

# Traffic Impact Study Report

## XEBEC Tucker Station

Louisville, Jefferson Co., KY

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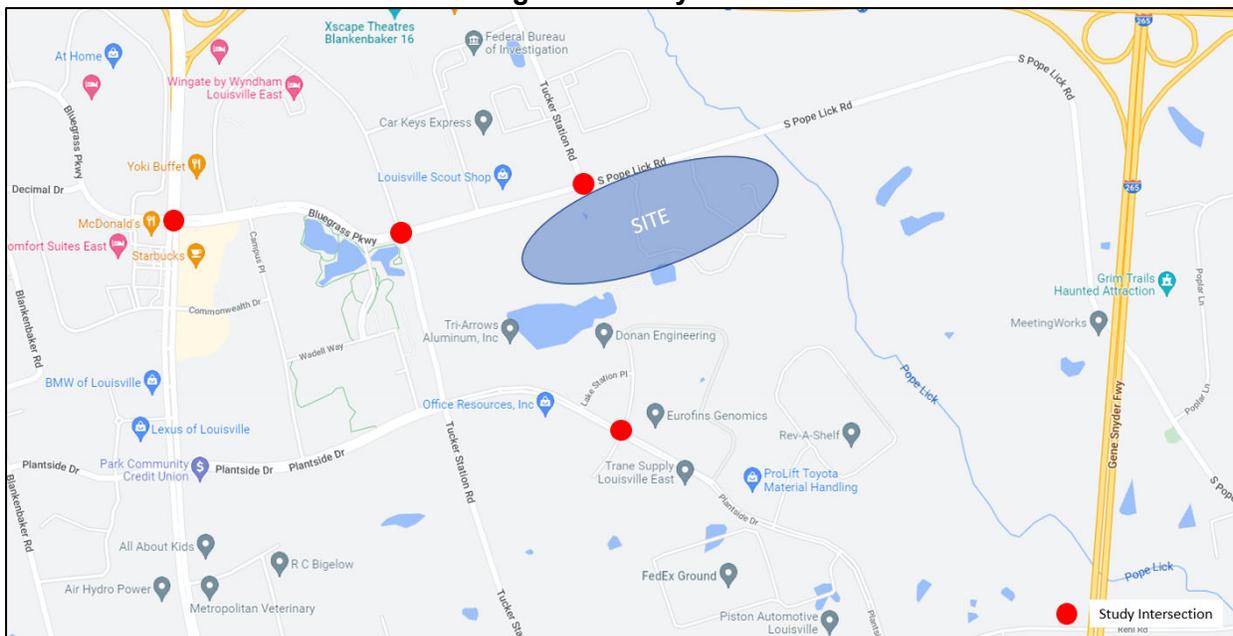
## INTRODUCTION

The purpose of this document is to summarize the scope and terms for a Traffic Impact Study of a proposed industrial development in Jefferson County, KY. The development is to be located on the south side of S. Pope Lick Road and Tucker Station Road and is to consist of 5 warehousing buildings totaling 1,010,800 s.f of gross floor area. Two access points along Tucker Station Road and S. Pope Lick Road are proposed with a connection to the south to Plantside Drive via Schutte Station Place. This study will evaluate the proposed access points, as well as the intersections listed below.

- Schutte Station at Plantside Drive
- Tucker Station at S. Pope Lick Road
- Tucker Station at Bluegrass Parkway / Lakefront Place
- Bluegrass Parkway at Blanken

**Figure 1** shows the proposed site and study intersections. **Appendix A** contains a site plan of the proposed development. The scope of this study is based on a review of existing travel patterns in the area and discussions with Louisville Metro Planning and Design Services.

**Figure 1: Study Area**



## EXISTING CONDITIONS

S. Pope Lick Road is a two-lane roadway with a posted speed of 35 mph. The intersections of S. Pope Lick Road at Tucker Station Road is a T' intersection with all-way stop control. No Auxiliary turn lanes are present at the intersection.

AM and PM turning movement counts were collected on Thursday May 19, 2022 between 7-9 a.m. and 4-6 p.m. at the study intersections. Full turn movement count data is provided in **Appendix B**. AM and PM peak hour traffic volumes are summarized in **Figures 2 and 3**.

Figure 2: AM Peak Hour Turning Movement Counts

EXISTING TRAFFIC COUNTS  
AM PEAK HOUR

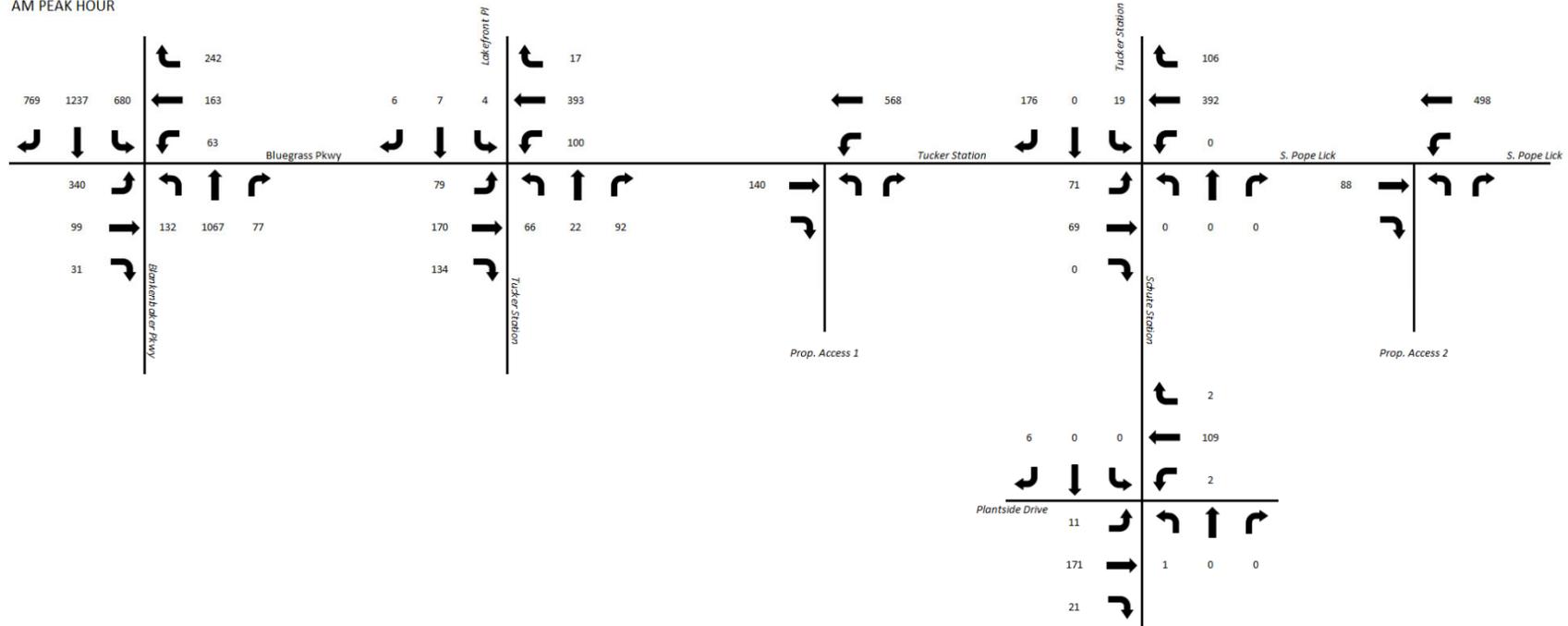
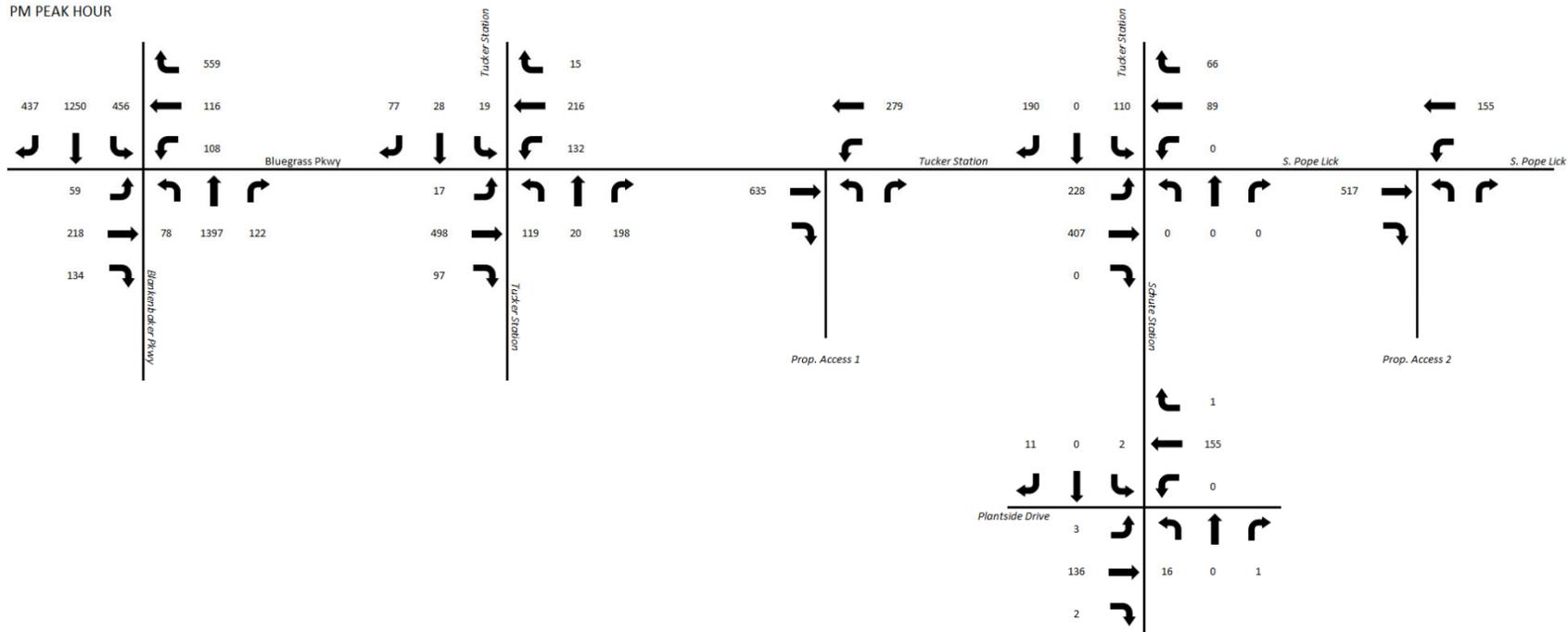


Figure 3: PM Peak Hour Turning Movement Counts

EXISTING TRAFFIC COUNTS  
PM PEAK HOUR



## TRAFFIC FORECASTING

Historic traffic counts were not available for S. Pope Lick Road or Tucker Station Road; however, counts were available for Bluegrass Parkway at station 056L91, which is immediately west of the study area. Based on this data, historic traffic patterns indicate a growth rate of 0.43 percent per year. An average growth rate of 0.5% was used for projecting traffic volumes to the year of opening, 2023 and the design year of 2033. **Appendix D** contains the historic traffic data and output from the KYTC Traffic forecasting spreadsheet.

In addition to the background traffic growth rate, trip generation from the recently approved residential development on S. Pope Lick was also added to the network for the No Build traffic condition. **Figures 4 and 5** show the AM and PM trip generation associated with this development. AM and PM peak hour volumes for 2023 No Build and 2033 No Build traffic volumes are summarized in **Figures 6, 7, 8 and 9**.

