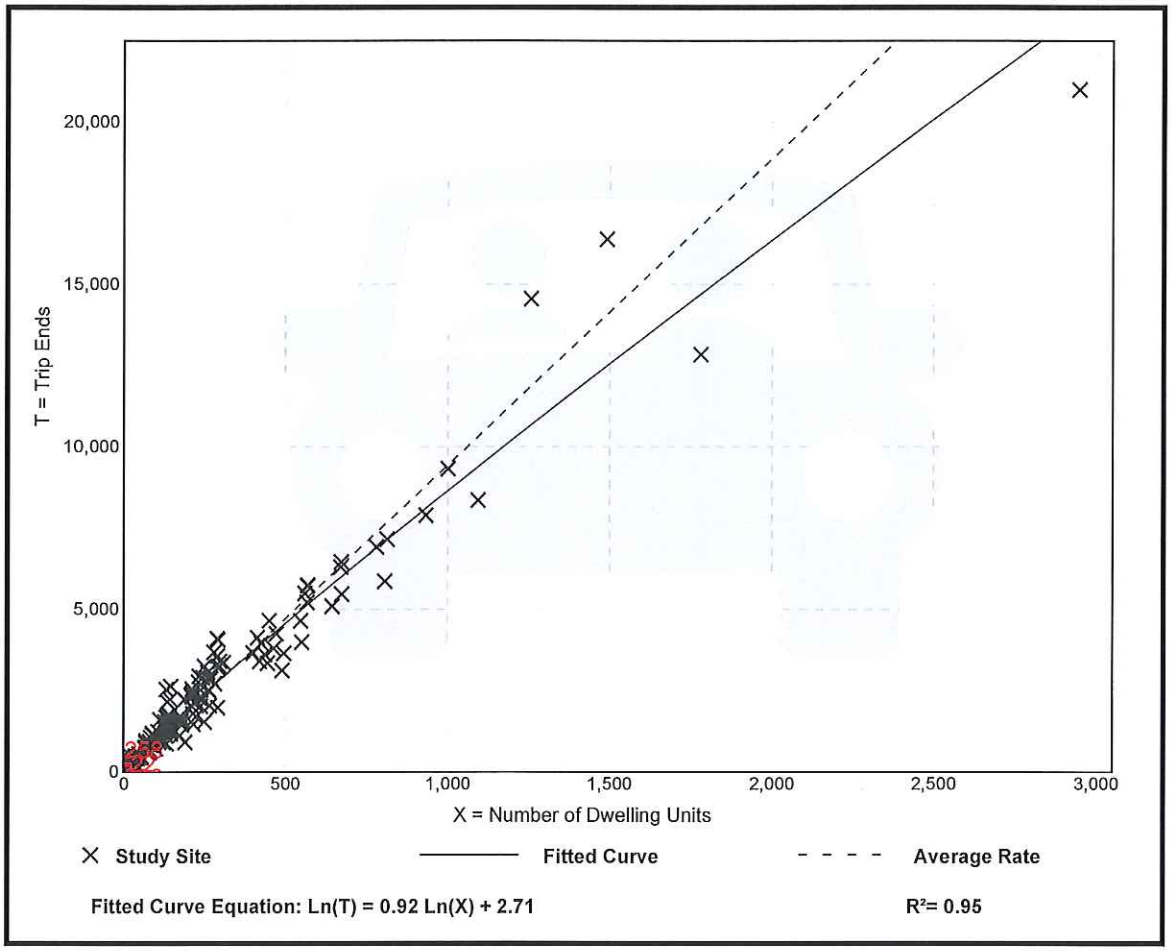
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



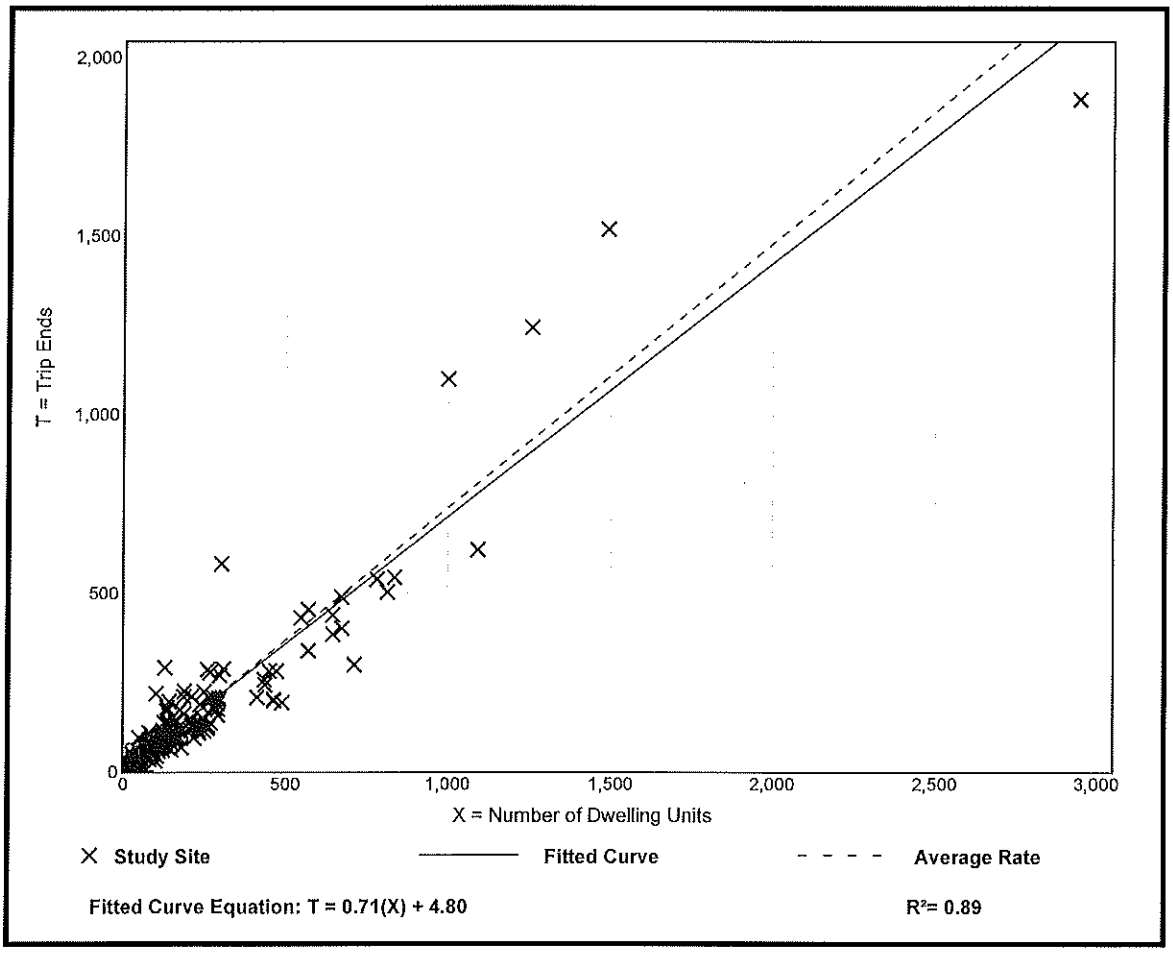
Single-Family Detached Housing
(210)

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

Vehicle Trip Generation per Dwelling Unit

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

Data Plot and Equation



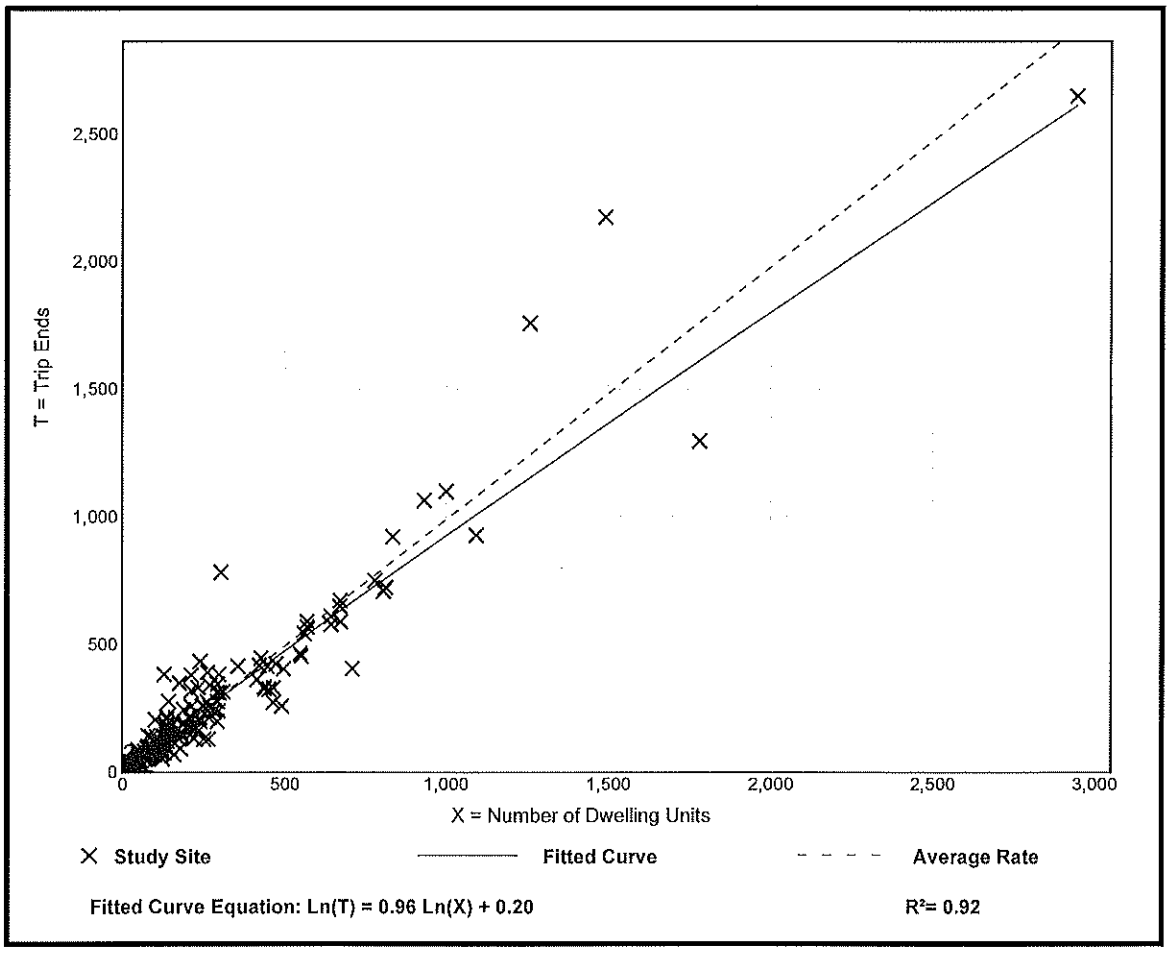
Single-Family Detached Housing
(210)

