PIKE COUNTY
SOLAR PROJECT

Exhibit E

Traffic Impact Study

To:	Justin Ahn, PWS, SSIT Environmental Resources Management Managing Consultant, CPD
From:	Josh Coburn, PE, PTOE, RSP1
Date:	April 22, 2024
Re:	Pike County Solar Project Traffic Impact Study, Pike County, Kentucky

EXECUTIVE SUMMARY

The Pike County Solar Project development is proposed for a property located in Pike County, Kentucky west of US 119. The petitioner proposes to utilize the existing land to establish a solar facility on the site which is approximately 1,543 acres in size. The project site will have primary access points along US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road).

In this study, analysis of the existing conditions, the 2024 construction year, and the operation phase were performed. The traffic impact study (TIS) evaluated the operating conditions for the AM and PM peak hours at the following four roadway segments:

- KYTC Count Station 098015: KY 881 (Brushy Road) from US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)
- KYTC Count Station 098762: KY 1426 (Bent Branch Road) from KY 194 (MP 15.9930) to US 119 (MP 18.6880)
- KYTC Count Station 098812: US 119 from KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)
- KYTC Count Station 098813: US 119 from KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)

Based on the results of the analysis, the following conclusions were developed:

- During construction, all highway segments are anticipated to continue to operate at acceptable levels of service (LOS) standards during both the peak hours. Therefore, the construction for this project will not adversely affect traffic operations on US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road).

- After construction is complete, all highway segments are anticipated to continue to operate at acceptable level of service (LOS) standards during both the peak hours. Therefore, the post-construction operation of this solar field site will not adversely affect traffic operations on US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

This traffic study was undertaken to assess the traffic impact of a proposed solar facility in Pike County, Kentucky. The project site is located northwest of US 119. The vicinity map (Figure 1) displays the location of the proposed project and study area.

The project site will have a primary access point along US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road). Existing traffic conditions, a construction year of 2024, and the operational phase of the site were evaluated as part of the study. Twenty-four-hour count and classification data were obtained from The Kentucky Transportation Cabinet (KYTC) to establish the existing traffic conditions. Figure 2 shows the locations of the four KYTC count stations used in this analysis. The summarized count data for each of these KYTC count stations is included in Appendix A for the following KYTC count stations:

- KYTC Count Station 098015: KY 881 (Brushy Road) from US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)
- KYTC Count Station 098762: KY 1426 (Bent Branch Road) from KY 194 (MP 15.9930) to US 119 (MP 18.6880)
- KYTC Count Station 098812: US 119 from KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)
- KYTC Count Station 098813: US 119 from KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)