Figure 4: AM Peak S. Pope Lick Residential Development Trip Generation

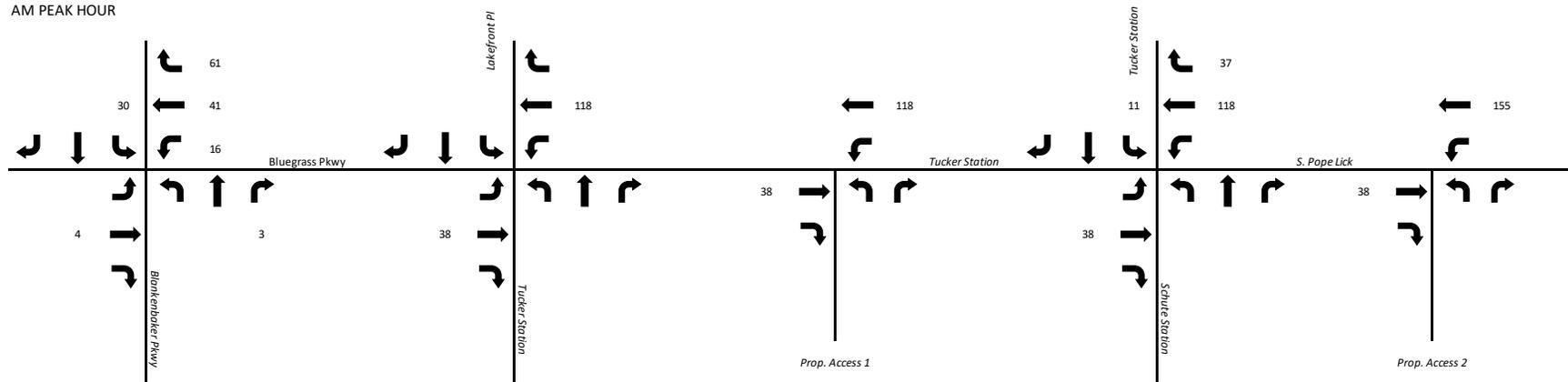


Figure 5: PM Peak S. Pope Lick Residential Development Trip Generation

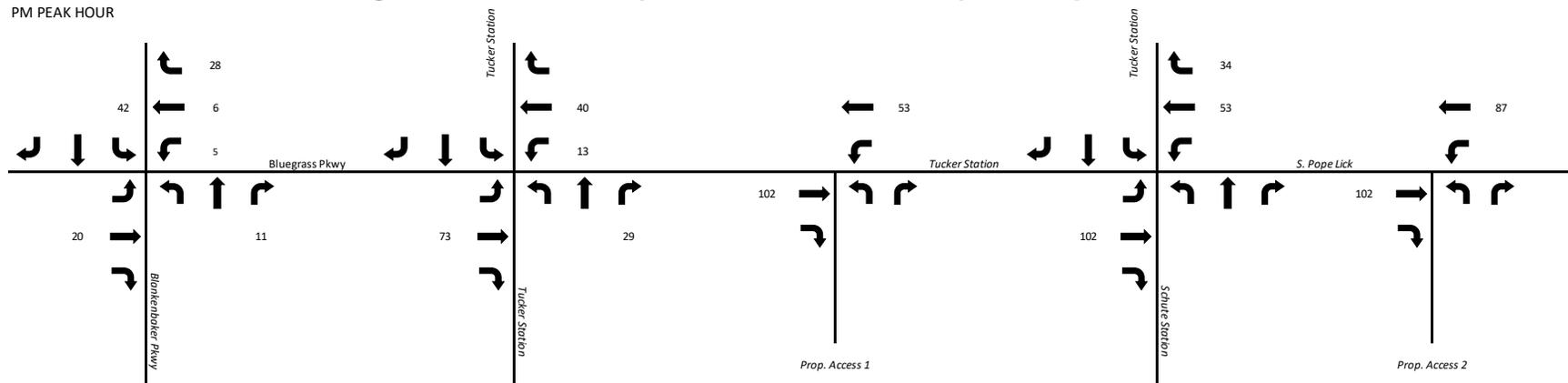


Figure 6: AM Peak 2023 No Build Traffic Volumes

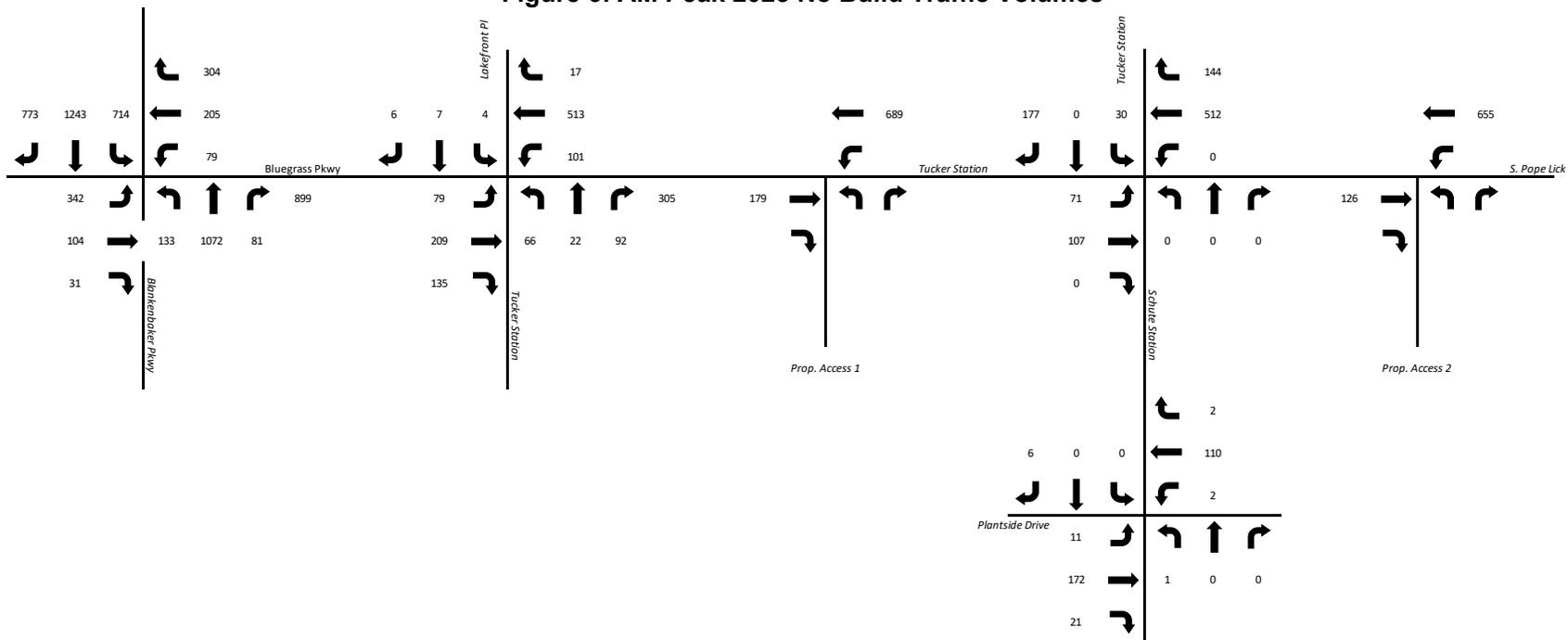


Figure 7: PM Peak 2023 No Build Traffic Volumes

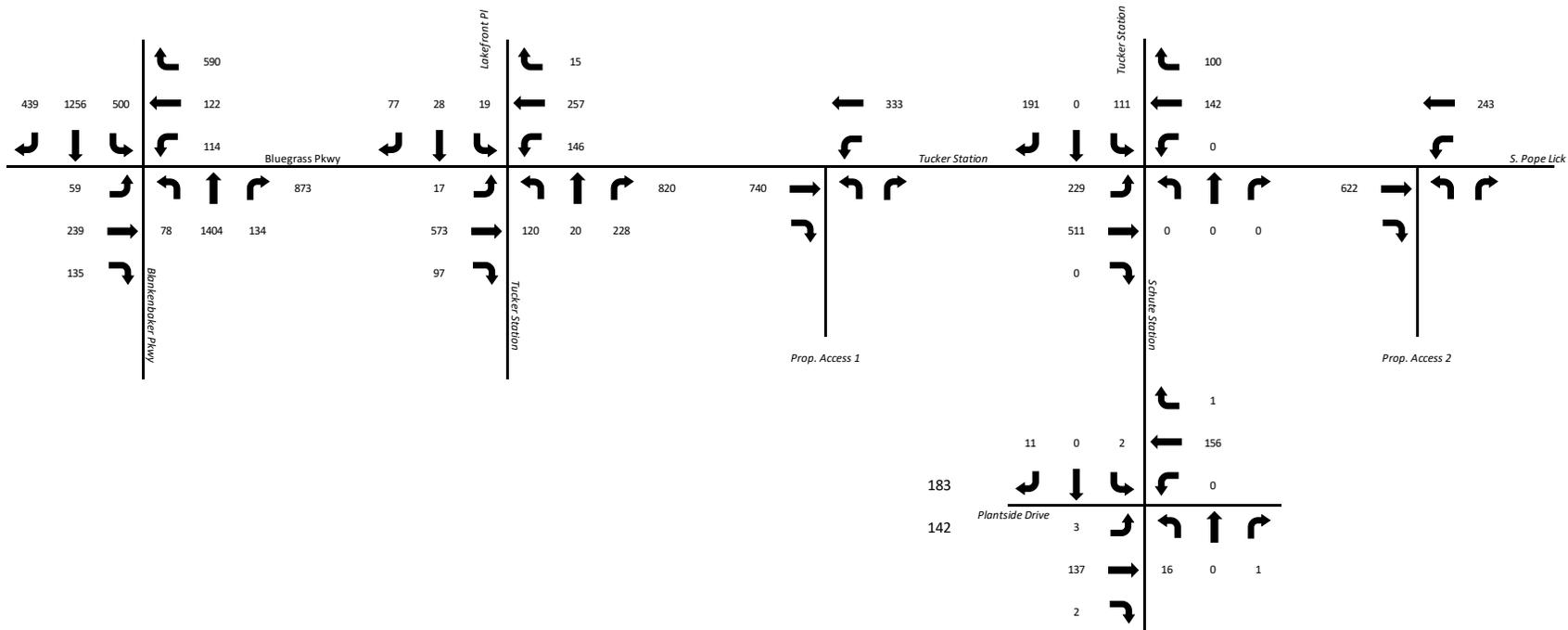


Figure 8: AM Peak 2033 No Build Traffic Volumes

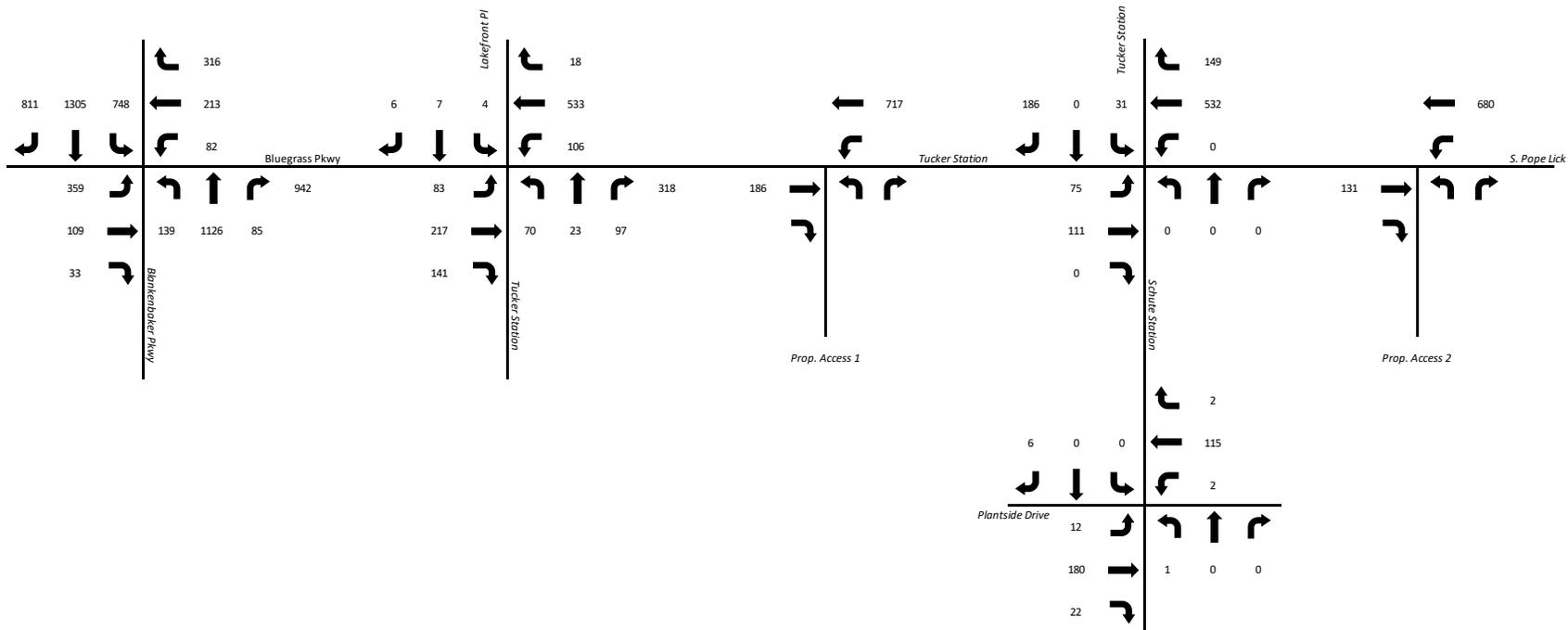
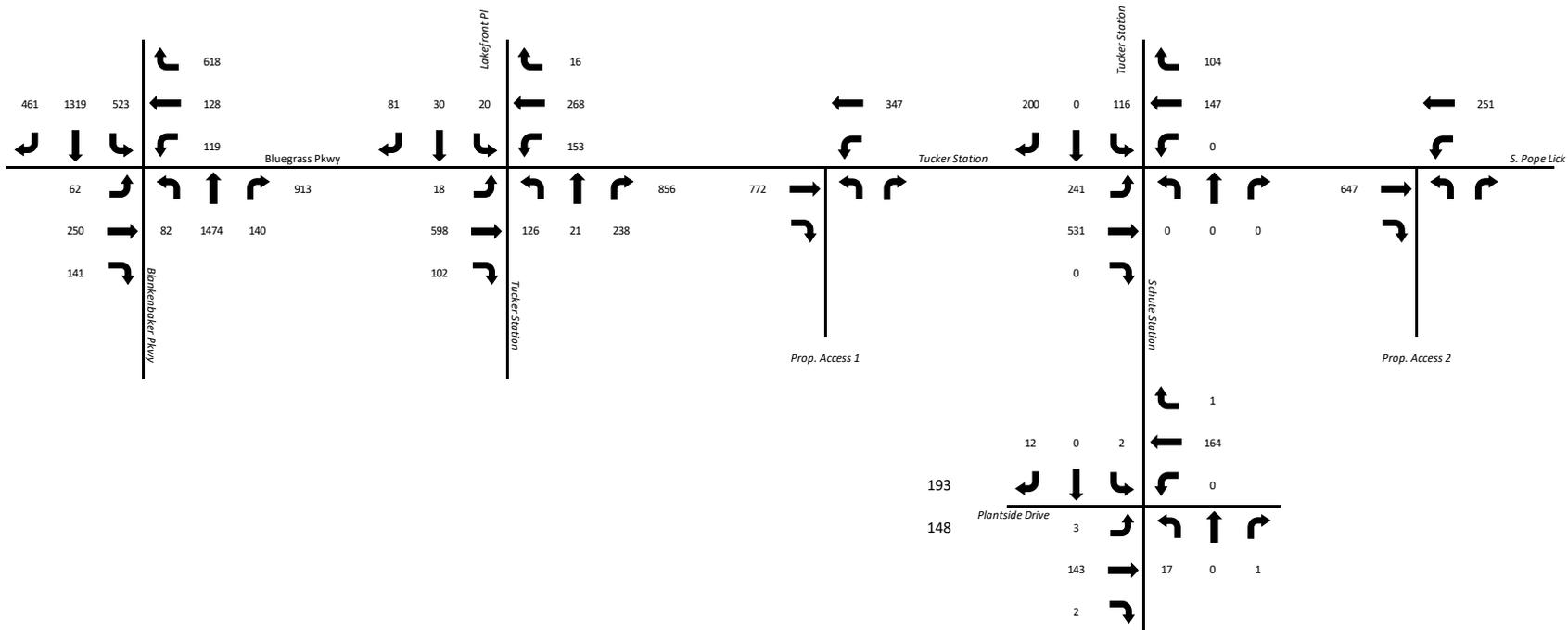