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

Vehicle Trip Generation per Dwelling Unit

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

Data Plot and Equation



Nursery (Wholesale)
(818)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

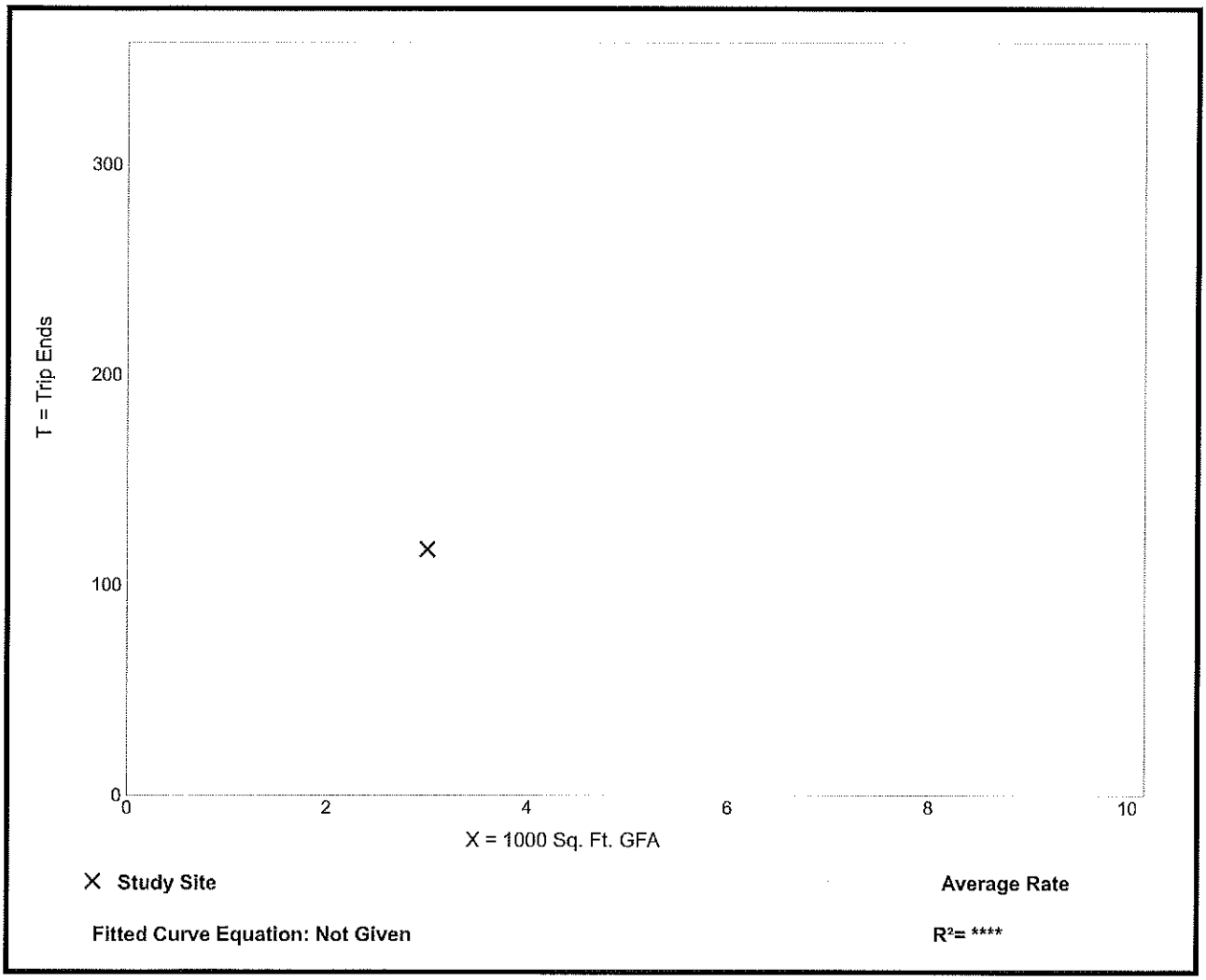
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
39.00	39.00 - 39.00	*

Data Plot and Equation

Caution – Small Sample Size



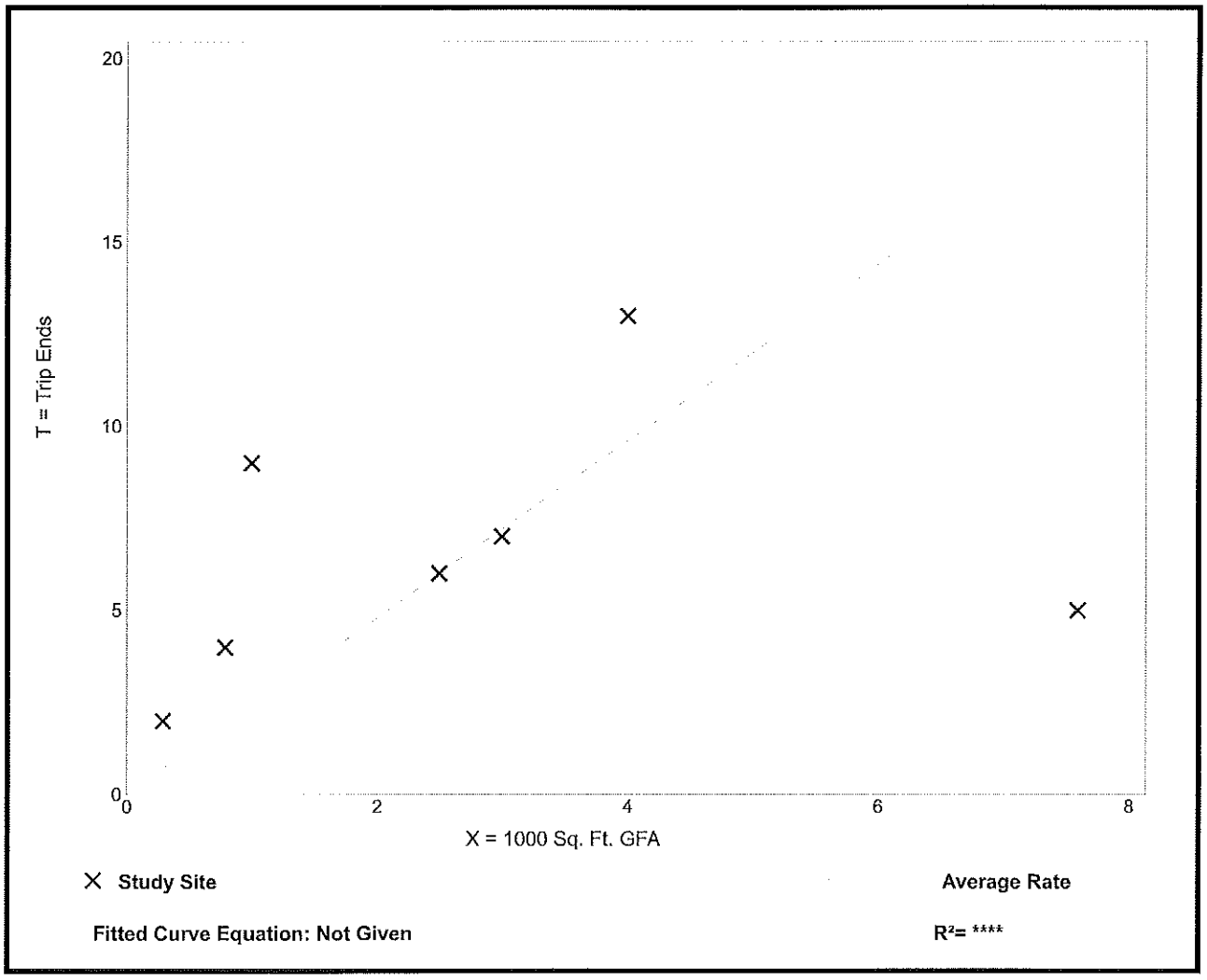
Nursery (Wholesale)
(818)

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:	7
Avg. 1000 Sq. Ft. GFA:	3
Directional Distribution:	Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.40	0.66 - 9.00	2.22

Data Plot and Equation



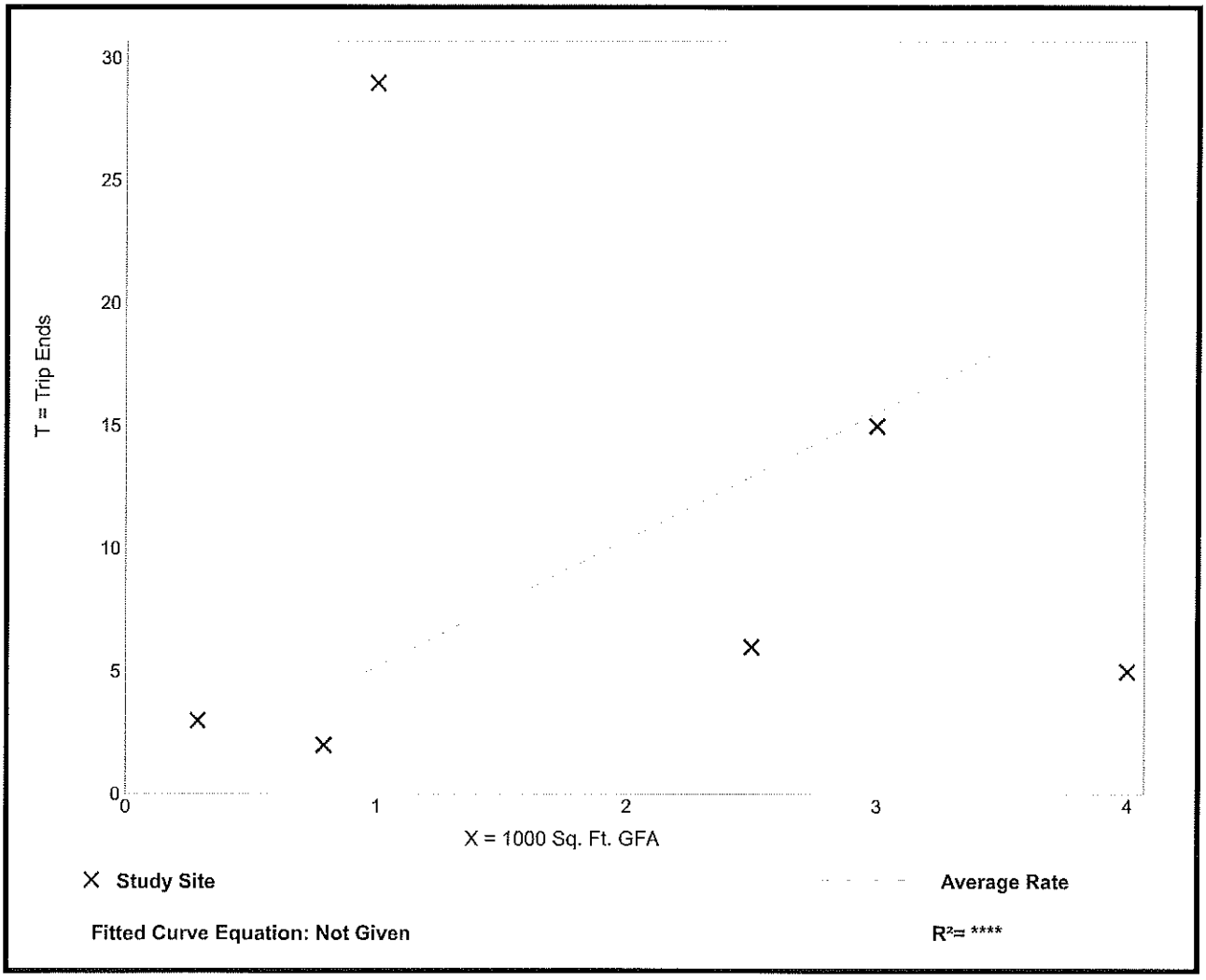
Nursery (Wholesale)
(818)