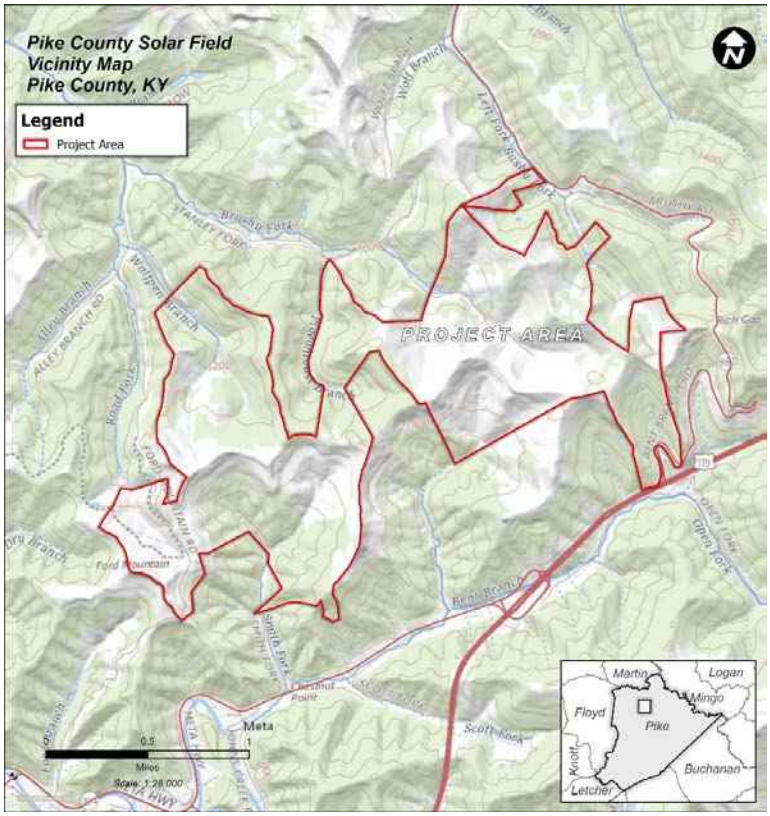


Figure 1: Vicinity Map

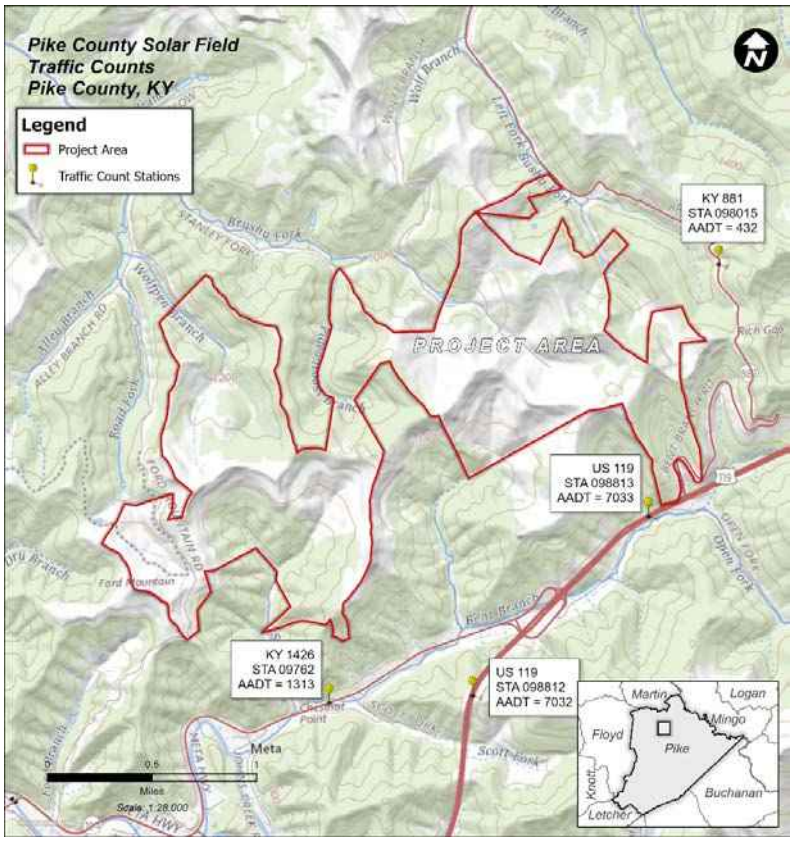


Figure 2: KYTC Count Station Locations Map

2 EXISTING CONDITIONS

2.1 REGIONAL AND LOCAL ACCESS

US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road) will provide local and regional access to the proposed project. A brief description of the surrounding roadways follows:

US 119 – US 119 is a rural principal arterial that provides local and regional access to the proposed project. US 119 generally runs in the north-south direction. Lane widths measure approximately 12 feet. In the vicinity of the project site, this road consists of two thru lanes in each direction and wide shoulders (approximately 10') on both sides of the roadway. The existing speed limit is posted at 55 mph.

KY 881 (Brushy Road) – KY 881 (Brushy Road) is a rural minor collector that provides local access to the proposed project. KY 881 (Brushy Road) generally runs in the north-south direction. Lane widths measure approximately 11 feet. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 55 mph.

KY 1426 (Bent Branch Road) – KY 1426 (Bent Branch Road) is a rural major collector that provides local and regional access to the proposed project. KY 1426 (Bent Branch Road) generally runs in the east-west direction. Lane widths measure approximately 11 feet. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 45 mph.

2.2 BASE TRAFFIC VOLUMES (EXISTING CONDITION)

On US 119 at KYTC Count Station 098812, traffic counts were taken each hour from 2:00 PM on November 4, 2020 to 2:00 PM on November 6, 2020. On US 119 at KYTC Count Station 098813, traffic counts were taken each hour from 4:00 PM on September 30, 2020 to 4:00 PM on October 2, 2020. On KY 881 (Brushy Road) at KYTC Count Station 098015, traffic counts were taken each hour from 3:00 PM on September 28, 2022 to 3:00 PM on September 30, 2022. On Kentucky 1426 (Bent Branch Road) at KYTC Count Station 098765, traffic counts were taken each hour from 4:00 PM on December 1, 2021 to 4:00 PM on December 3, 2021. All traffic volumes can be found in the Appendix A.

2.3 BACKGROUND TRAFFIC VOLUMES

The historic traffic volumes along KY 881 (Brushy Road) has shown a flat growth rate over the twelve years between 2010 and 2022 (KYTC Count Station 098015). Along KY 1426 (Bent Branch Road), the historic traffic volumes has shown a flat growth rate over the nine years between 2012 and 2003 (KYTC Count Station 098762). Along US 119, the historic traffic volumes has shown a flat growth rate for the 7 years between 2016 and 2009 (KYTC Count Station 098812) and for the 8 years between 2017 and 2009 (KYTC Count Station 098813). The 2020 and 2021 historic volumes were not considered due to the COVID-19 pandemic and its effect on traffic. The analysis assumes an annual flat growth rate for all traffic within the project vicinity.

2.4 METHODOLOGY AND EXISTING CONDITIONS ANALYSIS

Two-lane highway analysis was used to evaluate KY 881 (Brushy Road) and KY 1426 (Bent Branch Road) using Highway Capacity Software (HCS2024). According to the Highway Capacity Manual, the roadway characteristics of KY 881 (Brushy Road) and KY 1426 (Bent Branch Road) would classify both as Class II Highways (see Table 2 below). Multilane highway analysis was used to evaluate US 119 also using HCS2024. The results can be found in Appendix B. The highway analyses estimates capacity and Level of Service (LOS) for given traffic and geometric conditions. LOS provides a measure describing the quality of traffic flow provided by a roadway facility, expressed in terms of letter grades with LOS A representing the highest quality traffic flow and minimal delay, and LOS F representing poor traffic operations and significant delay. The two-lane highways method utilizes follower density (followers/mile) as the service measure for LOS. The multilane highways method utilizes density (pc/mi/ln) as the service measure for LOS. Table 1 displays the density ranges with its corresponding LOS for multilane highway segments and Table 2 displays the density ranges with its corresponding LOS for two-lane highway segments. These were extracted from the Highway Capacity Manual (HCM).

LOS	Density (pc/mi/ln)
A	≤11
B	>11 - 18
C	>18 - 26
D	>26 - 35
E	>35 - 45
F	Demand Exceeds Capacity OR Density > 45

Table 1: LOS Criteria for Basic Freeway and Multilane Highway Segments

LOS	Class I Highways		Class II Highways	Class III Highways
	ATS (mi/h)	PTSF (%)	PTSF (%)	PFFS (%)
A	>55	≤35	≤40	>91.7
B	>50 - 55	>35 - 50	>40 - 55	>83.3 - 91.7
C	>45 - 50	>50 - 65	>55 - 70	>75.0 - 83.3
D	>40 - 45	>65 - 80	>70 - 85	>66.7 - 75.0
E	≤40	>80	>85	≤66.7
F	Demand Exceeds Capacity			

Table 2: LOS Criteria for Highways

The results of the existing traffic AM peak-hour analyses are summarized in Table 3. The results of the existing traffic PM peak-hour analyses are summarized in Table 4. For US 119, which was analyzed using the multilane analysis method, the two densities listed represent the density for each direction of traffic. The tables indicate that all highways currently operate at acceptable level-of-service standards during both the AM and PM peak hours.