Figure 9: PM Peak 2033 No Build Traffic Volumes



## TRIP GENERATION

Trip Generation was conducted in accordance with the ITE Trip Generation Web Based App, 11<sup>th</sup> edition. Trip Generation utilized **ITE Land Use Code 130 Industrial Park**. This land use provides a higher trip generation than strictly warehousing or distribution land uses in the event some manufacturing or other industrial use was housed in the development. Based on this land use and the 1M s.f. gross floor area, the development is expected to generate 414 and 405 trips per hour during the AM and PM peak hours of the development. **Table 1** summarizes the trip generation for each proposed tract and **Appendix C** contains output from the ITE Trip Generation Manual.

**Table 1: Trip Generation**

Land Use	ITE Code	Ind. Var.	Units	AM Peak			Saturday		
				Total	Entering	Exiting	Total	Entering	Exiting
<b>Total</b>				<b>414</b>	<b>359</b>	<b>55</b>	<b>405</b>	<b>85</b>	<b>320</b>
Tract 1	130	196.5	units	81	70	11	79	17	62
Tract 2	130	210	units	86	75	11	84	18	66
Tract 3	130	146.9	units	60	52	8	59	12	47
Tract 4	130	146.9	units	60	52	8	59	12	47
Tract 5	130	310.5	units	127	110	17	124	26	98

## TRIP DISTRIBUTION METHODOLOGY

Generated trips were distributed onto the roadway network based on recorded travel patterns on Commerce Parkway and the proposed configuration of the development roadway layout. Total roadway volumes at the approaches to the study area were determined and trips distributed consistently with these total volumes. **Figure 10** shows the area wide trip distributions. The final entering and exiting trip distribution is shown in **Figures 11 and 12**. **Figures 13, 14, 15 and 16** show the final build traffic volumes for AM and PM peak hour turning movement for 2023 and 2033.