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:	6
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
5.18	1.25 - 29.00	8.28

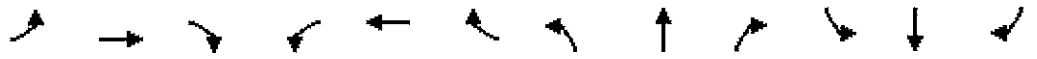
Data Plot and Equation



APPENDIX F

No-Build Capacity/LOS Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	636	106	44	618	4	62	51	30	3	120	28
Future Volume (vph)	30	636	106	44	618	4	62	51	30	3	120	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96		1.00		0.99	0.99		0.99	1.00	
Frt			0.850		0.999			0.945			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1621	3150	1464	1499	3018	0	1559	1707	0	1612	1789	0
Flt Permitted	0.408			0.181			0.583			0.702		
Satd. Flow (perm)	691	3150	1411	286	3018	0	950	1707	0	1181	1789	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						11	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			3800			500			500	
Travel Time (s)		7.6			57.6			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	6%	2%	7%	6%	25%	5%	0%	3%	0%	2%	0%
Adj. Flow (vph)	31	656	109	45	637	4	64	53	31	3	124	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	656	109	45	641	0	64	84	0	3	153	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Minimum Split (s)	25.0	25.0	25.0	9.0	25.0		8.5	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	45.0	14.0	59.0		14.0	61.0		47.0	47.0	
Total Split (%)	37.5%	37.5%	37.5%	11.7%	49.2%		11.7%	50.8%		39.2%	39.2%	
Maximum Green (s)	38.0	38.0	38.0	7.0	52.0		7.5	54.5		40.5	40.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	31.3	31.3	31.3	42.5	42.5		64.0	64.0		52.5	52.5	
Actuated g/C Ratio	0.26	0.26	0.26	0.35	0.35		0.53	0.53		0.44	0.44	
v/c Ratio	0.17	0.80	0.30	0.27	0.60		0.12	0.09		0.01	0.19	
Control Delay	34.6	48.8	36.4	26.0	33.2		17.2	16.8		25.7	24.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	48.8	36.4	26.0	33.2		17.2	16.8		25.7	24.0	
LOS	C	D	D	C	C		B	B		C	C	
Approach Delay		46.6			32.8			17.0			24.1	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	19	248	67	22	202		25	33		1	73	
Queue Length 95th (ft)	43	296	111	44	238		55	68		9	133	
Internal Link Dist (ft)		420			3720			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	218	997	446	172	1308		546	910		516	788	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.66	0.24	0.26	0.49		0.12	0.09		0.01	0.19	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

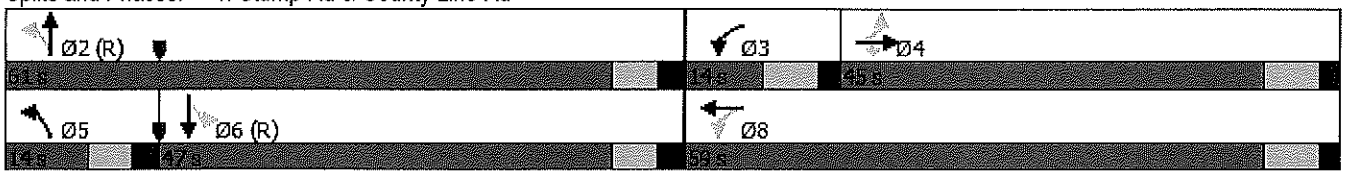
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

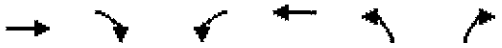
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Stump Rd & County Line Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	637	25	69	649	41	42
Future Volume (vph)	637	25	69	649	41	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.994					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3040	0	1423	3030	1620	1314
Flt Permitted			0.192		0.950	
Satd. Flow (perm)	3040	0	287	3030	1611	1314
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					45
Link Speed (mph)	45			45	45	
Link Distance (ft)	3800			1090	500	
Travel Time (s)	57.6			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	15%	8%	5%	12%
Adj. Flow (vph)	685	27	74	698	44	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	712	0	74	698	44	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

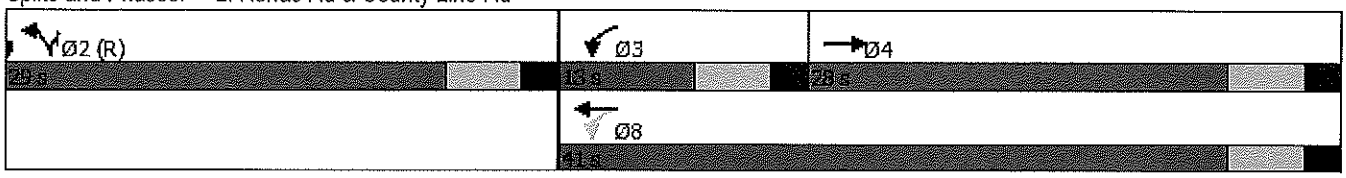


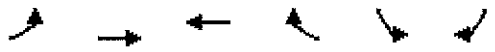
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (%)	40.0%		18.6%	58.6%	41.4%	41.4%
Maximum Green (s)	22.0		7.0	35.0	23.0	23.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	20.3		30.6	30.6	27.4	27.4
Actuated g/C Ratio	0.29		0.44	0.44	0.39	0.39
v/c Ratio	0.81		0.32	0.53	0.07	0.08
Control Delay	30.5		23.0	27.1	16.6	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.5		23.0	27.1	16.6	6.2
LOS	C		C	C	B	A
Approach Delay	30.5			26.7	11.3	
Approach LOS	C			C	B	
Queue Length 50th (ft)	142		39	186	13	0
Queue Length 95th (ft)	202		93	256	34	20
Internal Link Dist (ft)	3720			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	959		239	1515	634	541
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.74		0.31	0.46	0.07	0.08

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

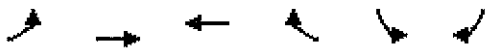
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 53.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Kenas Rd & County Line Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	637	701	90	252	3
Future Volume (vph)	0	637	701	90	252	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor					1.00	
Frt				0.850	0.998	
Flt Protected					0.953	
Satd. Flow (prot)	1705	3146	3163	1388	3254	0
Flt Permitted					0.953	
Satd. Flow (perm)	1705	3146	3163	1388	3254	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				95	1	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	4%	6%	1%	0%
Adj. Flow (vph)	0	671	738	95	265	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	671	738	95	268	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

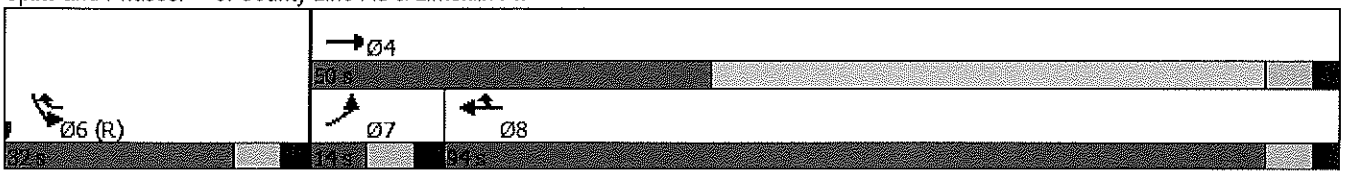


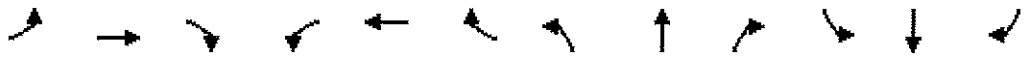
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	14.0	50.0	94.0		32.0	
Total Split (%)	10.0%	35.7%	67.1%		22.9%	
Maximum Green (s)	6.0	42.0	86.0		24.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)		40.6	40.6	140.0	83.4	
Actuated g/C Ratio		0.29	0.29	1.00	0.60	
v/c Ratio		0.74	0.80	0.07	0.14	
Control Delay		32.3	77.2	0.1	13.6	
Queue Delay		0.0	0.1	0.0	0.0	
Total Delay		32.3	77.3	0.1	13.6	
LOS		C	E	A	B	
Approach Delay		32.3	68.5		13.6	
Approach LOS		C	E		B	
Queue Length 50th (ft)		200	311	0	52	
Queue Length 95th (ft)		214	349	0	87	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)				270	330	
Base Capacity (vph)		2247	1942	1388	1938	
Starvation Cap Reductn		0	304	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.30	0.45	0.07	0.14	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

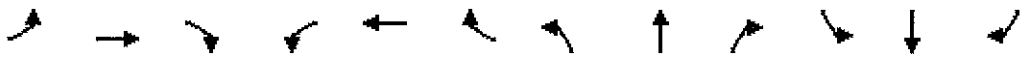
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 46.5	Intersection LOS: D
Intersection Capacity Utilization 48.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: County Line Rd & Limekiln Pk





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	525	256	1	472	20	109	149	2	6	193	221
Future Volume (vph)	107	525	256	1	472	20	109	149	2	6	193	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.994			0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	3257	1443	1620	4601	0	3175	1686	0	980	1656	1319
Flt Permitted	0.950			0.445			0.950			0.656		
Satd. Flow (perm)	1442	3257	1386	752	4601	0	3128	1686	0	677	1656	1319
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			269		4			1				101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	1%	2%	0%	0%	10%	0%	2%	0%	67%	4%	11%
Adj. Flow (vph)	113	553	269	1	497	21	115	157	2	6	203	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	553	269	1	518	0	115	159	0	6	203	233
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	46.0	82.0	82.0	36.0	36.0		20.0	58.0		38.0	38.0	
Total Split (%)	32.9%	58.6%	58.6%	25.7%	25.7%		14.3%	41.4%		27.1%	27.1%	
Maximum Green (s)	38.0	74.0	74.0	28.0	28.0		12.0	50.0		30.0	30.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	16.2	45.4	45.4	21.2	21.2		10.4	78.6		60.1	60.1	84.4
Actuated g/C Ratio	0.12	0.32	0.32	0.15	0.15		0.07	0.56		0.43	0.43	0.60
v/c Ratio	0.67	0.52	0.43	0.01	0.74		0.49	0.17		0.02	0.29	0.28
Control Delay	77.0	22.8	3.4	48.0	62.8		68.8	17.1		29.7	30.1	9.0
Queue Delay	0.0	0.1	0.2	0.0	0.0		0.7	0.0		0.0	0.0	1.6
Total Delay	77.0	22.9	3.5	48.0	62.8		69.6	17.1		29.7	30.1	10.6
LOS	E	C	A	D	E		E	B		C	C	B
Approach Delay		23.9			62.8			39.1			19.8	
Approach LOS		C			E			D			B	
Queue Length 50th (ft)	69	103	0	1	166		52	67		3	118	50
Queue Length 95th (ft)	139	138	18	6	201		84	128		15	216	113
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1721	859	150	923		278	946		290	711	1024
Starvation Cap Reductn	0	349	137	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	1		40	0		0	0	619
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.40	0.37	0.01	0.56		0.48	0.17		0.02	0.29	0.58