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	2.0, 3.9	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	2.9, 4.8	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.1	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	0.5	A

Table 3: Existing AM Highway Analysis

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	3.8, 3.2	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	4.7, 3.3	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.1	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	0.5	A

Table 4: Existing PM Highway Analysis

3 TRIP GENERATION AND PROJECTED TRAFFIC VOLUMES

3.1 CONSTRUCTION

Trip estimates for the proposed project are based upon information provided by the developer for construction and operations traffic. The trip generation analysis for this project is based on the number of workers and the associated construction and delivery truck trips expected during the construction of the project. Construction workers will consist of laborers, equipment operators, electricians, supervisory personnel, support personnel, and construction management personnel. It is envisioned that workers will arrive from passenger vehicles and trucks daily during the AM (7:00 – 9:00 AM) and depart during the PM (3:00 – 6:00 PM) peak hours. Equipment deliveries will occur at various times during the day. During construction, the vehicle traffic expected is approximately 100 pickup trucks and passenger cars and 5 to 10 tractor trailer trucks. Therefore, this analysis will assume 10 tractor trailer trucks per day. The construction of the proposed facility will take from twelve to eighteen months to complete.

3.2 CONSTRUCTION ANALYSIS

The construction year analysis assumed the same roadway geometry that was used for the analysis of existing conditions. The results of the construction year for the AM peak-hour analysis are summarized in Table 5. The results of the construction year for the PM peak-hour is summarized in Table 6. The tables indicates that all highway segments are anticipated to continue to operate at acceptable LOS standards during construction for both peak hours. Therefore, the construction for this project will not adversely affect the operation of US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road).

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	2.6, 4.5	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	3.5, 5.4	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.9	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	1.9	A

Table 5: Construction AM Highway Analysis

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	4.4, 3.8	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	5.3, 3.8	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.9	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	1.9	A

Table 6: Construction PM Highway Analysis

3.3 OPERATION

Once operational, the solar facility will only have to be managed and monitored. Trip estimates for the proposed project are based upon information provided by the developer. It is estimated that the facility will have one vehicle travel to the site each day post-construction.

3.4 OPERATION ANALYSIS

The operation analysis assumed the same roadway geometry that was used for the analysis of existing conditions. The results of the operation phase for the AM peak-hour analysis are summarized in Table 7. The results of the operation phase for the PM peak-hour is summarized in Table 8. The tables indicate

that all highway segments are anticipated to continue to operate at acceptable LOS standards during operation for both peak hours. This additional volume for the operational phase of the project will have no measurable impact on the traffic and/or transportation infrastructure.

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	2.0, 3.9	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	2.9, 4.8	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.1	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	0.5	A

Table 7: Operation AM Highway Analysis

Segment	Existing	
	Density	LOS
US 119 at:		
KY 194 Underpass (MP 7.8860) to KY 1426 (Bent Branch Road) (MP 9.6920)	3.8, 3.2	A
KY 1426 (Bent Branch Road) (MP 9.6920) to KY 881 (Brushy Road) (MP 10.4800)	4.7, 3.3	A
KY 881 (Brushy Road) at:		
US 119 (MP 0.0000) to Brushy Fork Road (MP. 4.6540)	0.1	A
KY 1426 (Bent Branch Road) at:		
KY 194 (MP 15.9930) to US 119 (MP 18.6880)	0.5	A

Table 8: Operation PM Highway Analysis

4 CONCLUSIONS AND RECOMMENDATIONS

As demonstrated in the traffic analysis, the construction period trip generation of workers and trucks will not generate a significant number of trips on local roadways. US 119, KY 881 (Brushy Road), and KY 1426 (Bent Branch Road) will continue to operate at an acceptable LOS during the scenario of when construction traffic is added to the existing peak traffic counts and during the scenario when post-construction traffic is added to existing peak traffic counts. Although no significant or adverse traffic impacts are expected during project construction or operation, using mitigation measures such as ridesharing between construction workers, using appropriate traffic controls, or allowing flexible working hours outside of the peak hour could be implemented to minimize any potential for delays during the AM and PM peak hours. It is recommended that deliveries involving large heavy loads be scheduled during off peak hours to minimize traffic impacts.

APPENDIX A

TRAFFIC COUNTS AND CLASSIFICATION DATA

Historical Traffic Volume Summary

Station Details:

Sta ID:	098015
Sta Type:	Full Coverage
Map:	MapIt
District:	12
County:	Pike
Route:	098-KY-0881 -000
Route Desc:	KY-881