**Figure 10: Area-wide Origin-Destination Trip Distribution**



Figure 9: Entering Trip Distribution

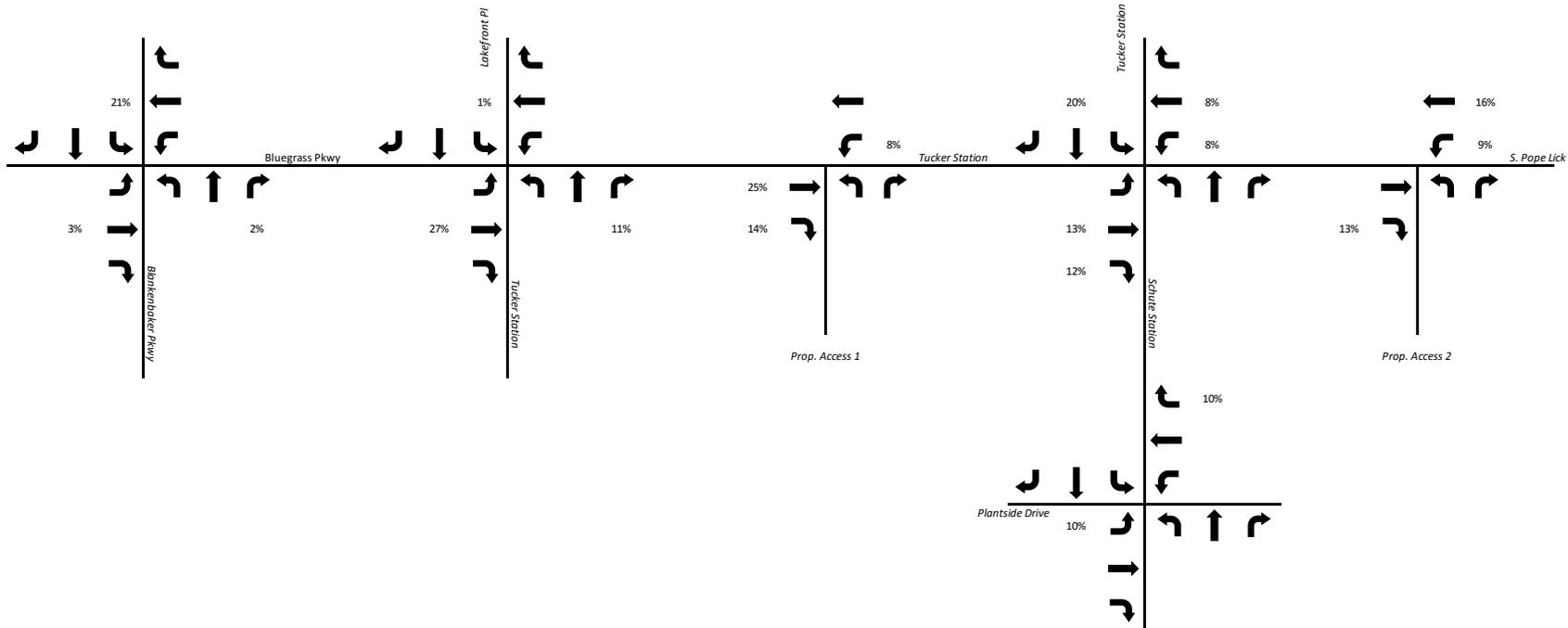


Figure 10: Exiting Trip Distribution

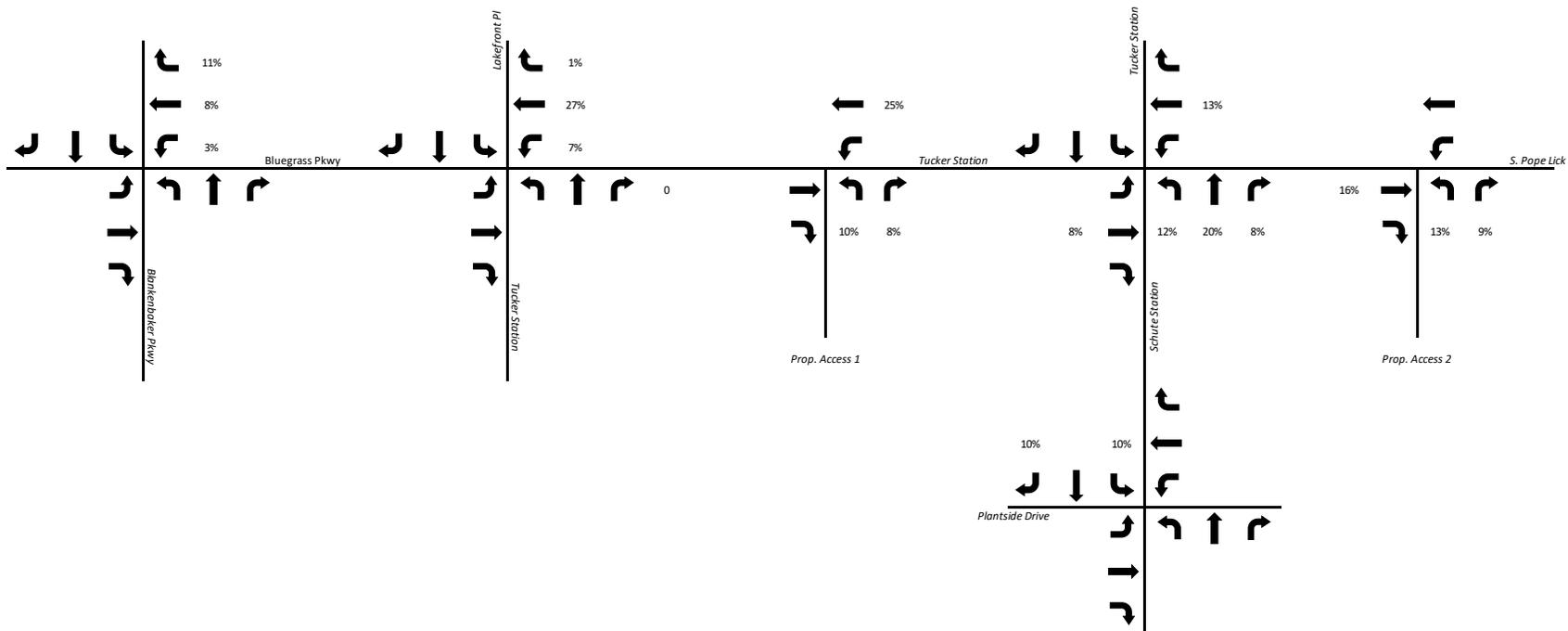


Figure 11: AM Peak Hour 2023 Build

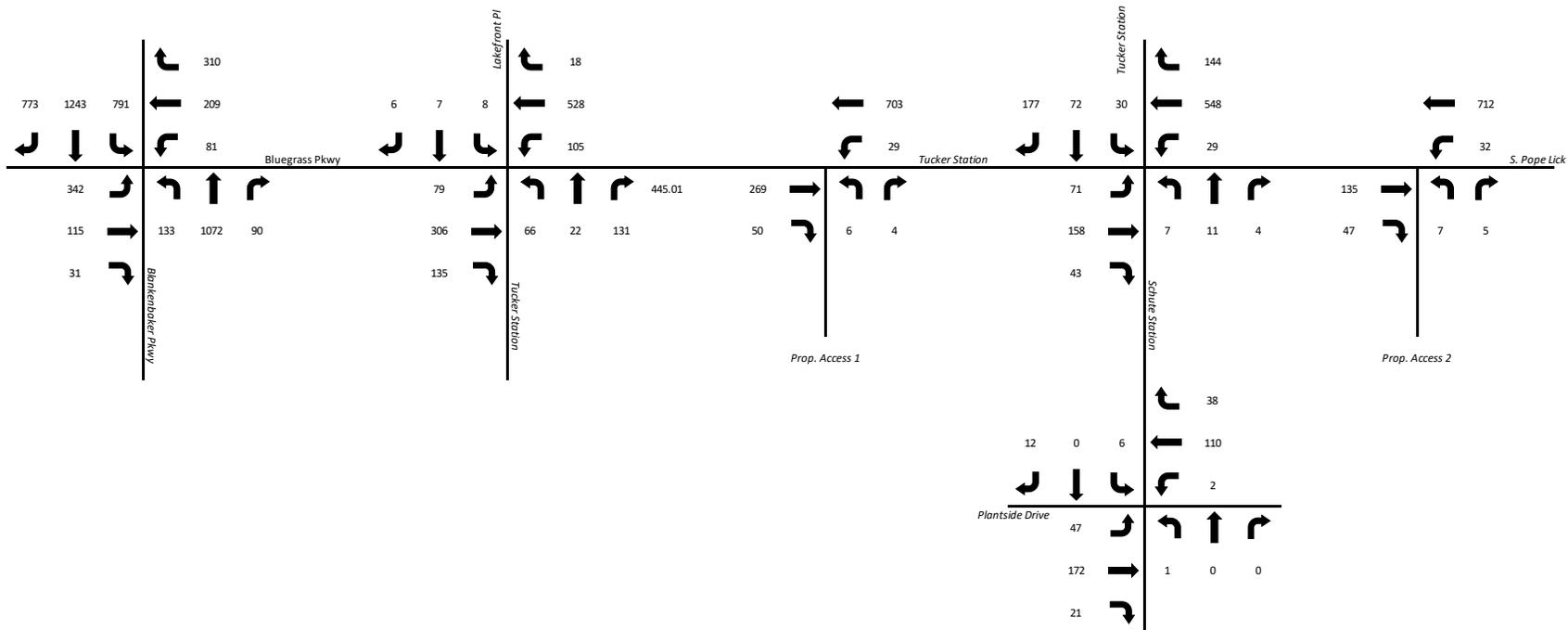


Figure 12: PM Peak Hour 2023 Build

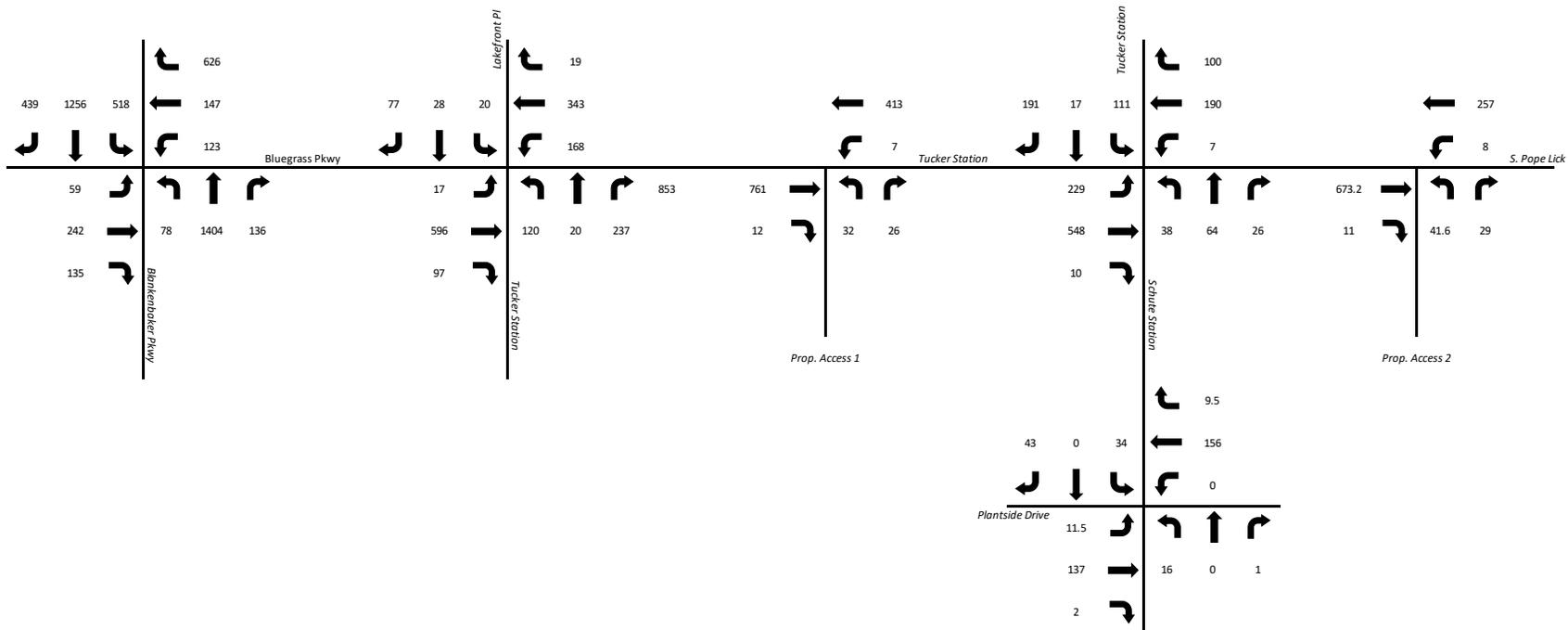


Figure 13: AM Peak Hour 2033 Build

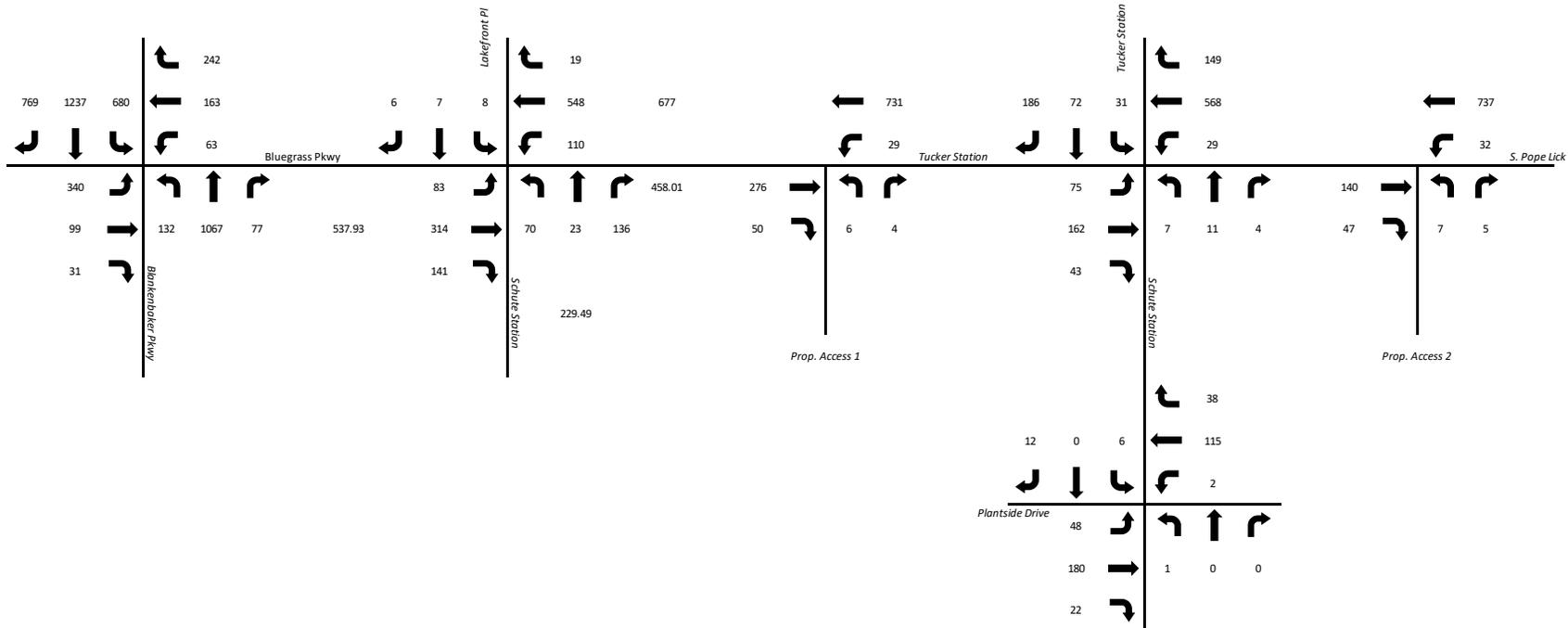
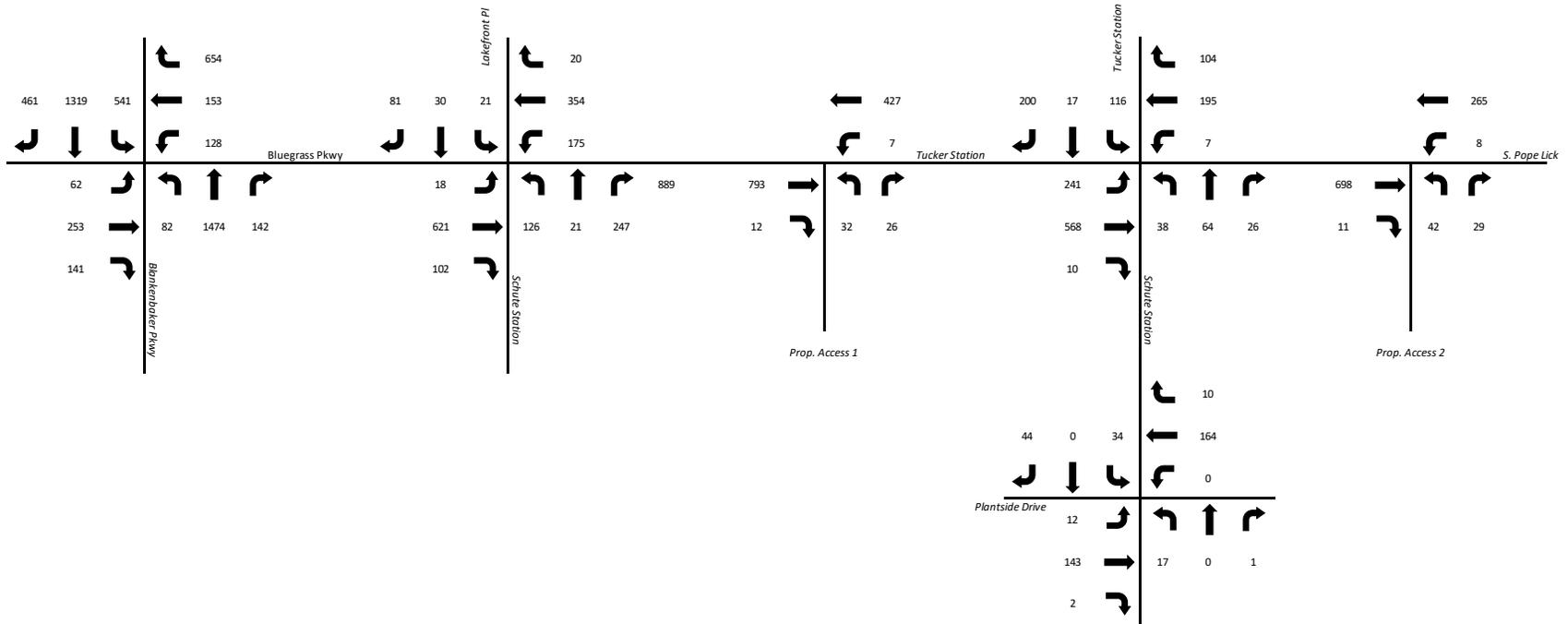


Figure 14: PM Peak Hour 2033 Build



## CAPACITY ANALYSIS

Capacity analysis for the no build and build scenarios was completed for the study intersections during the AM and PM peak hours using HCM methodologies as applied Synchro Capacity Software version 10. **Tables 2 and 3** summarize the AM and PM peak hour LOS, and delay for the No Build and Build scenarios. Full capacity analysis output is provided in **Appendix E**.

As can be seen from the capacity analysis, all access points and the intersection of Schute Station Road and Plantside Drive are shown to operate at acceptable levels of service during all scenarios evaluated. Minimal changes in delay and operations are anticipated at Blankenbaker Parkway and Bluegrass Parkway.

Eastbound Tucker Station Road at S. Pope Lick Road is shown to operate at or over capacity under the 2023 demand for the westbound direction in the AM peak and for the eastbound direction for the PM peak. The proposed auxiliary turn lanes on these approaches decreases approach delay during the PM peak, but still experiences higher delays under the AM peak demand.

At the intersection of Bluegrass Parkway and Tucker Station Road/Lakeside Place, the existing configuration is shown to operate under capacity for both the No Build and Build conditions under the AM conditions. In the PM peak period, the northbound approach is shown to operate at LOS F for both the No Build and Build conditions.

Signalization of the intersections of Tucker Station Road at S. Pope Lick Road and Tucker Station at Bluegrass Parkway is shown to improve operations under all conditions as summarized in **Table 4**.

**Table 2: AM Peak Capacity Analysis Summary**

AM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	<b>Intersection</b>	<b>E</b>	<b>57.6</b>	<b>E</b>	<b>57.6</b>	<b>E</b>	<b>61.2</b>	<b>E</b>	<b>64.0</b>
	eastbound (Bluegrass)	E	79.0	F	85.8	E	73.7	E	74.3
	westbound (Bluegrass)	F	95.4	F	91.8	F	157.2	F	162.9
	northbound (Blankenbaker)	D	48.9	E	57.9	D	54.4	D	54.6
	southbound (Blankenbaker)	D	49.8	D	45.3	D	41.7	D	45.5
Bluegrass Pkwy at Tucker Station	<b>Intersection</b>	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	1.8	A	1.4	A	1.8	A	1.5
	westbound (Tucker Station)	A	1.6	A	1.7	A	1.6	A	1.7
	northbound (Tucker Station)	D	27.2	D	32.7	D	33.3	E	42.0
	southbound (Lakeside Pl)	C	23.7	D	32.2	D	25.9	E	36.2
S. Pope Lick Rd at Access Point 1	<b>Intersection</b>			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	17.7			C	18.3
S. Pope Lick Road at Tucker Station Road	<b>Intersection</b>	<b>D</b>	<b>31.2</b>	<b>F</b>	<b>85.9</b>	<b>E</b>	<b>38.4</b>	<b>F</b>	<b>99.3</b>
	eastbound (Tucker Station)	B	11.1	B	12.6	B	11.5	B	12.8
	westbound (S. Pope Lick)	E	42.7	F	142.2	F	54.1	F	165.7
	northbound (Shute Station)	--	--	B	10.8	--	--	B	10.8
	southbound (Tuckjer Station)	B	11.7	C	17.6	B	12.2	C	18.3
S. Pope Lick Rd at Access Point 2	<b>Intersection</b>			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	15.4			C	15.8
Schute Station at Plantside Drive	<b>Intersection</b>	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.5	A	1.6	A	0.5	A	1.6
	westbound LT (Plantside)	A	0.1	A	0.1	A	0.1	A	0.1
	northbound	B	10.7	B	11.8	B	10.9	B	11.9
	southbound	A	8.7	A	9.7	A	8.7	A	9.8