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

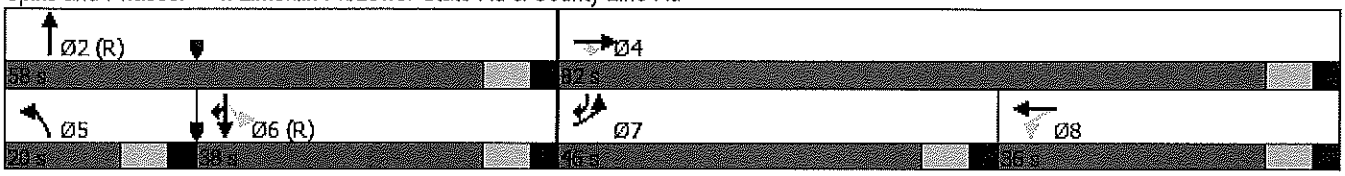
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 80

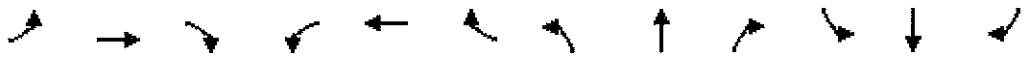
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	736	117	57	875	8	83	114	48	5	74	35
Future Volume (vph)	48	736	117	57	875	8	83	114	48	5	74	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		0.99	0.99		0.99	0.99	
Frt			0.850		0.999			0.955			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1637	3306	1479	1603	3140	0	1636	1714	0	1612	1749	0
Flt Permitted	0.304			0.187			0.536			0.649		
Satd. Flow (perm)	522	3306	1431	315	3140	0	918	1714	0	1095	1749	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						24	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			3800			500			500	
Travel Time (s)		7.6			57.6			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	1%	0%	2%	0%	0%	2%	2%	0%	1%	3%
Adj. Flow (vph)	51	775	123	60	921	8	87	120	51	5	78	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	775	123	60	929	0	87	171	0	5	115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

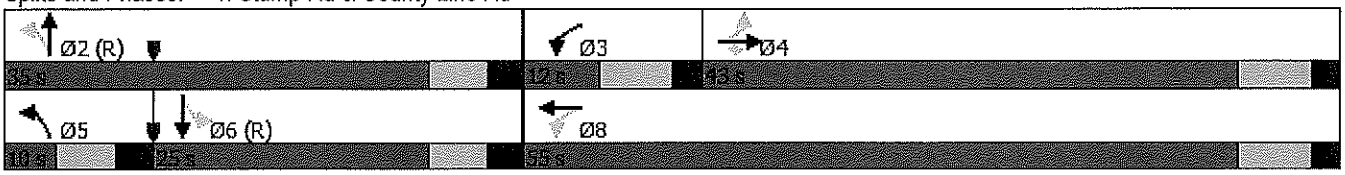


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0	1.0	1.0	3.0		1.0	5.0		1.0	1.0	
Minimum Split (s)	25.0	25.0	25.0	8.0	25.0		8.0	25.0		25.0	25.0	
Total Split (s)	43.0	43.0	43.0	12.0	55.0		10.0	35.0		25.0	25.0	
Total Split (%)	47.8%	47.8%	47.8%	13.3%	61.1%		11.1%	38.9%		27.8%	27.8%	
Maximum Green (s)	36.0	36.0	36.0	5.0	48.0		3.5	28.5		18.5	18.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	29.9	29.9	29.9	39.5	39.5		37.0	37.0		26.4	26.4	
Actuated g/C Ratio	0.33	0.33	0.33	0.44	0.44		0.41	0.41		0.29	0.29	
v/c Ratio	0.29	0.71	0.26	0.29	0.67		0.20	0.24		0.02	0.22	
Control Delay	26.1	29.8	22.6	29.3	40.7		21.0	20.9		28.8	24.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.1	29.8	22.6	29.3	40.7		21.0	20.9		28.8	24.4	
LOS	C	C	C	C	D		C	C		C	C	
Approach Delay		28.7			40.0			20.9			24.5	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	22	204	52	34	300		31	64		2	42	
Queue Length 95th (ft)	48	237	84	64	348		71	127		12	92	
Internal Link Dist (ft)		420			3720			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	208	1322	572	209	1675		429	704		321	530	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.59	0.22	0.29	0.55		0.20	0.24		0.02	0.22	

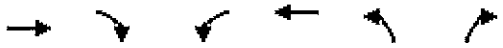
Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 10 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 32.4	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Stump Rd & County Line Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	742	53	79	851	52	70
Future Volume (vph)	742	53	79	851	52	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3170	0	1574	3209	1668	1457
Flt Permitted			0.170		0.950	
Satd. Flow (perm)	3170	0	281	3209	1656	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					75
Link Speed (mph)	45			45	45	
Link Distance (ft)	3800			1090	500	
Travel Time (s)	57.6			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	4%	2%	2%	1%
Adj. Flow (vph)	798	57	85	915	56	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	855	0	85	915	56	75
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

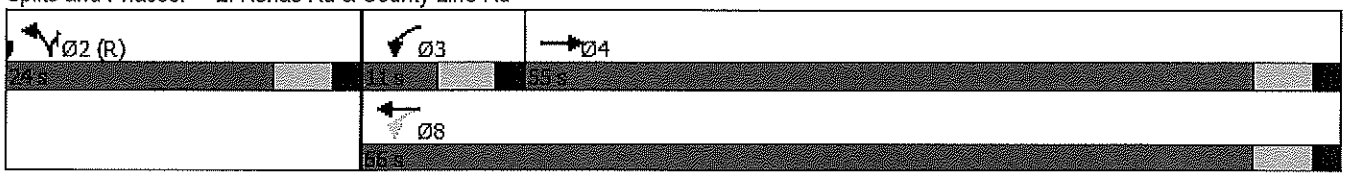


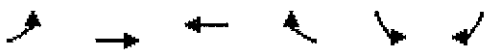
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		11.0	24.0	24.0	24.0
Total Split (s)	55.0		11.0	66.0	24.0	24.0
Total Split (%)	61.1%		12.2%	73.3%	26.7%	26.7%
Maximum Green (s)	49.0		5.0	60.0	18.0	18.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	33.1		41.9	41.9	36.1	36.1
Actuated g/C Ratio	0.37		0.47	0.47	0.40	0.40
v/c Ratio	0.73		0.42	0.61	0.08	0.12
Control Delay	23.6		17.5	19.1	21.3	6.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.6		17.5	19.1	21.3	6.4
LOS	C		B	B	C	A
Approach Delay	23.6			19.0	12.7	
Approach LOS	C			B	B	
Queue Length 50th (ft)	266		25	188	20	0
Queue Length 95th (ft)	320		41	198	52	31
Internal Link Dist (ft)	3720			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	1731		202	2139	668	628
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.49		0.42	0.43	0.08	0.12

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

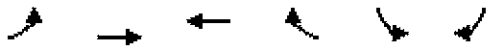
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Kenas Rd & County Line Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	722	850	324	202	9
Future Volume (vph)	3	722	850	324	202	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor	0.99				1.00	
Frt				0.850	0.994	
Flt Protected	0.950				0.954	
Satd. Flow (prot)	1620	3208	3257	1457	3242	0
Flt Permitted	0.950				0.954	
Satd. Flow (perm)	1611	3208	3257	1457	3242	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				334	3	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	3	744	876	334	208	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	744	876	334	217	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

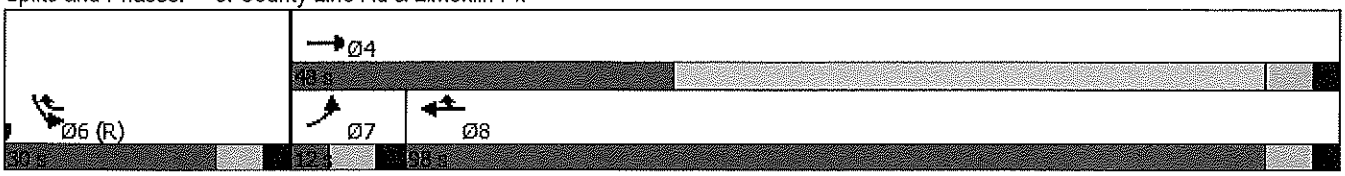


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	12.0	48.0	98.0		30.0	
Total Split (%)	8.6%	34.3%	70.0%		21.4%	
Maximum Green (s)	4.0	40.0	90.0		22.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	4.0	52.1	49.7	136.0	71.9	
Actuated g/C Ratio	0.03	0.37	0.36	0.97	0.51	
v/c Ratio	0.07	0.62	0.76	0.23	0.13	
Control Delay	69.0	37.5	45.1	0.3	20.6	
Queue Delay	0.0	0.0	0.1	0.0	0.0	
Total Delay	69.0	37.5	45.2	0.4	20.6	
LOS	E	D	D	A	C	
Approach Delay		37.6	32.8		20.6	
Approach LOS		D	C		C	
Queue Length 50th (ft)	3	300	281	0	48	
Queue Length 95th (ft)	14	255	227	0	102	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)	150			270	330	
Base Capacity (vph)	46	2337	2093	1425	1666	
Starvation Cap Reductn	0	0	273	167	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.07	0.32	0.48	0.27	0.13	

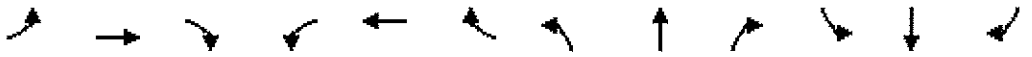
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: County Line Rd & Limekiln Pk



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	568	235	5	614	13	268	215	0	37	194	285
Future Volume (vph)	166	568	235	5	614	13	268	215	0	37	194	285
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.997							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1628	3257	1472	1620	4630	0	3175	1706	0	1589	1706	1464
Flt Permitted	0.950			0.423			0.950			0.616		
Satd. Flow (perm)	1616	3257	1414	715	4630	0	3128	1706	0	1030	1706	1464
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			250		2							101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	0%	0%	8%	0%	1%	0%	3%	1%	0%
Adj. Flow (vph)	177	604	250	5	653	14	285	229	0	39	206	303
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	604	250	5	667	0	285	229	0	39	206	303
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