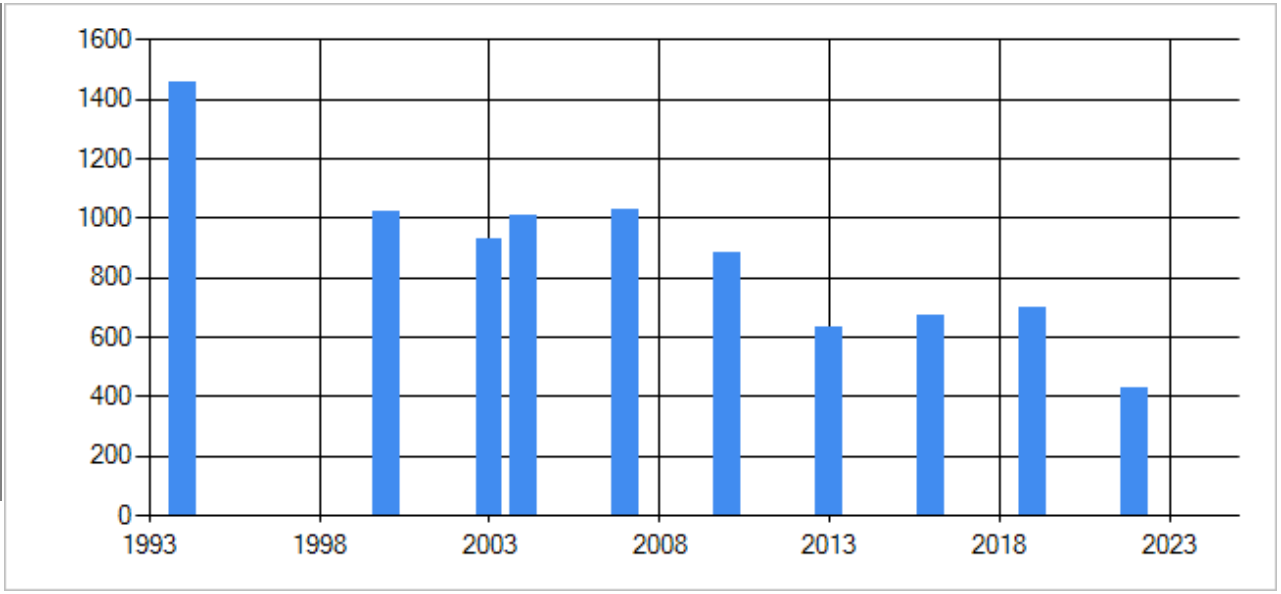
Begin MP:	0
Begin Desc:	US 119
End Mp:	4.6540
End Desc:	BRUSHY FORK ROAD
Impact Year:	1998
Year Added:	

Newest Count:

AADT:	432
Year:	2022
% Single:	
% Combo:	
K Factor:	12.30
D Factor:	58

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2024		2014		2004	1010
2023		2013	634	2003	929
2022	432	2012		2002	
2021		2011		2001	
2020		2010	884	2000	1020
2019	702	2009		1999	
2018		2008		1998	
2017		2007	1030	1997	
2016	673	2006		1996	
2015		2005		1995	



Kentucky Transportation Cabinet

Short-term Hourly Traffic Volume for 09/28/2022 through 09/30/2022

Site names:	098015,	Seasonal Factor Grp:	2
County:	Pike	Daily Factor Grp:	2
Funct Class:	Minor Collector	Axle Factor Grp:	08
Location:	098-KY-0881 -000 @ 2.327 From: US 119	Growth Factor Grp:	08

	Sun, Sep 25, 2022			Mon, Sep 26, 2022			Tue, Sep 27, 2022			Wed, Sep 28, 2022			Thu, Sep 29, 2022			Fri, Sep 30, 2022			Sat, Oct 1, 2022		
	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg
00:00													6			2					
01:00													5			5					
02:00													2			2					
03:00													1			2					
04:00													4			9					
05:00													16			17					
06:00													24			21					
07:00													53			50					
08:00													18			29					
09:00													20			33					
10:00													33			17					
11:00													35			30					
12:00													27			40					
13:00													27			38					
14:00													29			42					
15:00										38			40								
16:00										41			48								
17:00										42			33								
18:00										31			24								
19:00										22			14								
20:00										6			18								
21:00										17			21								
22:00										6			9								
23:00										2			3								
Total										205			510			337					
AM Peak Vol													53			50					
AM Peak Fct													.828			.833					
AM Peak Hr													7: 00			7: 00					
PM Peak Vol													48								
PM Peak Fct													.8								
PM Peak Hr													16: 00			:					
Seasonal Fct										.938	.938	.938	.938	.938	.938	.938	.938	.938			
Daily Fct										.977	.977	.977	.927	.927	.927	.849	.849	.849			
Axle Fct										.479	.479	.479	.479	.479	.479	.479	.479	.479			
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

Historical Traffic Volume Summary

Station Details:

Sta ID:	098812
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Pike
Route:	098-US-0119 -000
Route Desc:	US-119

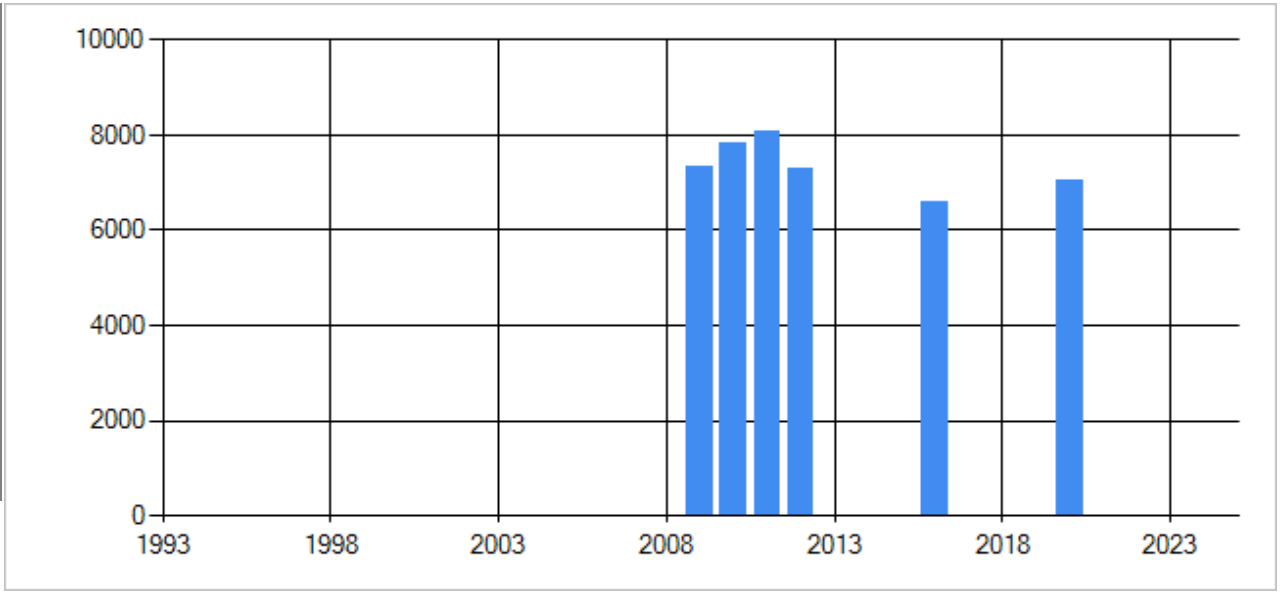
Begin MP:	7.8860
Begin Desc:	KY 194 UNDERPASS
End Mp:	9.6920
End Desc:	KY 1426
Impact Year:	
Year Added:	2009