**Table 3: PM Peak Capacity Analysis Summary**

PM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	<b>Intersection</b>	F	117.6	F	130.5	F	123.2	F	131.9
	eastbound (Bluegrass)	F	277.1	F	395.4	F	309.9	F	314.5
	westbound (Bluegrass)	F	307.3	F	334.9	F	294.2	F	320.2
	northbound (Blankenbaker)	D	54.9	E	72.7	E	58.3	E	58.4
	southbound (Blankenbaker)	E	61.0	D	37.9	E	70.0	E	74.0
Bluegrass Pkwy at Tucker Station	<b>Intersection</b>	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	0.2	A	0.2	A	0.2	A	0.2
	westbound (Tucker Station)	A	3.5	A	3.2	A	3.5	A	3.3
	northbound (Tucker Station)	F	107.8	F	189.7	F	162.3	F	273.7
	southbound (Lakeside Pl)	E	37.4	F	65.7	F	51.8	F	105.6
S. Pope Lick Rd at Access Point 1	<b>Intersection</b>			--	--			--	--
	westbound (left turn)			A	0.4			A	0.3
	northbound (Access 1)			C	19.1			D	25.4
S. Pope Lick Road at Tucker Station Road	<b>Intersection</b>	F	84.8	F	61.6	F	102.1	F	72.1
	eastbound (Tucker Station)	F	136.4	C	98.6	F	165.9	F	116.7
	westbound (S. Pope Lick)	B	12.8	B	22.6	B	13.3	C	24.3
	northbound (Shute Station)	--	--	D	13.1	--	--	B	13.3
	southbound (Tuckjer Station)	C	16.1	C	26.0	C	16.9	D	28.6
S. Pope Lick Rd at Access Point 2	<b>Intersection</b>			--	--			--	--
	westbound (left turn)			A	0.4			A	0.4
	northbound (Access 1)			C	19.1			C	19.9
Shute Station at Plantside Drive	<b>Intersection</b>	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.2	A	0.7	A	0.2	A	0.6
	westbound LT (Plantside)	A	0.0	A	0.0	A	0.0	A	0.0
	northbound	B	10.3	B	10.8	B	10.5	B	10.9
	southbound	A	9.1	B	10.1	A	9.1	B	10.2

**Table 4: Signalized Capacity Analysis Summary**

PM PEAK HOUR		2023 AM		2023 PM		2033 AM		2033 PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Bluegrass Pkwy at Tucker Station	<b>Intersection</b>	A	5.6	A	9.4	A	6.7	B	10.2
	eastbound (Bluegrass)	A	4.9	A	9.2	A	5.0	B	10.4
	westbound (Tucker Station)	A	5.3	A	7.2	A	7.4	A	7.3
	northbound (Tucker Station)	A	7.5	B	13.3	A	8.5	B	14.4
	southbound (Lakeside Pl)	A	6.7	A	8.0	A	7.5	A	8.1
S. Pope Lick Road at Tucker Station Road	<b>Intersection</b>	A	7.7	A	9.4	A	8.1	A	10.0
	eastbound (Tucker Station)	A	6.3	B	11.4	A	6.6	B	12.1
	westbound (S. Pope Lick)	A	7.0	A	5.8	A	7.3	A	5.9
	northbound (Shute Station)	A	9.9	A	8.2	A	10.4	A	8.5
	southbound (Tuckjer Station)	B	10.7	A	8.5	A	11.3	A	9.0

## **TURN LANE WARRANT ANALYSIS**

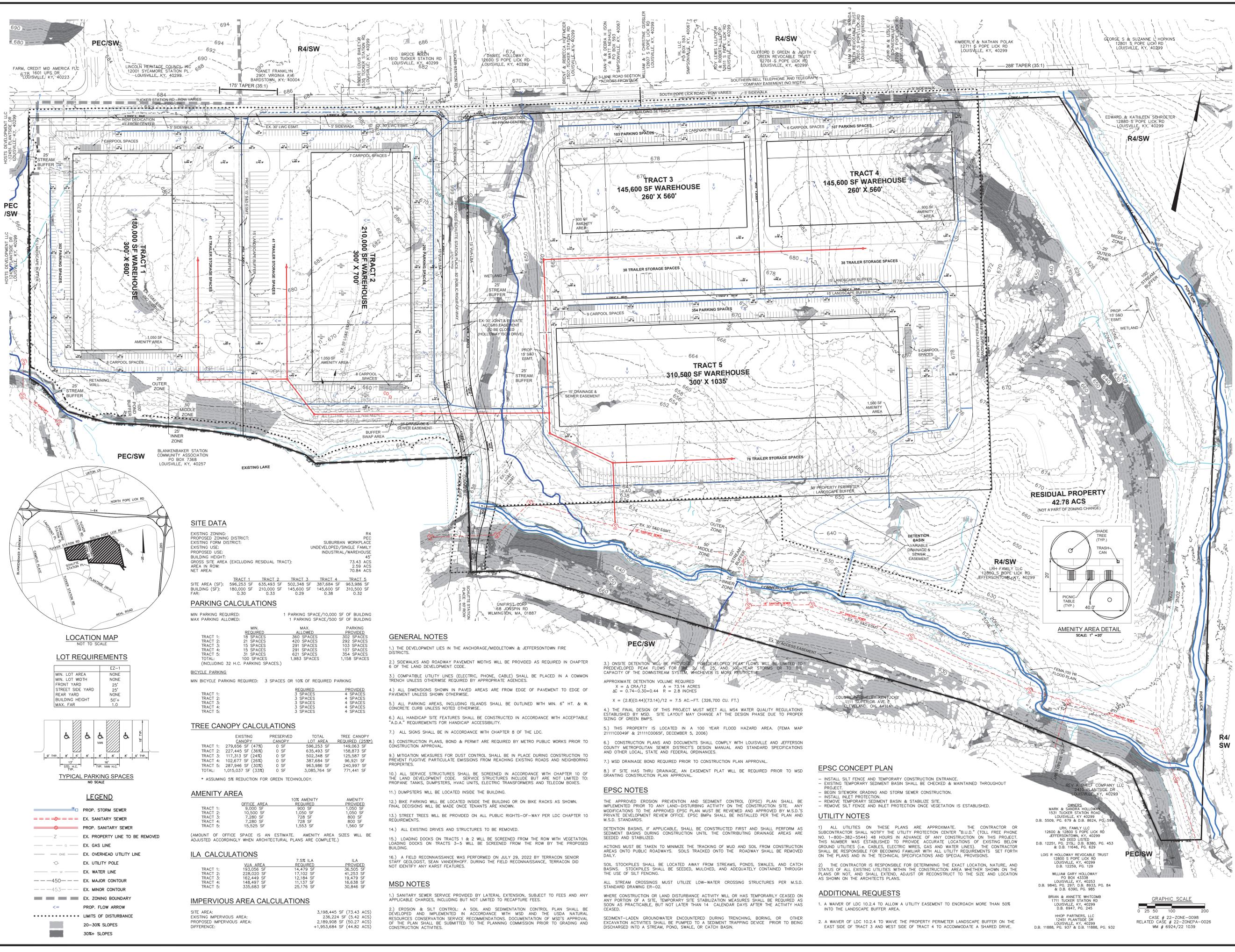
Auxiliary turn lane warrant analysis was conducted for all proposed access points in accordance with KYTC Auxiliary Turn Lane policy, as applied by the Warrant Calcs Interactive excel spreadsheet provided on the KYTC Division of Design website. Based on this analysis, a left turn lane is warranted at the two proposed access points based on AM peak hour demand. Right turn lanes are not warranted at any access point for either AM and PM peak periods. Output from the warrant analysis is provided in **Appendix F**.

## **RECOMMENDATIONS**

Dedicated left-turn lanes are recommended to improve operations at the intersection of Tucker Station Road and S. Pope Lick Road. Signalization should be considered for the intersections of Tucker Station Road at Bluegrass Parkway and Tucker Station Road at S. Pope Lick Road.

Left turn auxiliary lanes are recommended at the proposed access points on Tucker Station Road and S. Pope Lick Road.

## **APPENDIX A: DEVELOPMENT PLAN**



**SITE DATA**

EXISTING ZONING:	R4
PROPOSED ZONING DISTRICT:	SUBURBAN WORKPLACE PEC
EXISTING FORM DISTRICT:	UNDEVELOPED/SINGLE FAMILY
PROPOSED USE:	INDUSTRIAL/WAREHOUSE
BUILDING HEIGHT:	45'
GROSS SITE AREA (EXCLUDING RESIDUAL TRACT):	73.43 ACS
AREA IN ROW:	2.39 ACS
NET AREA:	70.84 ACS

**PARKING CALCULATIONS**

MIN PARKING REQUIRED:	1 PARKING SPACE/10,000 SF OF BUILDING
MAX PARKING REQUIRED:	1 PARKING SPACE/500 SF OF BUILDING

**MIN BICYCLE PARKING REQUIRED:** 3 SPACES OR 10% OF REQUIRED PARKING

TRACT	REQUIRED	PROVIDED
TRACT 1:	3 SPACES	4 SPACES
TRACT 2:	3 SPACES	4 SPACES
TRACT 3:	3 SPACES	4 SPACES
TRACT 4:	3 SPACES	4 SPACES
TRACT 5:	3 SPACES	4 SPACES

**TREE CANOPY CALCULATIONS**

TRACT	EXISTING CANOPY	PRESERVED CANOPY	TOTAL LOT AREA	TREE CANOPY REQUIRED (25%)
TRACT 1:	279,656 SF (47%)	0 SF	596,253 SF	149,063 SF
TRACT 2:	227,445 SF (36%)	0 SF	635,493 SF	158,873 SF
TRACT 3:	117,313 SF (24%)	0 SF	502,348 SF	125,587 SF
TRACT 4:	102,677 SF (26%)	0 SF	387,684 SF	96,921 SF
TRACT 5:	287,948 SF (30%)	0 SF	963,986 SF	240,997 SF
TOTAL:	1,015,037 SF (33%)	0 SF	3,085,764 SF	777,441 SF

\* ASSUMING 5% REDUCTION FOR GREEN TECHNOLOGY.

**AMENITY AREA**

TRACT	OFFICE AREA	10% AMENITY REQUIRED	AMENITY PROVIDED
TRACT 1:	9,000 SF	900 SF	1,050 SF
TRACT 2:	10,500 SF	1,050 SF	1,050 SF
TRACT 3:	7,280 SF	728 SF	800 SF
TRACT 4:	7,280 SF	728 SF	800 SF
TRACT 5:	15,325 SF	1,533 SF	1,560 SF

(AMOUNT OF OFFICE SPACE IS AN ESTIMATE. AMENITY AREA SIZES WILL BE ADJUSTED ACCORDINGLY WHEN ARCHITECTURAL PLANS ARE COMPLETE.)

**ILA CALCULATIONS**

TRACT	VIA AREA	7.5% ILA REQUIRED	ILA PROVIDED
TRACT 1:	153,056 SF	11,479 SF	38,503 SF
TRACT 2:	228,020 SF	17,102 SF	41,253 SF
TRACT 3:	182,484 SF	13,686 SF	19,474 SF
TRACT 4:	148,497 SF	11,137 SF	16,638 SF
TRACT 5:	335,683 SF	25,176 SF	30,846 SF

**IMPERVIOUS AREA CALCULATIONS**

SITE AREA:	3,198,445 SF (73.43 ACS)
EXISTING IMPERVIOUS AREA:	236,224 SF (5.42 ACS)
PROPOSED IMPERVIOUS AREA:	2,189,908 SF (60.27 ACS)
DIFFERENCE:	+1,953,684 SF (44.82 ACS)

**GENERAL NOTES**

- THE DEVELOPMENT LIES IN THE ANCHORAGE/MIDTOWN & JEFFERSONTOWN FIRE DISTRICTS.
- SIDEWALKS AND ROADWAY PAVEMENT WIDTHS WILL BE PROVIDED AS REQUIRED IN CHAPTER 6 OF THE LAND DEVELOPMENT CODE.
- COMPATIBLE UTILITY LINES (ELECTRIC, PHONE, CABLE) SHALL BE PLACED IN A COMMON TRENCH UNLESS OTHERWISE REQUIRED BY APPROPRIATE AGENCIES.
- ALL DIMENSIONS SHOWN IN PAVED AREAS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT UNLESS SHOWN OTHERWISE.
- ALL PARKING AREAS, INCLUDING ISLANDS SHALL BE OUTLINED WITH MIN. 6" HT. & W. CONCRETE CURB UNLESS NOTED OTHERWISE.
- ALL HANDICAP SITE FEATURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACCEPTABLE "A.D.A." REQUIREMENTS FOR HANDICAP ACCESSIBILITY.
- ALL SIGNS SHALL BE IN ACCORDANCE WITH CHAPTER 8 OF THE LDC.
- CONSTRUCTION PLANS, BOND & PERMIT ARE REQUIRED BY METRO PUBLIC WORKS PRIOR TO CONSTRUCTION APPROVAL.
- MITIGATION MEASURES FOR DUST CONTROL SHALL BE IN PLACE DURING CONSTRUCTION TO PREVENT FUGITIVE PARTICULATE EMISSIONS FROM REACHING EXISTING ROADS AND NEIGHBORING PROPERTIES.
- ALL SERVICE STRUCTURES SHALL BE SCREENED IN ACCORDANCE WITH CHAPTER 10 OF THE LAND DEVELOPMENT CODE. SERVICE STRUCTURES INCLUDE BUT ARE NOT LIMITED TO: PROPANE TANKS, DUMPSTERS, HVAC UNITS, ELECTRIC TRANSFORMERS AND TELECOM BOXES.
- DUMPSTERS WILL BE LOCATED INSIDE THE BUILDING.
- BIKE PARKING WILL BE LOCATED INSIDE THE BUILDING OR ON BIKE RACKS AS SHOWN. FINAL DECISIONS WILL BE MADE ONCE TENANTS ARE KNOWN.
- STREET TREES WILL BE PROVIDED ON ALL PUBLIC RIGHTS-OF-WAY PER LDC CHAPTER 10 REQUIREMENTS.
- ALL EXISTING DRIVES AND STRUCTURES TO BE REMOVED.
- A FIELD RECONNAISSANCE WAS PERFORMED ON JULY 29, 2022 BY TERRACON SENIOR STAFF GEOLOGIST, SEAN VANDERHOFF, DURING THE FIELD RECONNAISSANCE, TERRACON DID NOT IDENTIFY ANY KARST FEATURES.