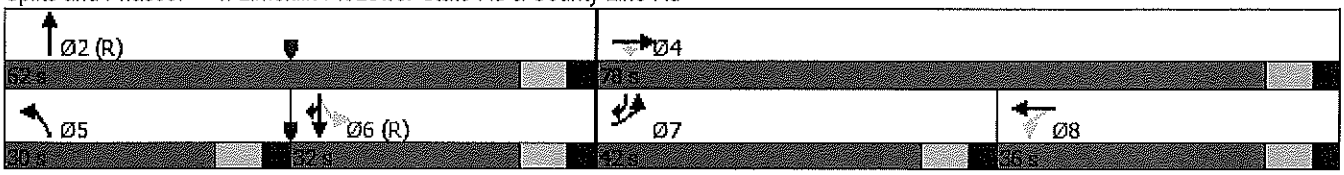


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	42.0	78.0	78.0	36.0	36.0		30.0	62.0		32.0	32.0	
Total Split (%)	30.0%	55.7%	55.7%	25.7%	25.7%		21.4%	44.3%		22.9%	22.9%	
Maximum Green (s)	34.0	70.0	70.0	28.0	28.0		22.0	54.0		24.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	20.5	54.5	54.5	26.0	26.0		17.8	69.5		43.7	43.7	72.2
Actuated g/C Ratio	0.15	0.39	0.39	0.19	0.19		0.13	0.50		0.31	0.31	0.52
v/c Ratio	0.74	0.48	0.36	0.04	0.77		0.71	0.27		0.12	0.39	0.38
Control Delay	71.3	16.6	2.4	44.8	60.4		68.2	23.7		42.7	44.3	15.9
Queue Delay	0.1	0.2	0.3	0.0	0.0		0.0	0.0		0.0	0.0	0.2
Total Delay	71.5	16.9	2.7	44.8	60.4		68.2	23.7		42.7	44.3	16.1
LOS	E	B	A	D	E		E	C		D	D	B
Approach Delay		22.8			60.3			48.4			28.6	
Approach LOS		C			E			D			C	
Queue Length 50th (ft)	105	76	0	4	213		130	119		26	147	104
Queue Length 95th (ft)	161	116	20	16	249		173	212		67	265	203
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1628	832	147	951		500	846		321	532	935
Starvation Cap Reductn	14	393	189	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	191
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.46	0.49	0.39	0.03	0.70		0.57	0.27		0.12	0.39	0.41

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.77
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15

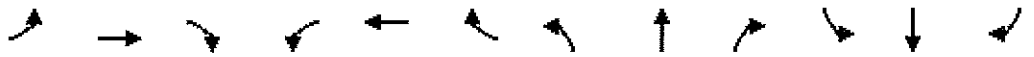
Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



APPENDIX G

Build Capacity/LOS Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	638	106	45	622	5	62	51	30	3	120	28
Future Volume (vph)	30	638	106	45	622	5	62	51	30	3	120	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96		1.00		0.99	0.99		0.99	1.00	
Frt			0.850		0.999			0.945			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1621	3150	1464	1499	3017	0	1559	1707	0	1612	1789	0
Flt Permitted	0.406			0.181			0.583			0.702		
Satd. Flow (perm)	688	3150	1411	286	3017	0	950	1707	0	1181	1789	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						11	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			1270			500			500	
Travel Time (s)		7.6			19.2			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	6%	2%	7%	6%	25%	5%	0%	3%	0%	2%	0%
Adj. Flow (vph)	31	658	109	46	641	5	64	53	31	3	124	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	658	109	46	646	0	64	84	0	3	153	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

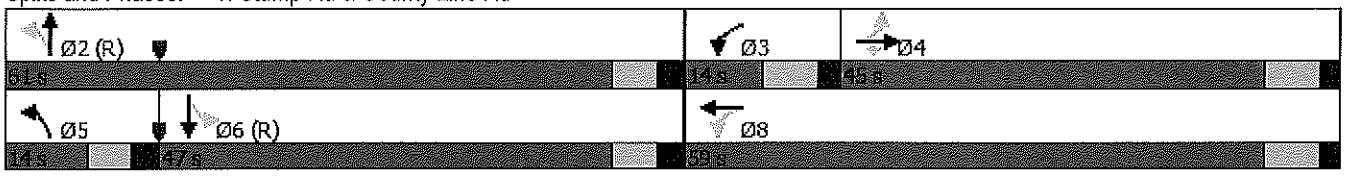


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Minimum Split (s)	25.0	25.0	25.0	9.0	25.0		8.5	25.0		25.0	25.0	
Total Split (s)	45.0	45.0	45.0	14.0	59.0		14.0	61.0		47.0	47.0	
Total Split (%)	37.5%	37.5%	37.5%	11.7%	49.2%		11.7%	50.8%		39.2%	39.2%	
Maximum Green (s)	38.0	38.0	38.0	7.0	52.0		7.5	54.5		40.5	40.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	31.4	31.4	31.4	42.6	42.6		63.9	63.9		52.4	52.4	
Actuated g/C Ratio	0.26	0.26	0.26	0.36	0.36		0.53	0.53		0.44	0.44	
v/c Ratio	0.17	0.80	0.30	0.27	0.60		0.12	0.09		0.01	0.19	
Control Delay	34.6	48.8	36.3	26.2	33.3		17.2	16.8		25.7	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	48.8	36.3	26.2	33.3		17.2	16.8		25.7	24.1	
LOS	C	D	D	C	C		B	B		C	C	
Approach Delay		46.6			32.8			17.0			24.1	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	19	249	67	22	204		25	33		1	73	
Queue Length 95th (ft)	43	297	111	44	241		55	68		9	133	
Internal Link Dist (ft)		420			1190			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	217	997	446	172	1307		546	909		515	787	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.66	0.24	0.27	0.49		0.12	0.09		0.01	0.19	

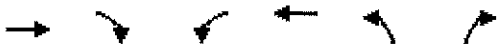
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 10 (8%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 63.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Stump Rd & County Line Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	646	25	69	652	41	42
Future Volume (vph)	646	25	69	652	41	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.994					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3040	0	1423	3030	1620	1314
Flt Permitted			0.188		0.950	
Satd. Flow (perm)	3040	0	281	3030	1611	1314
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					45
Link Speed (mph)	45			45	45	
Link Distance (ft)	2530			1090	500	
Travel Time (s)	38.3			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	15%	8%	5%	12%
Adj. Flow (vph)	695	27	74	701	44	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	722	0	74	701	44	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane	Yes					
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

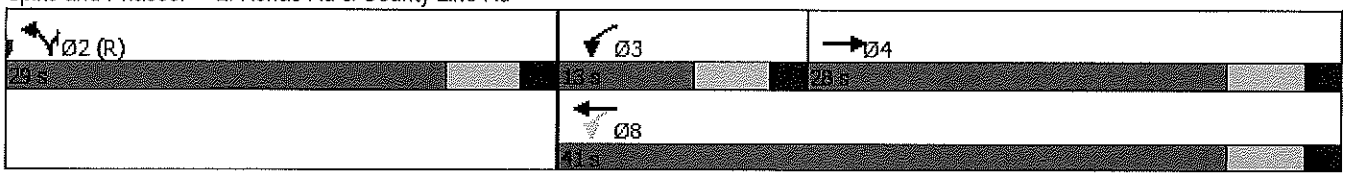


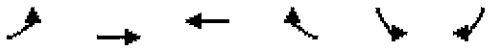
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (s)	28.0		13.0	41.0	29.0	29.0
Total Split (%)	40.0%		18.6%	58.6%	41.4%	41.4%
Maximum Green (s)	22.0		7.0	35.0	23.0	23.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	20.4		30.7	30.7	27.3	27.3
Actuated g/C Ratio	0.29		0.44	0.44	0.39	0.39
v/c Ratio	0.81		0.32	0.53	0.07	0.08
Control Delay	30.8		21.8	29.1	16.6	6.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	30.8		21.8	29.1	16.6	6.2
LOS	C		C	C	B	A
Approach Delay	30.8			28.4	11.4	
Approach LOS	C			C	B	
Queue Length 50th (ft)	144		40	185	13	0
Queue Length 95th (ft)	205		77	400	34	20
Internal Link Dist (ft)	2450			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	959		237	1515	630	538
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.75		0.31	0.46	0.07	0.08

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

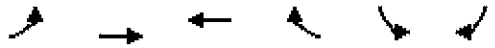
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Kenas Rd & County Line Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	645	704	90	252	3
Future Volume (vph)	1	645	704	90	252	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor	0.99				1.00	
Frt				0.850	0.998	
Flt Protected	0.950				0.953	
Satd. Flow (prot)	1620	3146	3163	1388	3254	0
Flt Permitted	0.950				0.953	
Satd. Flow (perm)	1609	3146	3163	1388	3254	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				95	1	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	4%	6%	1%	0%
Adj. Flow (vph)	1	679	741	95	265	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	679	741	95	268	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

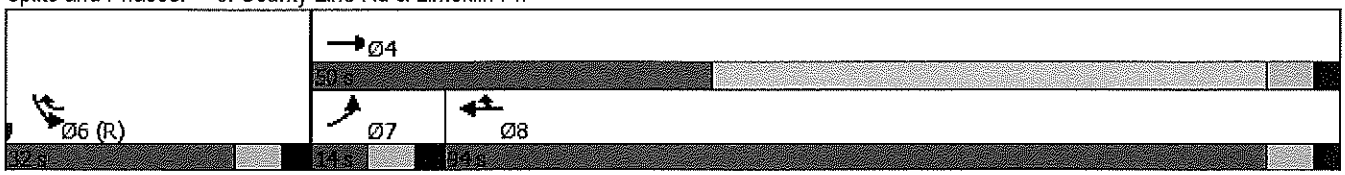


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	14.0	50.0	94.0		32.0	
Total Split (%)	10.0%	35.7%	67.1%		22.9%	
Maximum Green (s)	6.0	42.0	86.0		24.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	5.7	44.4	41.6	135.6	79.6	
Actuated g/C Ratio	0.04	0.32	0.30	0.97	0.57	
v/c Ratio	0.02	0.68	0.79	0.07	0.14	
Control Delay	85.0	30.8	67.0	0.1	16.8	
Queue Delay	0.0	0.0	0.1	0.0	0.0	
Total Delay	85.0	30.8	67.1	0.1	16.8	
LOS	F	C	E	A	B	
Approach Delay		30.9	59.5		16.8	
Approach LOS		C	E		B	
Queue Length 50th (ft)	1	204	315	0	52	
Queue Length 95th (ft)	m1	208	165	0	114	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)	150			270	330	
Base Capacity (vph)	69	2247	1942	1347	1849	
Starvation Cap Reductn	0	0	219	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.01	0.30	0.43	0.07	0.14	