Newest Count:

AADT:	7032
Year:	2020
% Single:	6.1760
% Combo:	4.4630
K Factor:	8.90
D Factor:	55

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2024		2014		2004	
2023		2013		2003	
2022		2012	7281	2002	
2021		2011	8090	2001	
2020	7032	2010	7830	2000	
2019		2009	7350	1999	
2018		2008		1998	
2017		2007		1997	
2016	6611	2006		1996	
2015		2005		1995	



Kentucky Transportation Cabinet

Short-term Hourly Traffic Volume for 11/04/2020 through 11/06/2020

Site names:	098812,	Seasonal Factor Grp:	2
County:	Pike	Daily Factor Grp:	2
Funct Class:	Principal Arterial - Other	Axle Factor Grp:	02
Location:	098-US-0119 -000 @ 9.249 From: KY 194	Growth Factor Grp:	02

	Sun, Nov 1, 2020			Mon, Nov 2, 2020			Tue, Nov 3, 2020			Wed, Nov 4, 2020			Thu, Nov 5, 2020			Fri, Nov 6, 2020			Sat, Nov 7, 2020		
	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg
00:00													45	29	16	43	28	15			
01:00													28	18	10	23	15	8			
02:00													14	8	6	30	16	14			
03:00													46	27	19	44	22	22			
04:00													87	47	40	77	35	42			
05:00													167	74	93	148	69	79			
06:00													357	133	224	288	94	194			
07:00													525	176	349	525	164	361			
08:00													440	163	277	407	161	246			
09:00													385	151	234	415	140	275			
10:00													375	203	172	403	167	236			
11:00													423	208	215	440	214	226			
12:00													496	211	285	467	216	251			
13:00													450	210	240	502	231	271			
14:00										461	235	226	446	212	234						
15:00										495	261	234	539	288	251						
16:00										607	360	247	627	342	285						
17:00										607	345	262	626	377	249						
18:00										427	238	189	447	267	180						
19:00										229	150	79	256	164	92						
20:00										202	127	75	177	119	58						
21:00										115	67	48	149	93	56						
22:00										85	61	24	117	85	32						
23:00										56	36	20	69	45	24						
Total										3,284	1,880	1,404	7,291	3,650	3,641	3,812	1,572	2,240			
AM Peak Vol													553	210	359	539	214	368			
AM Peak Fct													.823	.833	.801	.797	.907	.773			
AM Peak Hr													7: 15	10: 45	7: 15	7: 15	11: 00	7: 15			
PM Peak Vol													664	404	297						
PM Peak Fct													.949	.91	.863						
PM Peak Hr													16: 45	16: 45	15: 45	:	:	:			
Seasonal Fct										1.012	1.012	1.012	1.012	1.012	1.012	1.012	1.012	1.012			
Daily Fct										.958	.958	.958	1.012	1.012	1.012	.885	.885	.885			
Axle Fct										.500	.500	.500	.500	.500	.500	.500	.500	.500			
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

Historical Traffic Volume Summary

Station Details:

Sta ID:	098813
Sta Type:	Full Coverage
Map:	MapIt
District:	12
County:	Pike
Route:	098-US-0119 -000
Route Desc:	US-119

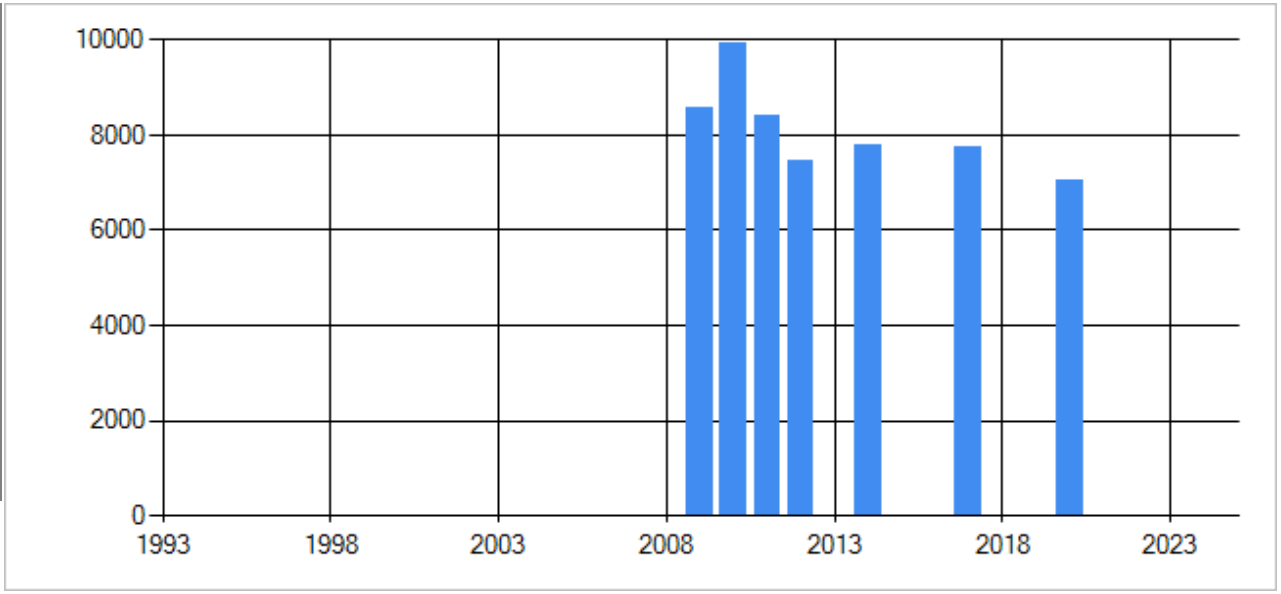
Begin MP:	9.6920
Begin Desc:	KY 1426
End Mp:	10.48
End Desc:	KY 881
Impact Year:	2009
Year Added:	