**MSD NOTES**

- SANITARY SEWER SERVICE PROVIDED BY LATERAL EXTENSION, SUBJECT TO FEES AND ANY APPLICABLE CHARGES, INCLUDING BUT NOT LIMITED TO RECAPTURE FEES.
- EROSION & SILT CONTROL: A SOIL AND SEDIMENTATION CONTROL PLAN SHALL BE DEVELOPED AND IMPLEMENTED IN ACCORDANCE WITH MSO AND THE USDA NATURAL RESOURCES CONSERVATION SERVICE RECOMMENDATIONS. DOCUMENTATION OF MSD'S APPROVAL OF THE PLAN SHALL BE SUBMITTED TO THE PLANNING COMMISSION PRIOR TO GRADING AND CONSTRUCTION ACTIVITIES.

**EPSC CONCEPT PLAN**

- INSTALL SILT FENCE AND TEMPORARY CONSTRUCTION ENTRANCE.
- EXISTING TEMPORARY SEDIMENT BASIN SHALL BE CHECKED & MAINTAINED THROUGHOUT PROJECT.
- BEGIN SITEWORK GRADING AND STORM SEWER CONSTRUCTION.
- INSTALL INLET PROTECTION.
- REMOVE TEMPORARY SEDIMENT BASIN & STABILIZE SITE.
- REMOVE SILT FENCE AND INLET PROTECTION ONCE VEGETATION IS ESTABLISHED.

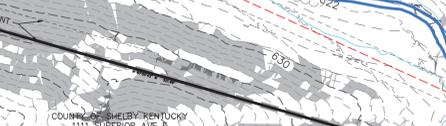
**UTILITY NOTES**

- ALL UTILITIES ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR OR SUBCONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER "BUILD" (TOLL FREE PHONE NO. 1-800-382-5544) 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. THIS NUMBER WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF EXISTING BELOW GROUND UTILITIES (I.E. CABLES, ELECTRIC WIRES, GAS AND WATER LINES). THE CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UTILITY REQUIREMENTS SET FORTH ON THE PLANS AND IN THE TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, NATURE, AND STATUS OF ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL EXTEND, ADJUST OR RECONSTRUCT TO THE SIZE AND LOCATION AS SHOWN ON THE ARCHITECTS PLANS.

**ADDITIONAL REQUESTS**

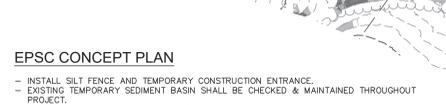
- A WAIVER OF LDC 10.2.4 TO ALLOW A UTILITY EASEMENT TO ENDOACH MORE THAN 50% INTO THE LANDSCAPE BUFFER AREA.
- A WAIVER OF LDC 10.2.4 TO WAIVE THE PROPERTY PERIMETER LANDSCAPE BUFFER ON THE EAST SIDE OF TRACT 3 AND WEST SIDE OF TRACT 4 TO ACCOMMODATE A SHARED DRIVE.

**AMENITY AREA DETAIL**



SCALE 1" = 20'

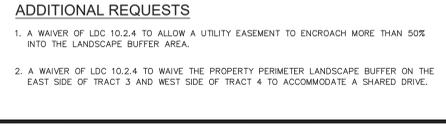
**LOCATION MAP**



**LOT REQUIREMENTS**

MIN. LOT AREA	MIN. LOT WIDTH	FRONT YARD	REAR YARD	BUILDING HEIGHT	MAX. FAR
NONE	25'	25'	25'	50'	1.0

**TYPICAL PARKING SPACES**



**LEGEND**

- PROP. STORM SEWER
- EX. SANITARY SEWER
- PROP. SANITARY SEWER
- EX. GAS LINE
- EX. OVERHEAD UTILITY LINE
- EX. UTILITY POLE
- EX. WATER LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- EX. ZONING BOUNDARY
- PROP. FLOW ARROW
- LIMITS OF DISTURBANCE
- 20-30% SLOPES
- 30%+ SLOPES

**SABAK, WILSON & LINGO, INC.**  
ENGINEERS, LANDSCAPE ARCHITECTS & PLANNERS  
LOUISVILLE, KENTUCKY 40202  
608 S. THIRD STREET, THE HENRY CLAY

**DATE:** 07/07/22  
**NO.:** 1  
**REVISION:** 1  
**FORMAL FILING:** 08/02/22  
**REVISED PER AGENCY COMMENTS:** 11/07/22  
**REVISED PER AGENCY COMMENTS:** 11/07/22  
**REVISED PER AGENCY COMMENTS:** 02/07/23

**DATE:** 06/03/2022  
**SCALE:** 1"=100'  
**PROJECT TITLE:** DETAILED DEVELOPER STATION  
**SHEET TITLE:** XEBEC TUCKER STATION  
**JOB NO.:** 3294  
**DRAWING NO.:** DDP

**PROJECT TITLE:** DETAILED DEVELOPER STATION  
**SHEET TITLE:** XEBEC TUCKER STATION  
**JOB NO.:** 3294  
**DRAWING NO.:** DDP

**DATE:** 06/03/2022  
**SCALE:** 1"=100'  
**PROJECT TITLE:** DETAILED DEVELOPER STATION  
**SHEET TITLE:** XEBEC TUCKER STATION  
**JOB NO.:** 3294  
**DRAWING NO.:** DDP

**DATE:** 06/03/2022  
**SCALE:** 1"=100'  
**PROJECT TITLE:** DETAILED DEVELOPER STATION  
**SHEET TITLE:** XEBEC TUCKER STATION  
**JOB NO.:** 3294  
**DRAWING NO.:** DDP

## **APPENDIX B: TRAFFIC DATA**

# Cummins Consulting Services, LLC

swcummins@ccsdata.com 859-361-2589

"2022 ... Data Collection simplified"

Partly Sunny  
Schools in Session

File Name : Plantside\_Drive\_at\_Schutte\_Station\_Place\_05-19-2022

Site Code : Site 2 - Thursday

Start Date : 5/19/2022

Page No : 1

## Groups Printed- Cars - Buses - Trucks

Start Time	Schutte Station Place From North					Plantside Drive From East					Schutte Station Place From South					Plantside Drive From West					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
07:00 AM	0	0	1	0	1	0	23	0	0	23	0	0	0	0	0	5	29	0	0	34	58
07:15 AM	0	0	0	0	0	1	14	0	0	15	1	0	0	0	1	3	28	7	0	38	54
07:30 AM	0	0	4	0	4	0	25	0	0	25	0	0	0	0	0	3	44	4	0	51	80
07:45 AM	0	0	1	0	1	1	27	0	0	28	0	0	0	0	0	0	43	6	0	49	78
<b>Total</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>2</b>	<b>89</b>	<b>0</b>	<b>0</b>	<b>91</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>11</b>	<b>144</b>	<b>17</b>	<b>0</b>	<b>172</b>	<b>270</b>
08:00 AM	0	0	1	0	1	1	25	2	0	28	0	0	0	0	0	5	38	9	0	52	81
08:15 AM	0	0	0	0	0	0	32	0	0	32	1	0	0	0	1	3	46	2	0	51	84
08:30 AM	0	0	1	0	1	0	17	0	0	17	0	0	0	0	0	1	43	0	0	44	62
08:45 AM	0	0	0	0	0	0	29	1	0	30	0	0	0	0	0	3	37	1	0	41	71
<b>Total</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>103</b>	<b>3</b>	<b>0</b>	<b>107</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>164</b>	<b>12</b>	<b>0</b>	<b>188</b>	<b>298</b>
04:00 PM	0	0	0	0	0	0	45	1	0	46	4	0	1	0	5	0	35	1	0	36	87
04:15 PM	2	0	3	0	5	0	35	0	0	35	1	0	0	0	1	1	42	0	0	43	84
04:30 PM	0	0	3	0	3	0	46	0	0	46	5	0	0	0	5	2	31	1	0	34	88
04:45 PM	0	0	5	0	5	0	29	0	0	29	6	0	0	0	6	0	28	0	0	28	68
<b>Total</b>	<b>2</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>155</b>	<b>1</b>	<b>0</b>	<b>156</b>	<b>16</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>17</b>	<b>3</b>	<b>136</b>	<b>2</b>	<b>0</b>	<b>141</b>	<b>327</b>
05:00 PM	0	0	1	0	1	0	53	0	0	53	1	0	1	0	2	0	31	0	0	31	87
05:15 PM	0	0	1	0	1	0	21	0	0	21	1	0	0	0	1	1	39	0	0	40	63
05:30 PM	0	0	3	0	3	0	39	0	0	39	3	0	0	0	3	0	50	0	0	50	95
05:45 PM	0	0	3	0	3	0	30	0	0	30	1	0	0	0	1	1	45	0	0	46	80
<b>Total</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>143</b>	<b>0</b>	<b>0</b>	<b>143</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>165</b>	<b>0</b>	<b>0</b>	<b>167</b>	<b>325</b>
<b>Grand Total</b>	<b>2</b>	<b>0</b>	<b>27</b>	<b>0</b>	<b>29</b>	<b>3</b>	<b>490</b>	<b>4</b>	<b>0</b>	<b>497</b>	<b>24</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>26</b>	<b>28</b>	<b>609</b>	<b>31</b>	<b>0</b>	<b>668</b>	<b>1220</b>
Apprch %	6.9	0	93.1	0		0.6	98.6	0.8	0		92.3	0	7.7	0		4.2	91.2	4.6	0		
Total %	0.2	0	2.2	0	2.4	0.2	40.2	0.3	0	40.7	2	0	0.2	0	2.1	2.3	49.9	2.5	0	54.8	
Cars	2	0	22	0	24	3	426	2	0	431	22	0	2	0	24	22	491	30	0	543	1022
% Cars	100	0	81.5	0	82.8	100	86.9	50	0	86.7	91.7	0	100	0	92.3	78.6	80.6	96.8	0	81.3	83.8
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Buses	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.1	0.2
Trucks	0	0	5	0	5	0	63	2	0	65	2	0	0	0	2	6	117	1	0	124	196
% Trucks	0	0	18.5	0	17.2	0	12.9	50	0	13.1	8.3	0	0	0	7.7	21.4	19.2	3.2	0	18.6	16.1

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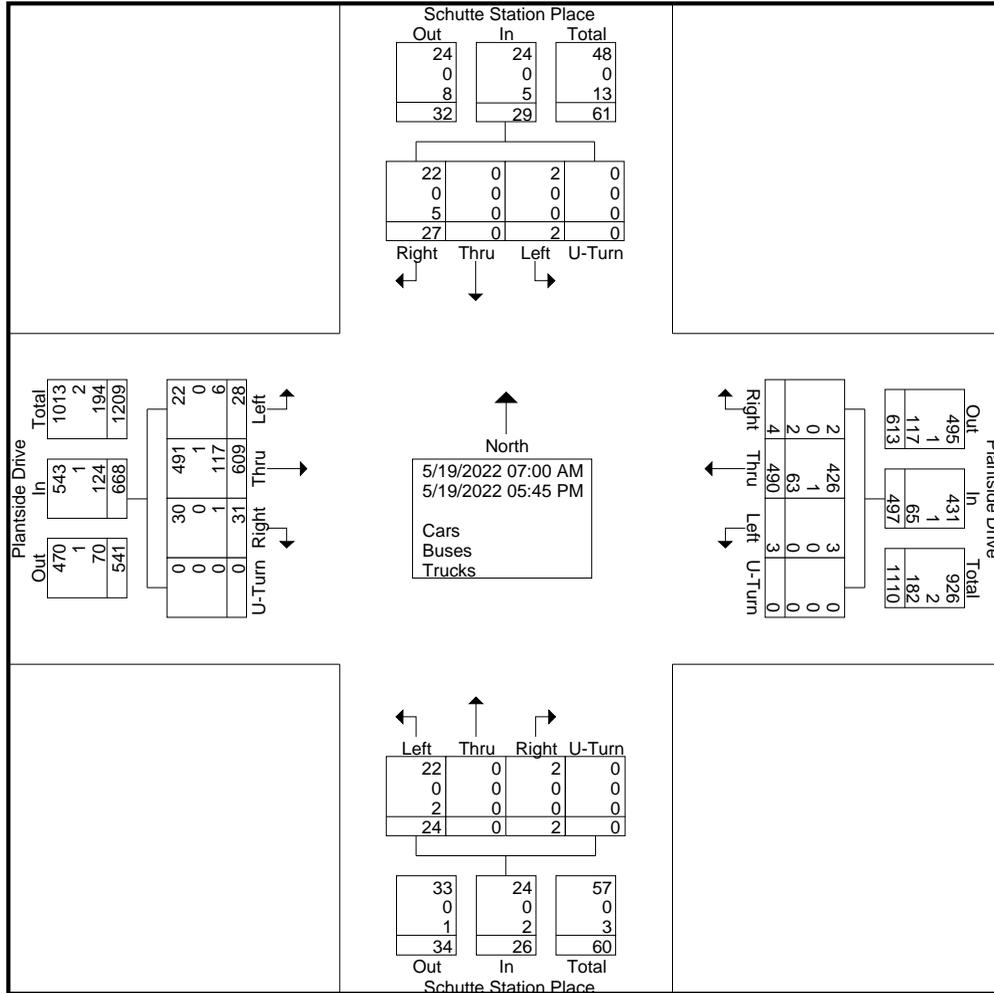
"2022 ... Data Collection simplified"