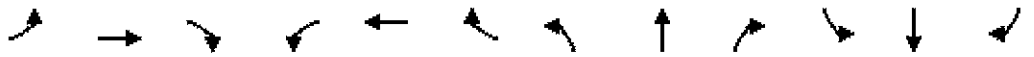
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.79
Intersection Signal Delay: 42.2 Intersection LOS: D
Intersection Capacity Utilization 48.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: County Line Rd & Limekiln Pk



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	529	258	1	473	20	110	149	2	6	193	222
Future Volume (vph)	109	529	258	1	473	20	110	149	2	6	193	222
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.994			0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1456	3257	1443	1620	4601	0	3175	1686	0	980	1656	1319
Flt Permitted	0.950			0.443			0.950			0.656		
Satd. Flow (perm)	1442	3257	1386	749	4601	0	3128	1686	0	677	1656	1319
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			272		4			1				101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	1%	2%	0%	0%	10%	0%	2%	0%	67%	4%	11%
Adj. Flow (vph)	115	557	272	1	498	21	116	157	2	6	203	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	557	272	1	519	0	116	159	0	6	203	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

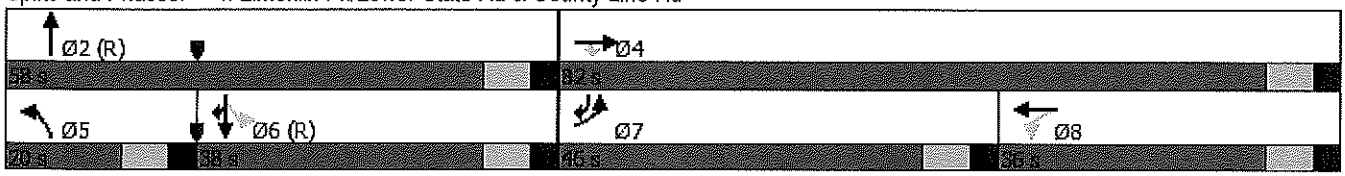


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	46.0	82.0	82.0	36.0	36.0		20.0	58.0		38.0	38.0	
Total Split (%)	32.9%	58.6%	58.6%	25.7%	25.7%		14.3%	41.4%		27.1%	27.1%	
Maximum Green (s)	38.0	74.0	74.0	28.0	28.0		12.0	50.0		30.0	30.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	16.4	45.7	45.7	21.2	21.2		10.5	78.3		59.9	59.9	84.3
Actuated g/C Ratio	0.12	0.33	0.33	0.15	0.15		0.08	0.56		0.43	0.43	0.60
v/c Ratio	0.68	0.52	0.43	0.01	0.74		0.49	0.17		0.02	0.29	0.28
Control Delay	76.7	22.0	3.8	48.0	62.8		68.8	17.2		29.8	30.3	9.0
Queue Delay	0.0	0.1	0.2	0.0	0.0		0.0	0.0		0.0	0.0	0.5
Total Delay	76.7	22.1	3.9	48.0	62.8		68.8	17.2		29.8	30.3	9.5
LOS	E	C	A	D	E		E	B		C	C	A
Approach Delay		23.5			62.8			39.0			19.3	
Approach LOS		C			E			D			B	
Queue Length 50th (ft)	71	103	0	1	167		53	67		3	119	51
Queue Length 95th (ft)	144	143	40	6	201		84	129		15	217	114
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1721	860	149	923		279	943		289	708	1022
Starvation Cap Reductn	0	335	135	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	1		0	0		0	0	439
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.29	0.40	0.38	0.01	0.56		0.42	0.17		0.02	0.29	0.40

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.74
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 65.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



Intersection	
Int Delay, s/veh	0.2

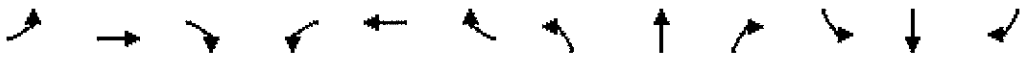
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	669	666	3	9	6
Future Vol, veh/h	2	669	666	3	9	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	2	-	-2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	727	724	3	10	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	727	0	-	0	1094	364
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	368	-
Critical Hdwy	4.14	-	-	-	6.44	6.74
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	872	-	-	-	235	646
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	872	-	-	-	235	646
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	698	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	872	-	-	-	437
HCM Lane V/C Ratio	0.002	-	-	-	0.037
HCM Control Delay (s)	9.1	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	740	117	58	878	8	83	114	49	6	74	35
Future Volume (vph)	48	740	117	58	878	8	83	114	49	6	74	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	13	13	10	13	13
Grade (%)		-2%			6%			2%			-2%	
Storage Length (ft)	130		320	125		0	150		0	50		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		0.99	0.99		0.99	0.99	
Frt			0.850		0.999			0.955			0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1637	3306	1479	1603	3140	0	1636	1714	0	1612	1749	0
Flt Permitted	0.303			0.185			0.536			0.649		
Satd. Flow (perm)	520	3306	1431	312	3140	0	918	1714	0	1095	1749	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)					1						24	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		500			1270			500			500	
Travel Time (s)		7.6			19.2			9.7			9.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	1%	1%	0%	2%	0%	0%	2%	2%	0%	1%	3%
Adj. Flow (vph)	51	779	123	61	924	8	87	120	52	6	78	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	779	123	61	932	0	87	172	0	6	115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.11	1.11	1.11	1.16	1.16	1.16	1.13	1.04	1.04	1.16	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	



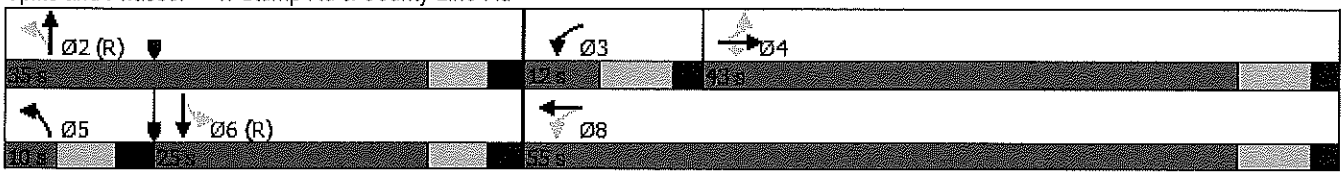
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0	1.0	1.0	3.0		1.0	5.0		1.0	1.0	
Minimum Split (s)	25.0	25.0	25.0	8.0	25.0		8.0	25.0		25.0	25.0	
Total Split (s)	43.0	43.0	43.0	12.0	55.0		10.0	35.0		25.0	25.0	
Total Split (%)	47.8%	47.8%	47.8%	13.3%	61.1%		11.1%	38.9%		27.8%	27.8%	
Maximum Green (s)	36.0	36.0	36.0	5.0	48.0		3.5	28.5		18.5	18.5	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0		0	0	
Act Effct Green (s)	29.9	29.9	29.9	39.5	39.5		37.0	37.0		26.4	26.4	
Actuated g/C Ratio	0.33	0.33	0.33	0.44	0.44		0.41	0.41		0.29	0.29	
v/c Ratio	0.29	0.71	0.26	0.29	0.68		0.20	0.24		0.02	0.22	
Control Delay	26.0	29.8	22.5	28.8	40.0		21.0	20.9		28.8	24.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	29.8	22.5	28.8	40.0		21.0	20.9		28.8	24.4	
LOS	C	C	C	C	D		C	C		C	C	
Approach Delay		28.7			39.3			21.0			24.6	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	22	205	51	34	298		31	64		3	42	
Queue Length 95th (ft)	48	238	84	63	346		71	127		13	92	
Internal Link Dist (ft)		420			1190			420			420	
Turn Bay Length (ft)	130		320	125			150			50		
Base Capacity (vph)	208	1322	572	208	1675		428	703		321	529	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.59	0.22	0.29	0.56		0.20	0.24		0.02	0.22	

Intersection Summary

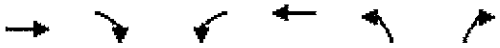
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 32.1	Intersection LOS: C
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Stump Rd & County Line Rd



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	747	53	79	860	52	70
Future Volume (vph)	747	53	79	860	52	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)	2%			2%	1%	
Storage Length (ft)		0	180		110	110
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	
Frt	0.990					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3170	0	1574	3209	1668	1457
Flt Permitted			0.170		0.950	
Satd. Flow (perm)	3170	0	281	3209	1656	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					75
Link Speed (mph)	45			45	45	
Link Distance (ft)	2530			1090	500	
Travel Time (s)	38.3			16.5	7.6	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	4%	2%	2%	1%
Adj. Flow (vph)	803	57	85	925	56	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	860	0	85	925	56	75
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			11	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.08	1.13
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (ft)	100		20	100	20	20
Trailing Detector (ft)	0		0	0	0	0
Detector 1 Position(ft)	0		0	0	0	0
Detector 1 Size(ft)	6		20	6	20	20
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		

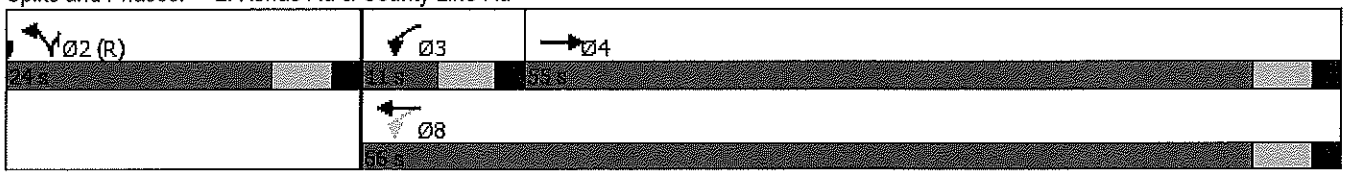


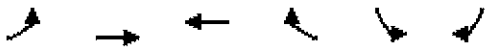
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases			8			
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		11.0	24.0	24.0	24.0
Total Split (s)	55.0		11.0	66.0	24.0	24.0
Total Split (%)	61.1%		12.2%	73.3%	26.7%	26.7%
Maximum Green (s)	49.0		5.0	60.0	18.0	18.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	33.3		42.1	42.1	35.9	35.9
Actuated g/C Ratio	0.37		0.47	0.47	0.40	0.40
v/c Ratio	0.73		0.42	0.62	0.08	0.12
Control Delay	23.7		17.4	19.1	21.4	6.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.7		17.4	19.1	21.4	6.4
LOS	C		B	B	C	A
Approach Delay	23.7			18.9	12.8	
Approach LOS	C			B	B	
Queue Length 50th (ft)	267		25	191	20	0
Queue Length 95th (ft)	321		40	200	53	31
Internal Link Dist (ft)	2450			1010	420	
Turn Bay Length (ft)			180		110	110
Base Capacity (vph)	1731		203	2139	664	625
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.50		0.42	0.43	0.08	0.12