Newest Count:

AADT:	7033
Year:	2020
% Single:	5.4790
% Combo:	3.8420
K Factor:	10.40
D Factor:	60

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2024		2014	7809	2004	
2023		2013		2003	
2022		2012	7451	2002	
2021		2011	8420	2001	
2020	7033	2010	9940	2000	
2019		2009	8590	1999	
2018		2008		1998	
2017	7765	2007		1997	
2016		2006		1996	
2015		2005		1995	



Kentucky Transportation Cabinet

Short-term Hourly Traffic Volume for 09/30/2020 through 10/02/2020

Site names:	098813,	Seasonal Factor Grp:	2
County:	Pike	Daily Factor Grp:	2
Funct Class:	Principal Arterial - Other	Axle Factor Grp:	02
Location:	098-US-0119 -000 @ 10.086 From: KY 1426	Growth Factor Grp:	02

	Sun, Sep 27, 2020			Mon, Sep 28, 2020			Tue, Sep 29, 2020			Wed, Sep 30, 2020			Thu, Oct 1, 2020			Fri, Oct 2, 2020			Sat, Oct 3, 2020		
	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg
00:00													50	28	22	44	31	13			
01:00													44	19	25	40	27	13			
02:00													32	14	18	46	20	26			
03:00													66	40	26	54	21	33			
04:00													116	73	43	132	80	52			
05:00													219	94	125	235	111	124			
06:00													433	174	259	389	146	243			
07:00													701	263	438	550	177	373			
08:00													463	171	292	479	178	301			
09:00													486	203	283	517	213	304			
10:00													479	204	275	515	221	294			
11:00													502	217	285	517	232	285			
12:00													472	235	237	574	249	325			
13:00													543	252	291	597	281	316			
14:00													553	290	263	648	332	316			
15:00													693	361	332	689	373	316			
16:00										669	375	294	714	388	326						
17:00										733	442	291	727	430	297						
18:00										528	299	229	524	274	250						
19:00										338	210	128	334	207	127						
20:00										265	171	94	257	167	90						
21:00										177	115	62	170	106	64						
22:00										132	65	67	102	67	35						
23:00										68	45	23	85	54	31						
Total										2,910	1,722	1,188	8,765	4,331	4,434	6,026	2,692	3,334			
AM Peak Vol													701	263	441	572	235	378			
AM Peak Fct													.765	.715	.805	.856	.816	.851			
AM Peak Hr													7: 00	7: 00	7: 15	7: 30	10: 30	7: 30			
PM Peak Vol													776	463	348						
PM Peak Fct													.898	.884	.926						
PM Peak Hr													16: 30	16: 45	15: 15	:	:	:			
Seasonal Fct										.924	.924	.924	.941	.941	.941	.941	.941	.941			
Daily Fct										.986	.986	.986	.949	.949	.949	.860	.860	.860			
Axle Fct										.455	.455	.455	.459	.459	.459	.459	.459	.459			
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

Historical Traffic Volume Summary

Station Details:

Sta ID:	098762
Sta Type:	Classification
Map:	MapIt
District:	12
County:	Pike
Route:	098-KY-1426 -000
Route Desc:	KY-1426

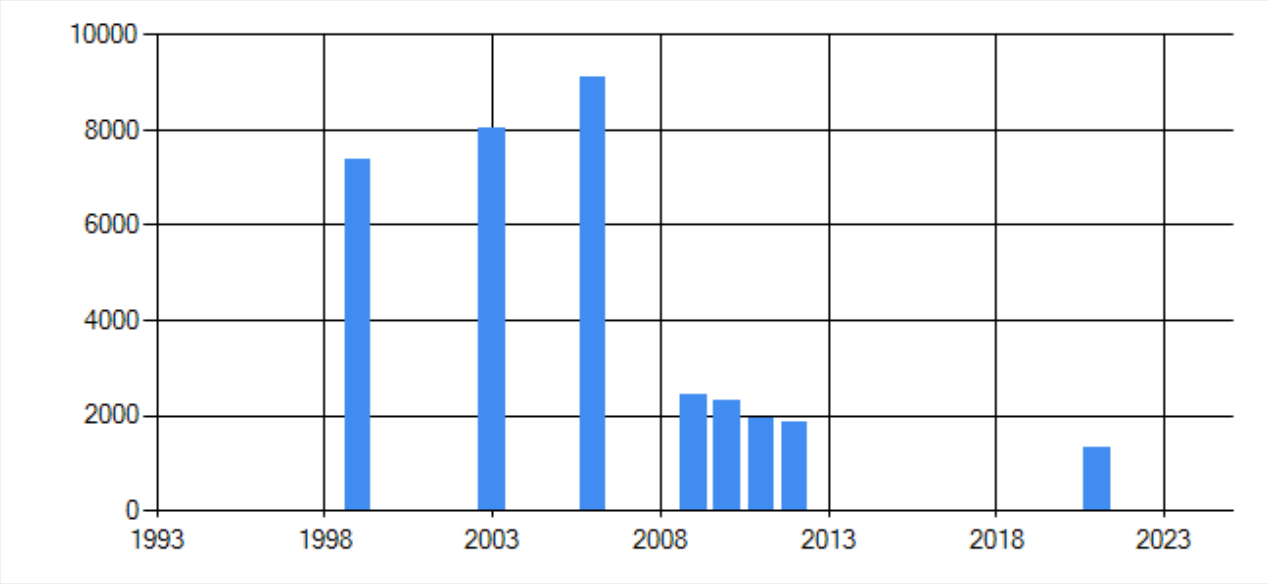
Begin MP:	15.9930
Begin Desc:	KY 194
End Mp:	18.6880
End Desc:	US 119
Impact Year:	
Year Added:	2009