File Name : Plantside\_Drive\_at\_Schutte\_Station\_Place\_05-19-2022

Site Code : Site 2 - Thursday

Start Date : 5/19/2022

Page No : 2



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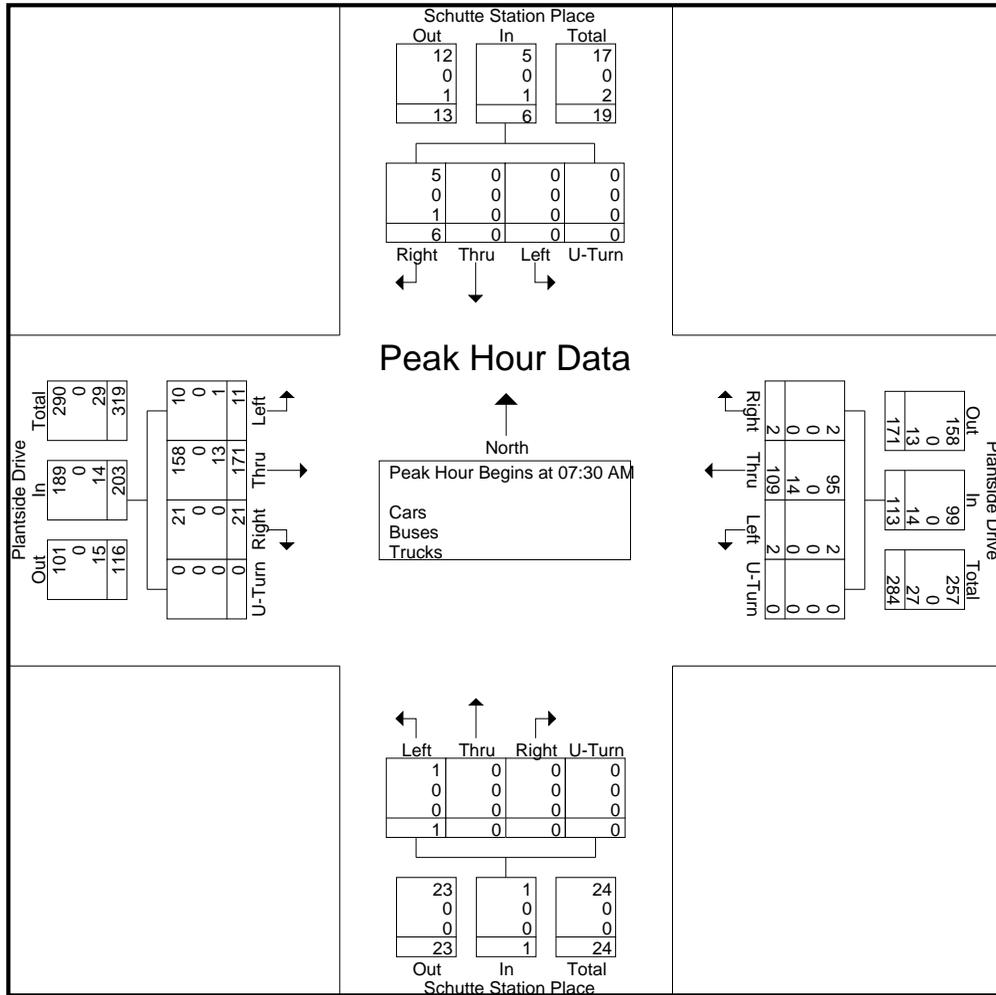
File Name : Plantside\_Drive\_at\_Schutte\_Station\_Place\_05-19-2022

Site Code : Site 2 - Thursday

Start Date : 5/19/2022

Page No : 3

Start Time	Schutte Station Place From North					Plantside Drive From East					Schutte Station Place From South					Plantside Drive From West					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	4	0	4	0	25	0	0	25	0	0	0	0	0	3	44	4	0	51	80
07:45 AM	0	0	1	0	1	1	27	0	0	28	0	0	0	0	0	0	43	6	0	49	78
08:00 AM	0	0	1	0	1	1	25	2	0	28	0	0	0	0	0	5	38	9	0	52	81
08:15 AM	0	0	0	0	0	0	32	0	0	32	1	0	0	0	1	3	46	2	0	51	84
Total Volume	0	0	6	0	6	2	109	2	0	113	1	0	0	0	1	11	171	21	0	203	323
% App. Total	0	0	100	0		1.8	96.5	1.8	0		100	0	0	0		5.4	84.2	10.3	0		
PHF	.000	.000	.375	.000	.375	.500	.852	.250	.000	.883	.250	.000	.000	.000	.250	.550	.929	.583	.000	.976	.961
Cars	0	0	5	0	5	2	95	2	0	99	1	0	0	0	1	10	158	21	0	189	294
% Cars	0	0	83.3	0	83.3	100	87.2	100	0	87.6	100	0	0	0	100	90.9	92.4	100	0	93.1	91.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	1	0	1	0	14	0	0	14	0	0	0	0	0	1	13	0	0	14	29
% Trucks	0	0	16.7	0	16.7	0	12.8	0	0	12.4	0	0	0	0	0	9.1	7.6	0	0	6.9	9.0



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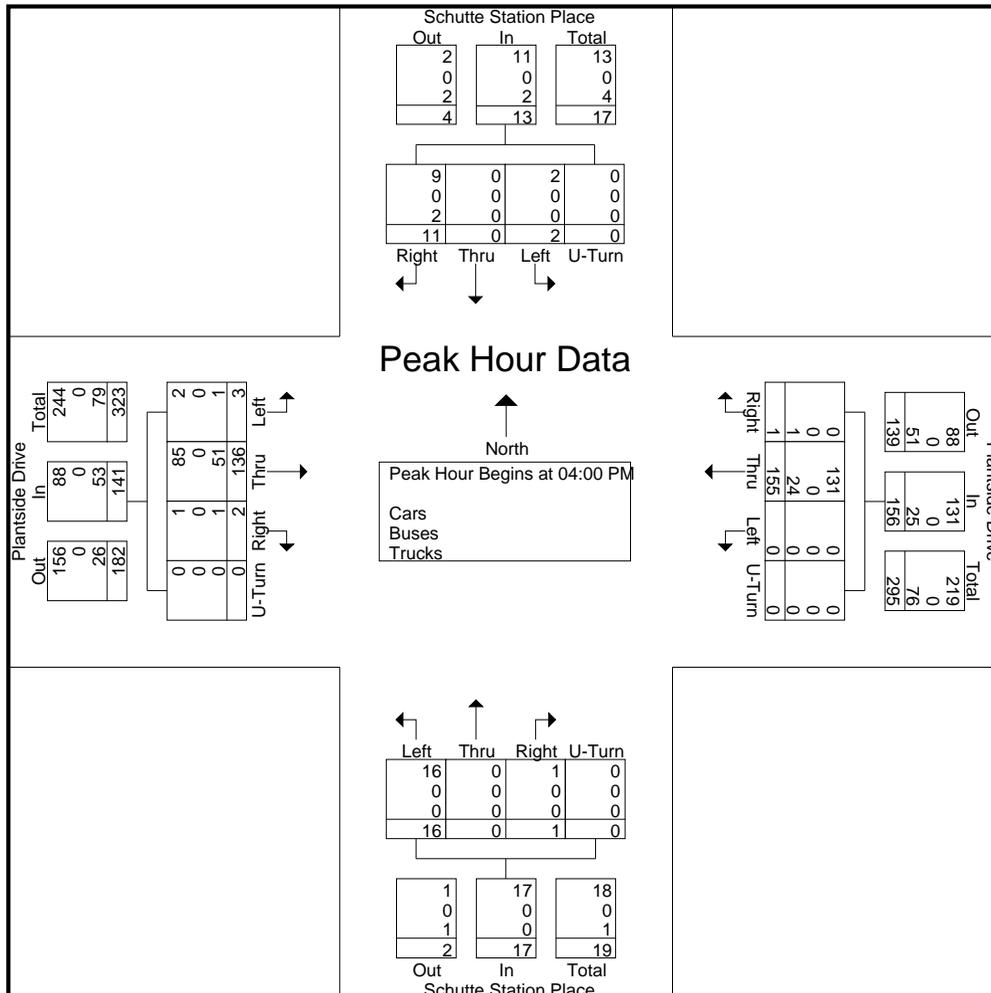
File Name : Plantside\_Drive\_at\_Schutte\_Station\_Place\_05-19-2022

Site Code : Site 2 - Thursday

Start Date : 5/19/2022

Page No : 4

Start Time	Schutte Station Place From North					Plantside Drive From East					Schutte Station Place From South					Plantside Drive From West					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	45	1	0	46	4	0	1	0	5	0	35	1	0	36	87
04:15 PM	2	0	3	0	5	0	35	0	0	35	1	0	0	0	1	1	42	0	0	43	84
04:30 PM	0	0	3	0	3	0	46	0	0	46	5	0	0	0	5	2	31	1	0	34	88
04:45 PM	0	0	5	0	5	0	29	0	0	29	6	0	0	0	6	0	28	0	0	28	68
Total Volume	2	0	11	0	13	0	155	1	0	156	16	0	1	0	17	3	136	2	0	141	327
% App. Total	15.4	0	84.6	0		0	99.4	0.6	0		94.1	0	5.9	0		2.1	96.5	1.4	0		
PHF	.250	.000	.550	.000	.650	.000	.842	.250	.000	.848	.667	.000	.250	.000	.708	.375	.810	.500	.000	.820	.929
Cars	2	0	9	0	11	0	131	0	0	131	16	0	1	0	17	2	85	1	0	88	247
% Cars	100	0	81.8	0	84.6	0	84.5	0	0	84.0	100	0	100	0	100	66.7	62.5	50.0	0	62.4	75.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	2	0	2	0	24	1	0	25	0	0	0	0	0	1	51	1	0	53	80
% Trucks	0	0	18.2	0	15.4	0	15.5	100	0	16.0	0	0	0	0	0	33.3	37.5	50.0	0	37.6	24.5



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Partly Sunny  
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File Name : Tucker\_Station\_Road\_at\_Pope\_Lick\_Road\_05-19-2022