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

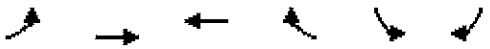
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 20.6 Intersection LOS: C
Intersection Capacity Utilization 58.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Kenas Rd & County Line Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	726	858	324	202	10
Future Volume (vph)	4	726	858	324	202	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	11
Grade (%)		4%	1%		2%	
Storage Length (ft)	150			270	330	0
Storage Lanes	1			1	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Ped Bike Factor	0.99				1.00	
Frt				0.850	0.993	
Flt Protected	0.950				0.954	
Satd. Flow (prot)	1620	3208	3257	1457	3238	0
Flt Permitted	0.950				0.954	
Satd. Flow (perm)	1611	3208	3257	1457	3238	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				334	3	
Link Speed (mph)		45	45		45	
Link Distance (ft)		1090	350		566	
Travel Time (s)		16.5	5.3		8.6	
Confl. Peds. (#/hr)	5			5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	4	748	885	334	208	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	748	885	334	218	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.15	1.15	1.13	1.13	1.09	1.13
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	
Detector Template	Left	Thru	Thru	Right	Left	
Leading Detector (ft)	20	100	100	20	20	
Trailing Detector (ft)	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	
Detector 1 Size(ft)	20	6	6	20	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			

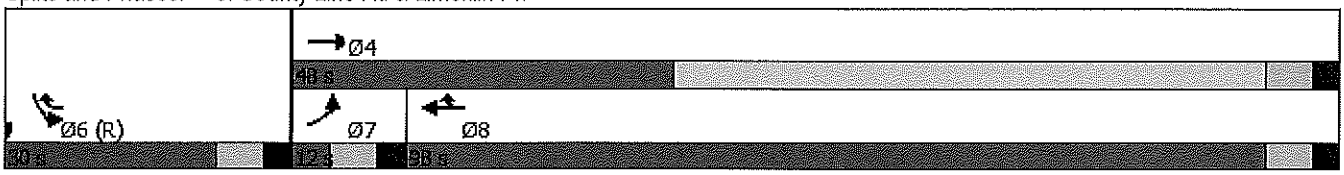


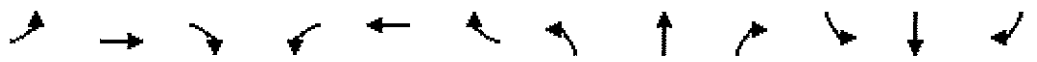
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	pt+ov	Prot	
Protected Phases	7	4	8	8 6	6	
Permitted Phases						
Detector Phase	7	4	8	8 6	6	
Switch Phase						
Minimum Initial (s)	4.0	5.0	5.0		5.0	
Minimum Split (s)	12.0	26.0	26.0		26.0	
Total Split (s)	12.0	48.0	98.0		30.0	
Total Split (%)	8.6%	34.3%	70.0%		21.4%	
Maximum Green (s)	4.0	40.0	90.0		22.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	3.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	None	None		C-Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	4.0	52.6	50.2	136.0	71.4	
Actuated g/C Ratio	0.03	0.38	0.36	0.97	0.51	
v/c Ratio	0.09	0.62	0.76	0.23	0.13	
Control Delay	70.2	37.1	44.2	0.3	20.9	
Queue Delay	0.0	0.0	0.1	0.0	0.0	
Total Delay	70.2	37.1	44.3	0.4	20.9	
LOS	E	D	D	A	C	
Approach Delay		37.3	32.2		20.9	
Approach LOS		D	C		C	
Queue Length 50th (ft)	4	301	279	0	48	
Queue Length 95th (ft)	17	254	230	0	104	
Internal Link Dist (ft)		1010	270		486	
Turn Bay Length (ft)	150			270	330	
Base Capacity (vph)	46	2337	2093	1425	1653	
Starvation Cap Reductn	0	0	275	167	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.32	0.49	0.27	0.13	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2: and 6:SBL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.76
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 53.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: County Line Rd & Limekiln Pk





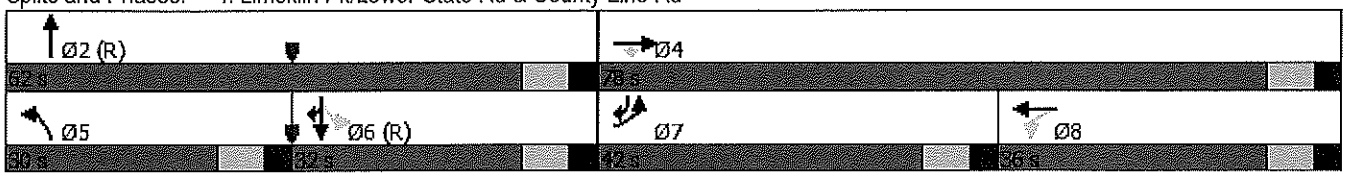
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	570	236	5	618	13	270	215	0	37	194	287
Future Volume (vph)	167	570	236	5	618	13	270	215	0	37	194	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Grade (%)		1%			4%			2%			2%	
Storage Length (ft)	215		200	300		0	260		0	130		290
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99	1.00		0.99					
Frt			0.850		0.997							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1628	3257	1472	1620	4630	0	3175	1706	0	1589	1706	1464
Flt Permitted	0.950			0.423			0.950			0.616		
Satd. Flow (perm)	1616	3257	1414	715	4630	0	3128	1706	0	1030	1706	1464
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			251		2							101
Link Speed (mph)		45			45			40			45	
Link Distance (ft)		350			460			500			500	
Travel Time (s)		5.3			7.0			8.5			7.6	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	0%	0%	8%	0%	1%	0%	3%	1%	0%
Adj. Flow (vph)	178	606	251	5	657	14	287	229	0	39	206	305
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	606	251	5	671	0	287	229	0	39	206	305
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			22			22	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.13	1.13	1.13	1.15	1.15	1.15	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Perm	NA		Prot	NA		Perm	NA	pt+ov
Protected Phases	7	4			8		5	2			6	6 7
Permitted Phases			4	8						6		
Detector Phase	7	4	4	8	8		5	2		6	6	6 7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	13.0	26.0	26.0	26.0	26.0		13.0	26.0		26.0	26.0	
Total Split (s)	42.0	78.0	78.0	36.0	36.0		30.0	62.0		32.0	32.0	
Total Split (%)	30.0%	55.7%	55.7%	25.7%	25.7%		21.4%	44.3%		22.9%	22.9%	
Maximum Green (s)	34.0	70.0	70.0	28.0	28.0		22.0	54.0		24.0	24.0	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0			0		0	0	
Act Effct Green (s)	20.6	54.7	54.7	26.1	26.1		17.9	69.3		43.4	43.4	72.0
Actuated g/C Ratio	0.15	0.39	0.39	0.19	0.19		0.13	0.50		0.31	0.31	0.51
v/c Ratio	0.74	0.48	0.36	0.04	0.78		0.71	0.27		0.12	0.39	0.38
Control Delay	71.2	16.5	2.4	44.8	60.4		68.2	23.8		43.0	44.5	16.1
Queue Delay	0.1	0.2	0.3	0.0	0.0		0.0	0.0		0.0	0.0	0.2
Total Delay	71.3	16.8	2.7	44.8	60.4		68.2	23.8		43.0	44.5	16.3
LOS	E	B	A	D	E		E	C		D	D	B
Approach Delay		22.7			60.3			48.5			28.8	
Approach LOS		C			E			D			C	
Queue Length 50th (ft)	105	76	0	4	214		130	119		26	148	106
Queue Length 95th (ft)	161	118	20	16	250		174	213		67	266	206
Internal Link Dist (ft)		270			380			420			420	
Turn Bay Length (ft)	215		200	300			260			130		290
Base Capacity (vph)	395	1628	832	147	952		501	844		319	528	932
Starvation Cap Reductn	14	393	190	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	175
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.47	0.49	0.39	0.03	0.70		0.57	0.27		0.12	0.39	0.40

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 72.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Limekiln Pk/Lower State Rd & County Line Rd



Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	789	940	9	5	4
Future Vol, veh/h	6	789	940	9	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	2	-	-2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	858	1022	10	5	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1032	0	-	0	1470	516
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	443	-
Critical Hdwy	4.14	-	-	-	6.44	6.74
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	669	-	-	-	139	519
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	645	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	669	-	-	-	138	519
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	645	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	669	-	-	-	205
HCM Lane V/C Ratio	0.01	-	-	-	0.048
HCM Control Delay (s)	10.4	-	-	-	23.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

APPENDIX H

Auxiliary Lane Warrant Worksheets

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Warrington Township	Analysis Date:	11/23/2020
County:	Bucks County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc

Intersection & Approach Description: County Line Road (SR 2038)/Proposed Site Access

Analysis Period:	2023 Build	Number of Approach Lanes:	2
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		
Type of Terrain:	Level	Type of Analysis: Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	2.0%	3
	Through	-	669	2.0%	676
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	666	2.0%	673
	Right	Yes	3	2.0%	4

Advancing Volume:	679
Opposing Volume:	677
Left Turn Volume:	3
% Left Turns in Advancing Volume:	0.44%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	666	2.0%	N/A
	Right	-	3	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 7**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	60

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

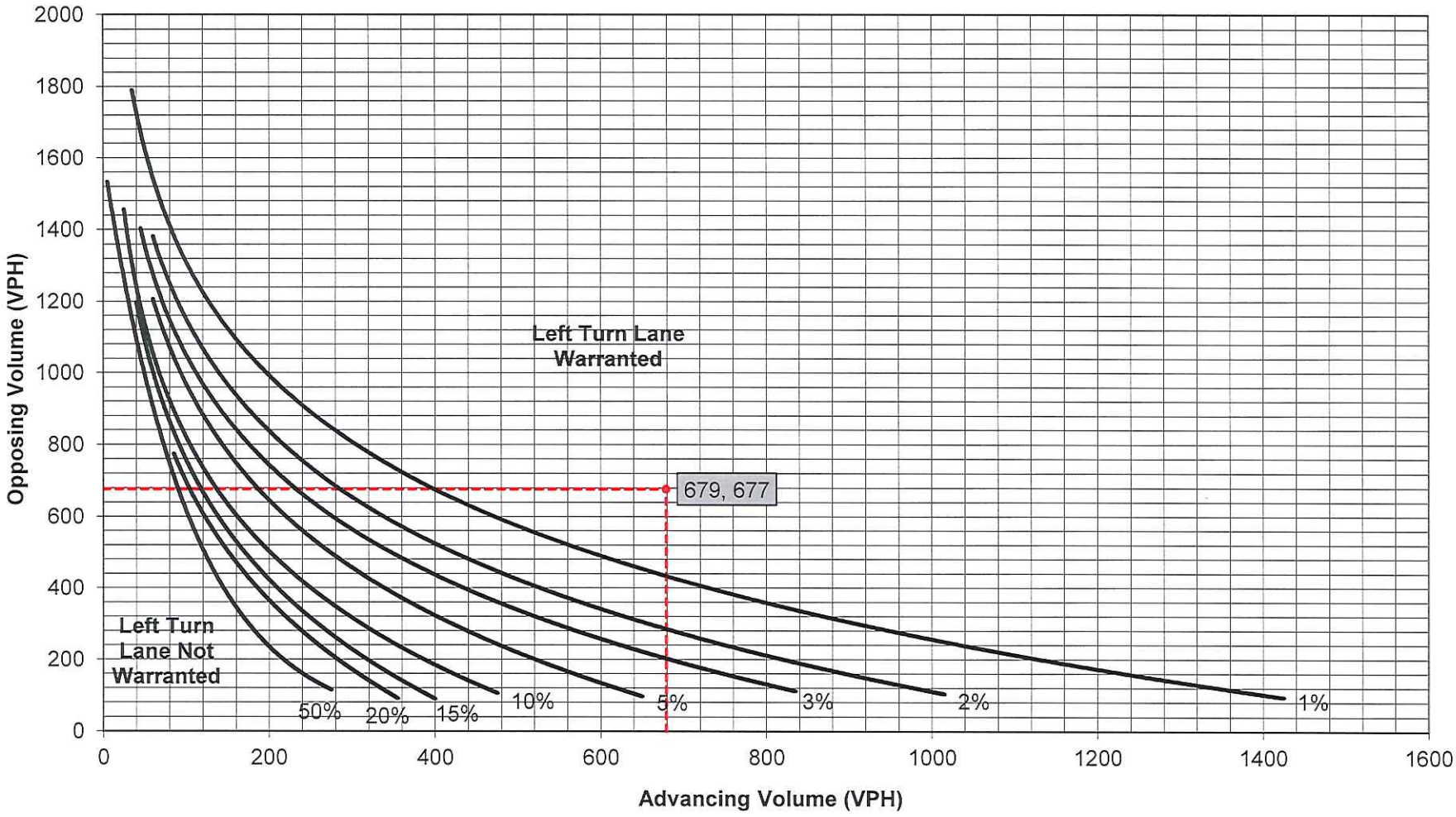
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Warrington Township	Analysis Date:	11/23/2020
County:	Bucks County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc

Intersection & Approach Description: County Line Road (SR 2038)/Proposed Site Access

Analysis Period:	2023 Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	Type of Analysis	
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	2.0%	7
	Through	-	789	2.0%	797
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	940	2.0%	950
	Right	Yes	9	2.0%	10

Advancing Volume:	804
Opposing Volume:	960
Left Turn Volume:	7
% Left Turns in Advancing Volume:	0.87%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	940	2.0%	N/A
	Right	-	9	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 7**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	60

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

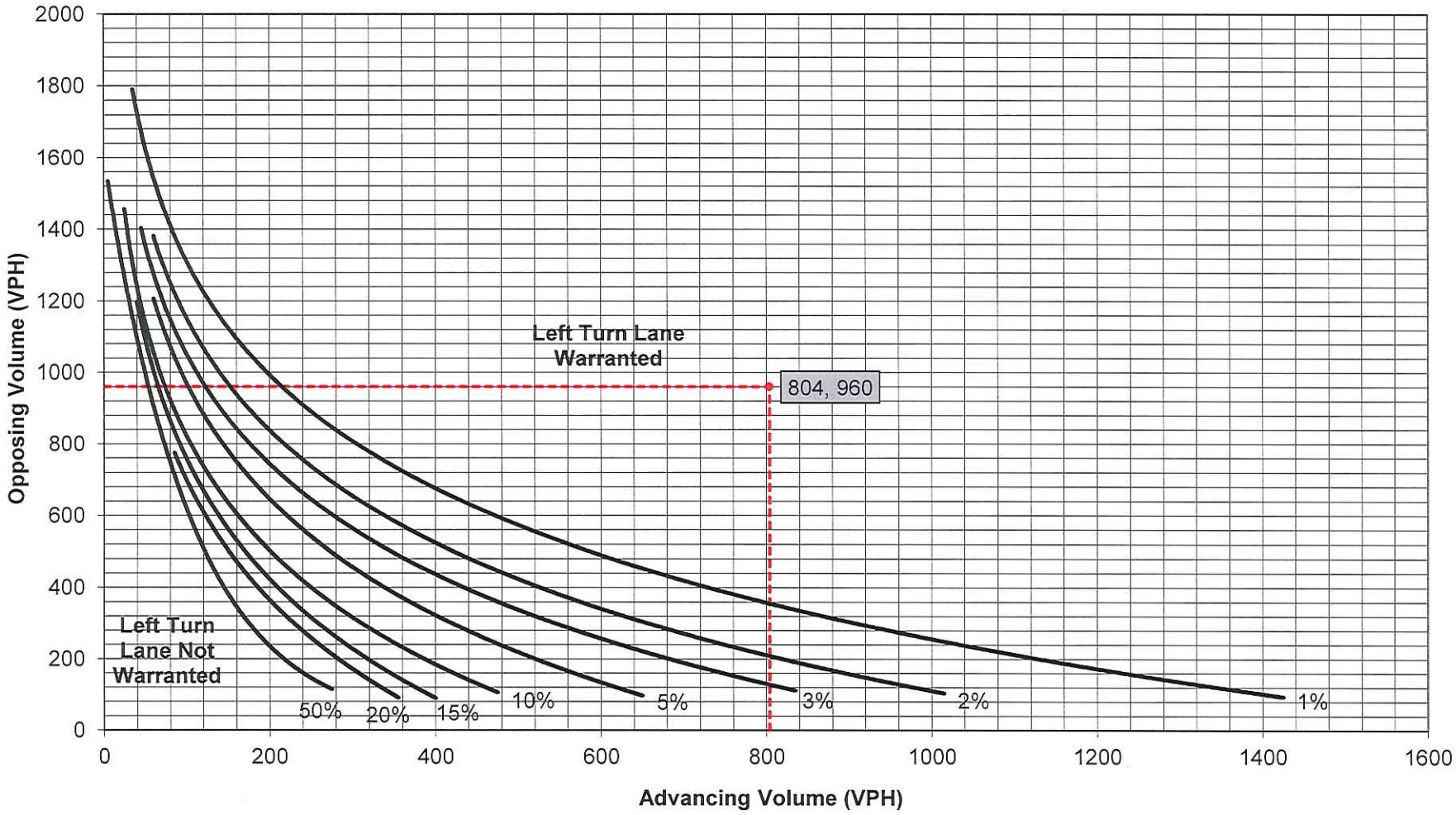
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

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County:	Bucks County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc

Intersection & Approach Description: County Line Road (SR 2038)/Proposed Site Access

Analysis Period:	2023 Build	Number of Approach Lanes:	2
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	Type of Analysis	
Type of Terrain:	Level	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	2.0%	N/A
	Through	-	669	2.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	666	2.0%	N/A
	Right	Yes	3	2.0%	N/A

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

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	666	2.0%	673
	Right	-	3	2.0%	4

Advancing Volume:	677
Right Turn Volume:	4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 12**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	60

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

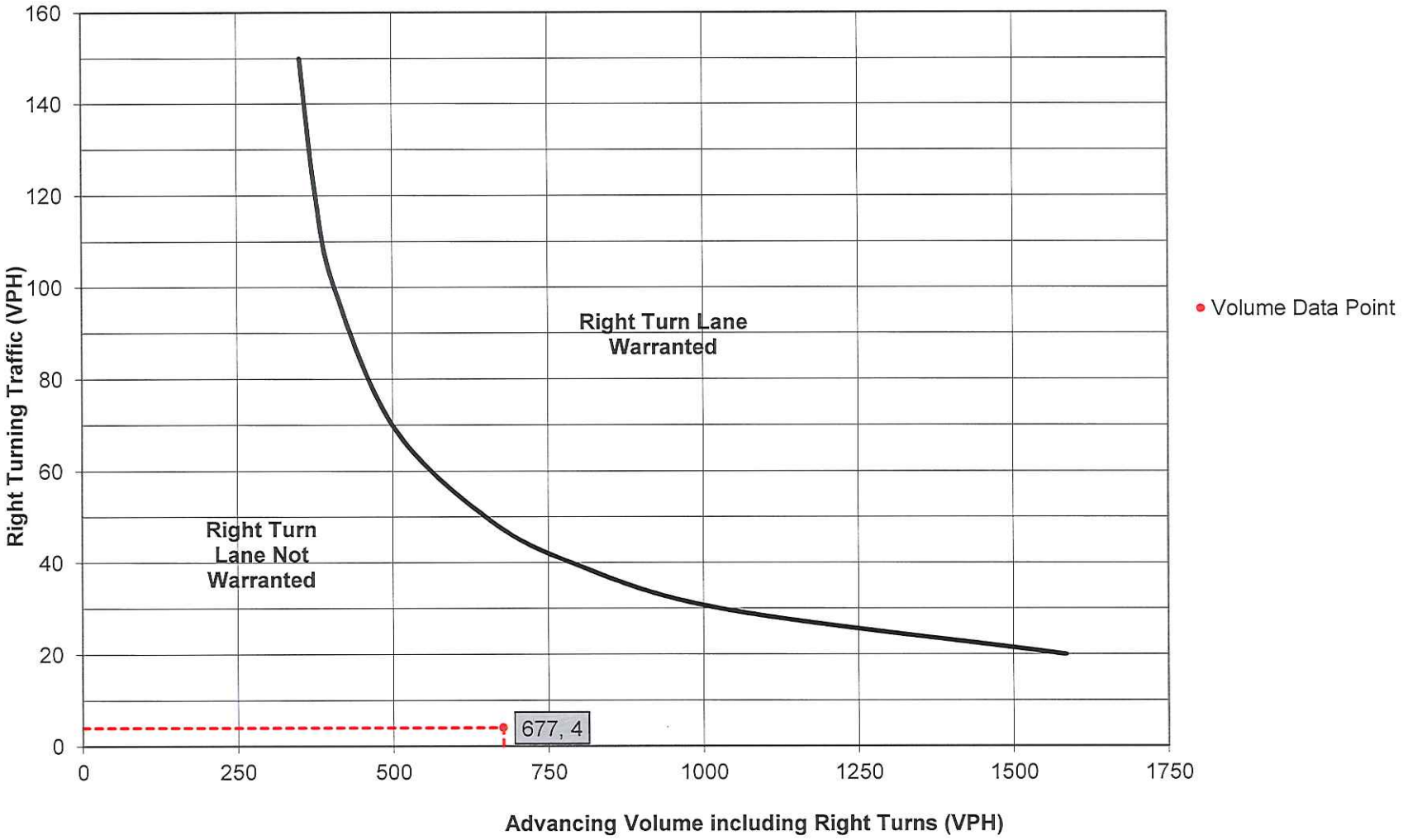
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

Additional Findings: N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

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Municipality:	Warrington Township	Analysis Date:	11/23/2020
County:	Bucks County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc

Intersection & Approach Description: County Line Road (SR 2038)/Proposed Site Access

Analysis Period:	2023 Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		
Type of Terrain:	Level	Type of Analysis	
		Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	2.0%	N/A
	Through	-	789	2.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	940	2.0%	N/A
	Right	Yes	9	2.0%	N/A

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

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	940	2.0%	950
	Right	-	9	2.0%	10

Advancing Volume:	960
Right Turn Volume:	10

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 12**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	60

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

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

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

Additional Findings: N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)