Newest Count:

AADT:	1313
Year:	2021
% Single:	7.7160
% Combo:	2.0120
K Factor:	10.90
D Factor:	53

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2024		2014		2004	
2023		2013		2003	8020
2022		2012	1858	2002	
2021	1313	2011	1960	2001	
2020		2010	2330	2000	
2019		2009	2430	1999	7390
2018		2008		1998	
2017		2007		1997	
2016		2006	9100	1996	
2015		2005		1995	



Kentucky Transportation Cabinet

Short-term Hourly Traffic Volume for 12/01/2021 through 12/03/2021

Site names:	098762,	Seasonal Factor Grp:	2
County:	Pike	Daily Factor Grp:	2
Funct Class:	Major Collector	Axle Factor Grp:	07
Location:	098-KY-1426 -000 @ 17.341 From: KY 194	Growth Factor Grp:	07

	Sun, Nov 28, 2021			Mon, Nov 29, 2021			Tue, Nov 30, 2021			Wed, Dec 1, 2021			Thu, Dec 2, 2021			Fri, Dec 3, 2021			Sat, Dec 4, 2021		
	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg	Road	Pos	Neg
00:00													8	5	3	5	3	2			
01:00													4	1	3	7	3	4			
02:00													9	7	2	10	8	2			
03:00													11	6	5	12	5	7			
04:00													17	14	3	19	12	7			
05:00													22	14	8	16	8	8			
06:00													51	16	35	52	14	38			
07:00													122	44	78	132	56	76			
08:00													67	39	28	79	40	39			
09:00													57	23	34	66	29	37			
10:00													75	39	36	64	35	29			
11:00													61	39	22	85	48	37			
12:00													76	41	35	91	50	41			
13:00													112	56	56	107	51	56			
14:00													95	41	54	143	67	76			
15:00													126	78	48	112	74	38			
16:00										98	56	42	120	74	46						
17:00										99	66	33	98	57	41						
18:00										68	35	33	71	39	32						
19:00										40	25	15	38	24	14						
20:00										35	26	9	26	15	11						
21:00										29	17	12	27	19	8						
22:00										19	6	13	13	4	9						
23:00										6	3	3	4	3	1						
Total										394	234	160	1,310	698	612	1,000	503	497			
AM Peak Vol													122	53	78	132	56	79			
AM Peak Fct													.782	.631	.813	.717	.7	.76			
AM Peak Hr													7: 00	7: 30	7: 00	7: 00	7: 00	7: 15			
PM Peak Vol													136	88	56						
PM Peak Fct													.895	.846	.778						
PM Peak Hr													15: 30	15: 30	13: 00	:	:	:			
Seasonal Fct										1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044			
Daily Fct										.929	.929	.929	.918	.918	.918	.947	.947	.947			
Axle Fct										.500	.500	.500	.500	.500	.500	.500	.500	.500			
Pulse Fct										2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

APPENDIX B

HIGHWAY CAPACITY SOFTWARE RESULTS

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 AM Existing	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	33	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.02

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	59.1
Speed Slope Coefficient (m)	3.51150	Speed Power Coefficient (p)	0.36356
PF Slope Coefficient (m)	-1.92758	PF Power Coefficient (p)	0.80211
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.1

Vehicle Results			
Average Speed, mi/h	59.1	Percent Followers, %	11.7
Segment Travel Time, minutes	1.02	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	8	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 PM Existing	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	30	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.02

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	59.1
Speed Slope Coefficient (m)	3.51150	Speed Power Coefficient (p)	0.36356
PF Slope Coefficient (m)	-1.92758	PF Power Coefficient (p)	0.80211
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.1

Vehicle Results			
Average Speed, mi/h	59.1	Percent Followers, %	10.9
Segment Travel Time, minutes	1.02	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	7	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 AM Existing	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	83	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	9.73
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	46.0
Speed Slope Coefficient (m)	3.74240	Speed Power Coefficient (p)	0.49094
PF Slope Coefficient (m)	-1.71466	PF Power Coefficient (p)	0.71798
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	46.0

Vehicle Results			
Average Speed, mi/h	46.0	Percent Followers, %	25.0
Segment Travel Time, minutes	1.31	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.5	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 PM Existing	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	83	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	9.73
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	46.0
Speed Slope Coefficient (m)	3.74240	Speed Power Coefficient (p)	0.49094
PF Slope Coefficient (m)	-1.71466	PF Power Coefficient (p)	0.71798
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	46.0

Vehicle Results			
Average Speed, mi/h	46.0	Percent Followers, %	25.0
Segment Travel Time, minutes	1.31	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.5	A

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 AM Existing	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	176	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	114
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.05

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	2.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	349	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	225
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.11
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 PM Existing	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	342	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	220
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.10

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	285	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	184
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 AM Existing	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	263	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	166
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.08

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	2.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	438	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	276
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 PM Existing	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	430	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	272
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	297	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	188
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 AM Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	150	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	7.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	55.8
Speed Slope Coefficient (m)	11.57315	Speed Power Coefficient (p)	0.53307
PF Slope Coefficient (m)	-1.91973	PF Power Coefficient (p)	0.81912
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.5

Vehicle Results			
Average Speed, mi/h	53.5	Percent Followers, %	33.4
Segment Travel Time, minutes	1.12	Adj. Follower Density, followers/mi/ln	0.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	35	0.03	0.9	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 PM Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	147	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	7.25
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	55.7
Speed Slope Coefficient (m)	11.65139	Speed Power Coefficient (p)	0.53428
PF Slope Coefficient (m)	-1.91945	PF Power Coefficient (p)	0.81942
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.5

Vehicle Results			
Average Speed, mi/h	53.5	Percent Followers, %	32.9
Segment Travel Time, minutes	1.12	Adj. Follower Density, followers/mi/ln	0.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	35	0.03	0.9	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 AM Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	200	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	9.36
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	46.0
Speed Slope Coefficient (m)	3.72282	Speed Power Coefficient (p)	0.48962
PF Slope Coefficient (m)	-1.71536	PF Power Coefficient (p)	0.71767
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.8

Vehicle Results			
Average Speed, mi/h	44.8	Percent Followers, %	41.7
Segment Travel Time, minutes	1.34	Adj. Follower Density, followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	47	0.03	1.9	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/15/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 PM Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	200	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	9.36
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.12

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	46.0
Speed Slope Coefficient (m)	3.72282	Speed Power Coefficient (p)	0.48962
PF Slope Coefficient (m)	-1.71536	PF Power Coefficient (p)	0.71767
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.8

Vehicle Results			
Average Speed, mi/h	44.8	Percent Followers, %	41.7
Segment Travel Time, minutes	1.34	Adj. Follower Density, followers/mi/ln	1.9
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	47	0.03	1.9	A

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 AM Construction	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	231	Heavy Vehicle Adjustment Factor (f_{HV})	0.828
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	148
Total Trucks, %	10.37	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.07

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	2.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	404	Heavy Vehicle Adjustment Factor (f_{HV})	0.828
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	260
Total Trucks, %	10.37	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.12
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 PM Construction	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	397	Heavy Vehicle Adjustment Factor (f_{HV})	0.828
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	255
Total Trucks, %	10.41	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.12

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	340	Heavy Vehicle Adjustment Factor (f_{HV})	0.828
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	218
Total Trucks, %	10.41	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.10
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 AM Construction	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	318	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	200
Total Trucks, %	9.29	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.5
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	493	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	311
Total Trucks, %	9.29	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.15
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	5.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 PM Construction	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	485	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	306
Total Trucks, %	9.29	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.14

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	5.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	352	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	222
Total Trucks, %	9.29	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.10
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/23/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 AM Post Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	34	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.02

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	59.1
Speed Slope Coefficient (m)	3.51150	Speed Power Coefficient (p)	0.36356
PF Slope Coefficient (m)	-1.92758	PF Power Coefficient (p)	0.80211
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.1

Vehicle Results			
Average Speed, mi/h	59.1	Percent Followers, %	12.0
Segment Travel Time, minutes	1.02	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	8	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/23/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098015 PM Post Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	1.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	31	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.02

Intermediate Results			
Segment Vertical Class	5	Free-Flow Speed, mi/h	59.1
Speed Slope Coefficient (m)	3.51150	Speed Power Coefficient (p)	0.36356
PF Slope Coefficient (m)	-1.92758	PF Power Coefficient (p)	0.80211
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	59.1

Vehicle Results			
Average Speed, mi/h	59.1	Percent Followers, %	11.2
Segment Travel Time, minutes	1.02	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	7	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/23/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 AM Post Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	84	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	9.73
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	4	Free-Flow Speed, mi/h	46.0
Speed Slope Coefficient (m)	3.74240	Speed Power Coefficient (p)	0.49094
PF Slope Coefficient (m)	-1.71466	PF Power Coefficient (p)	0.71798
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	46.0

Vehicle Results			
Average Speed, mi/h	46.0	Percent Followers, %	25.2
Segment Travel Time, minutes	1.31	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.5	A

HCS Two-Lane Highway Report

Project Information			
Analyst		Date	2/23/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Sta 098762 PM Post Construction	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	2.0

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Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	46.0

Vehicle Results			
Average Speed, mi/h	46.0	Percent Followers, %	25.2
Segment Travel Time, minutes	1.31	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.5	A

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 AM Operation	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	177	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	114
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.05

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	2.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	349	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	225
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.11
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098812 PM Operation	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	342	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	220
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.10

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	286	Heavy Vehicle Adjustment Factor (f_{HV})	0.825
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	184
Total Trucks, %	10.64	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.2
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 AM Operation	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	264	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	166
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.08

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	2.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	438	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	276
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

HCS Multilane Highway Report

Project Information			
Analyst		Date	3/5/2024
Agency	Palmer Engineering	Analysis Year	2024
Jurisdiction		Time Analyzed	
Project Description	Pike Savion Station 098813 PM Operation	Units	U.S. Customary

Direction 1 Geometric Data			
Direction 1	Northbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12

Direction 1 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity			
Volume (V) veh/h	430	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	272
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.13

Direction 1 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	4.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		

Direction 2 Geometric Data			
Direction 2	Southbound		
Number of Lanes (N), ln	2	Terrain Type	Rolling
Measured or Base Free-Flow Speed	Base	Percent Grade, %	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Grade Length, mi	-
Lane Width, ft	12	Access Point Density, pts/mi	3.0
Median Type	Divided	Left-Side Lateral Clearance (LC_R), ft	6
Free-Flow Speed (FFS), mi/h	59.3	Total Lateral Clearance (TLC), ft	12
Direction 2 Adjustment Factors			
Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		
Direction 2 Demand and Capacity			
Volume (V) veh/h	298	Heavy Vehicle Adjustment Factor (f_{HV})	0.843
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	188
Total Trucks, %	9.32	Capacity (c), pc/h/ln	2186
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2116
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.09
Direction 2 Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.8
Total Lateral Clearance Adj. (f_{LLC})	0.0	Density (D), pc/mi/ln	3.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	0.8		