Site Code : Site 3 - Thursday

Start Date : 5/19/2022

Page No : 1

### Groups Printed- Cars - Buses - Trucks

Start Time	Tucker Station Road From North				Pope Lick Road From East				Pope Lick Road From West				Int. Total
	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru	U-Turn	App. Total	
07:00 AM	6	17	0	23	38	20	0	58	15	8	0	23	104
07:15 AM	6	40	0	46	86	19	0	105	13	13	0	26	177
07:30 AM	7	38	0	45	84	24	0	108	22	17	0	39	192
07:45 AM	3	53	0	56	122	31	0	153	20	21	0	41	250
<b>Total</b>	<b>22</b>	<b>148</b>	<b>0</b>	<b>170</b>	<b>330</b>	<b>94</b>	<b>0</b>	<b>424</b>	<b>70</b>	<b>59</b>	<b>0</b>	<b>129</b>	<b>723</b>
08:00 AM	3	45	0	48	100	32	0	132	16	18	0	34	214
08:15 AM	3	38	0	41	68	18	0	86	15	16	0	31	158
08:30 AM	7	31	0	38	48	18	0	66	23	15	0	38	142
08:45 AM	6	20	0	26	46	11	0	57	14	5	0	19	102
<b>Total</b>	<b>19</b>	<b>134</b>	<b>0</b>	<b>153</b>	<b>262</b>	<b>79</b>	<b>0</b>	<b>341</b>	<b>68</b>	<b>54</b>	<b>0</b>	<b>122</b>	<b>616</b>
04:00 PM	22	42	0	64	20	14	0	34	45	86	0	131	229
04:15 PM	30	36	0	66	16	12	0	28	42	67	0	109	203
04:30 PM	22	36	0	58	17	9	0	26	37	111	1	149	233
04:45 PM	30	47	0	77	14	19	0	33	54	104	0	158	268
<b>Total</b>	<b>104</b>	<b>161</b>	<b>0</b>	<b>265</b>	<b>67</b>	<b>54</b>	<b>0</b>	<b>121</b>	<b>178</b>	<b>368</b>	<b>1</b>	<b>547</b>	<b>933</b>
05:00 PM	31	47	0	78	20	16	0	36	64	121	0	185	299
05:15 PM	20	45	0	65	21	21	0	42	62	93	0	155	262
05:30 PM	29	51	0	80	34	10	0	44	48	89	1	138	262
05:45 PM	21	42	0	63	18	11	0	29	38	65	0	103	195
<b>Total</b>	<b>101</b>	<b>185</b>	<b>0</b>	<b>286</b>	<b>93</b>	<b>58</b>	<b>0</b>	<b>151</b>	<b>212</b>	<b>368</b>	<b>1</b>	<b>581</b>	<b>1018</b>
<b>Grand Total</b>	<b>246</b>	<b>628</b>	<b>0</b>	<b>874</b>	<b>752</b>	<b>285</b>	<b>0</b>	<b>1037</b>	<b>528</b>	<b>849</b>	<b>2</b>	<b>1379</b>	<b>3290</b>
Apprch %	28.1	71.9	0		72.5	27.5	0		38.3	61.6	0.1		
Total %	7.5	19.1	0	26.6	22.9	8.7	0	31.5	16	25.8	0.1	41.9	
Cars	243	618	0	861	738	279	0	1017	518	839	2	1359	3237
% Cars	98.8	98.4	0	98.5	98.1	97.9	0	98.1	98.1	98.8	100	98.5	98.4
Buses	2	1	0	3	0	3	0	3	2	2	0	4	10
% Buses	0.8	0.2	0	0.3	0	1.1	0	0.3	0.4	0.2	0	0.3	0.3
Trucks	1	9	0	10	14	3	0	17	8	8	0	16	43
% Trucks	0.4	1.4	0	1.1	1.9	1.1	0	1.6	1.5	0.9	0	1.2	1.3

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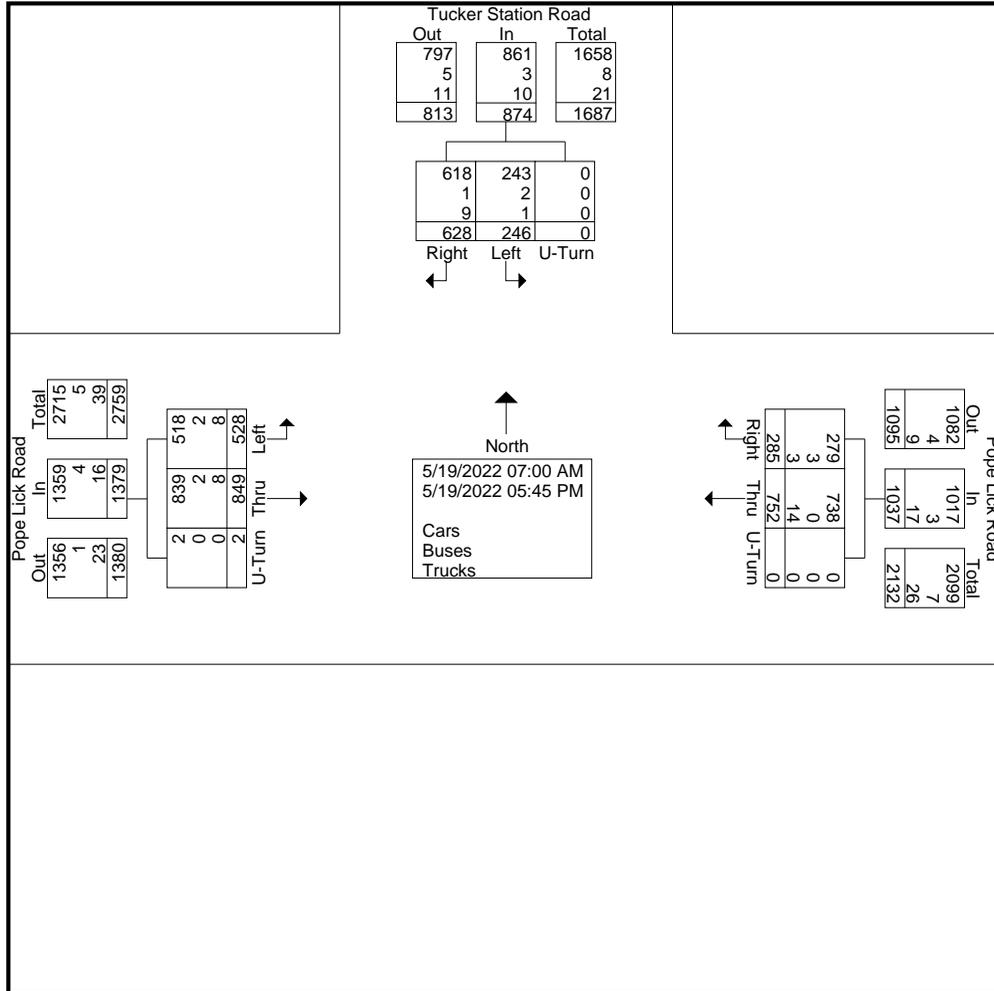
"2022 ... Data Collection simplified"

File Name : Tucker\_Station\_Road\_at\_Pope\_Lick\_Road\_05-19-2022

Site Code : Site 3 - Thursday

Start Date : 5/19/2022

Page No : 2



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swcummins@ccsdata.com 859-361-2589

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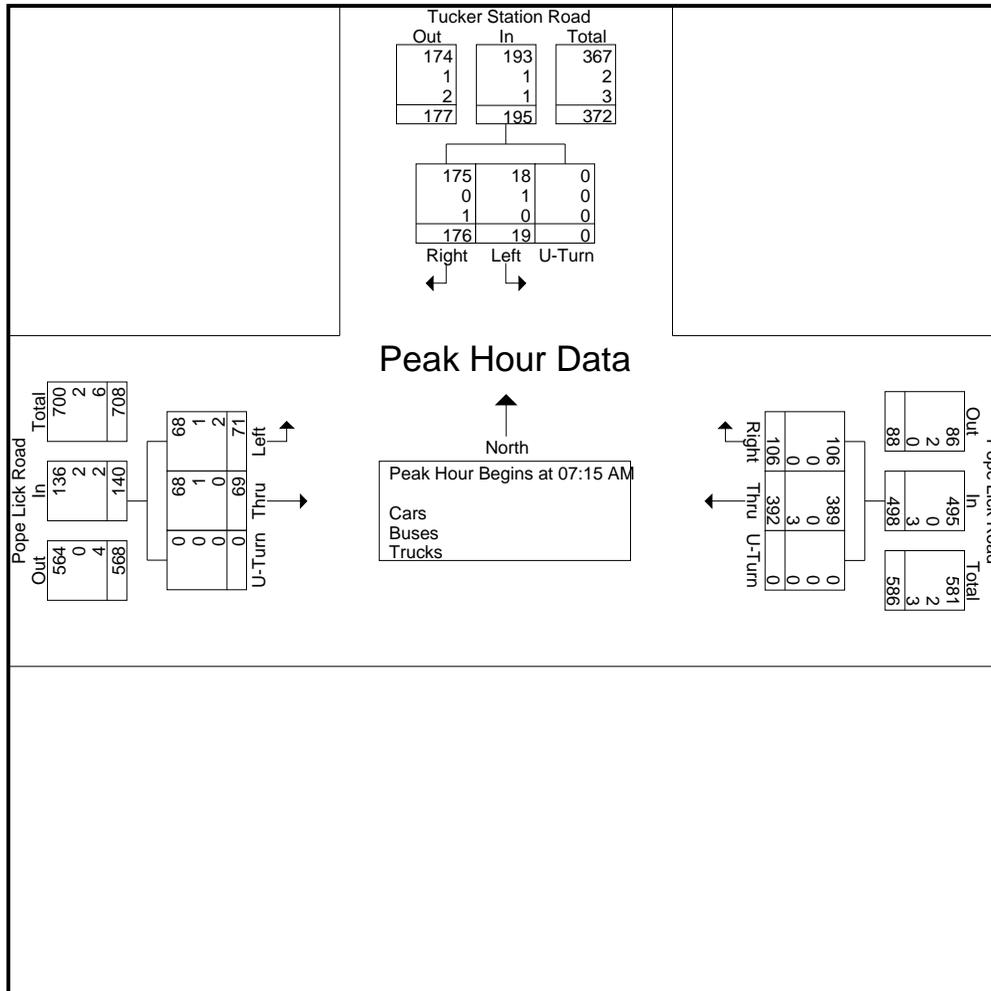
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Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
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07:15 AM	6	40	0	46	86	19	0	105	13	13	0	26	177
07:30 AM	7	38	0	45	84	24	0	108	22	17	0	39	192
07:45 AM	3	53	0	56	122	31	0	153	20	21	0	41	250
08:00 AM	3	45	0	48	100	32	0	132	16	18	0	34	214
Total Volume	19	176	0	195	392	106	0	498	71	69	0	140	833
% App. Total	9.7	90.3	0		78.7	21.3	0		50.7	49.3	0		
PHF	.679	.830	.000	.871	.803	.828	.000	.814	.807	.821	.000	.854	.833
Cars	18	175	0	193	389	106	0	495	68	68	0	136	824
% Cars	94.7	99.4	0	99.0	99.2	100	0	99.4	95.8	98.6	0	97.1	98.9
Buses	1	0	0	1	0	0	0	0	1	1	0	2	3
% Buses	5.3	0	0	0.5	0	0	0	0	1.4	1.4	0	1.4	0.4
Trucks	0	1	0	1	3	0	0	3	2	0	0	2	6
% Trucks	0	0.6	0	0.5	0.8	0	0	0.6	2.8	0	0	1.4	0.7



# Cummins Consulting Services, LLC

swcummins@ccsdata.com 859-361-2589

"2022 ... Data Collection simplified"

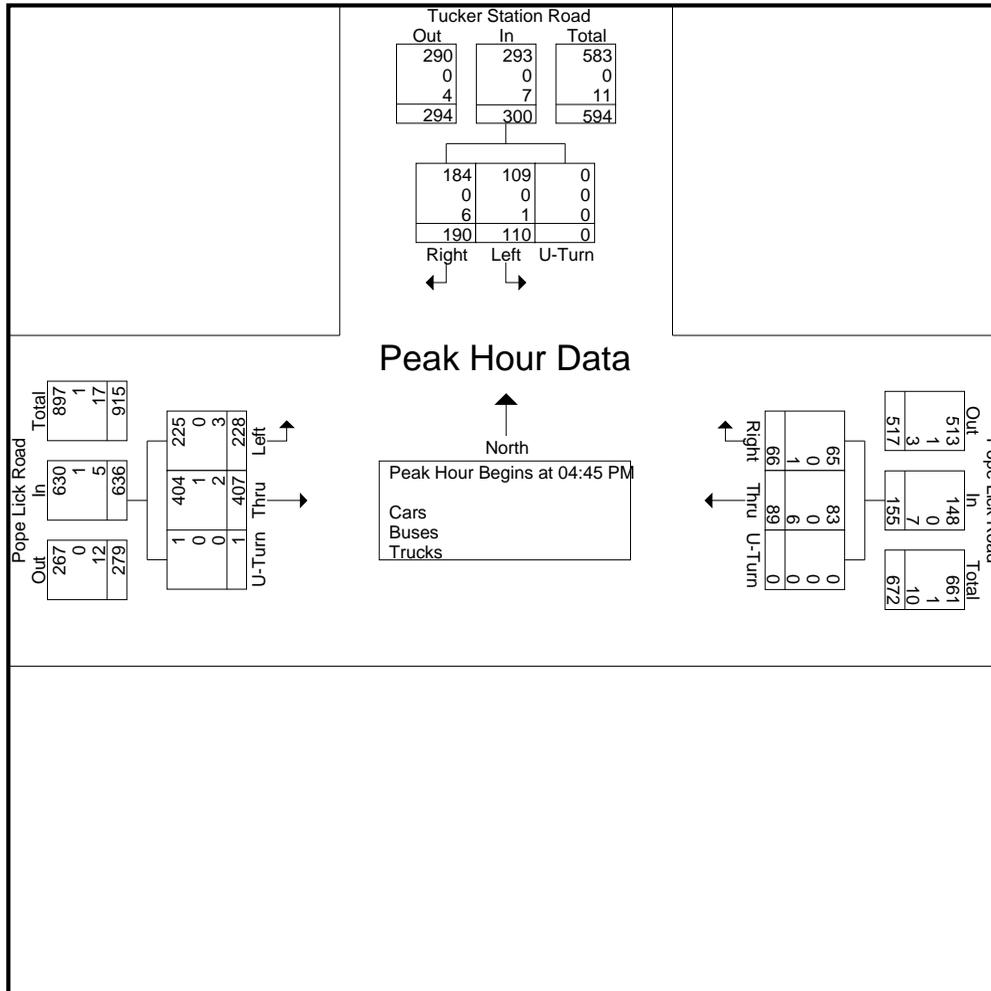
File Name : Tucker\_Station\_Road\_at\_Pope\_Lick\_Road\_05-19-2022

Site Code : Site 3 - Thursday

Start Date : 5/19/2022

Page No : 4

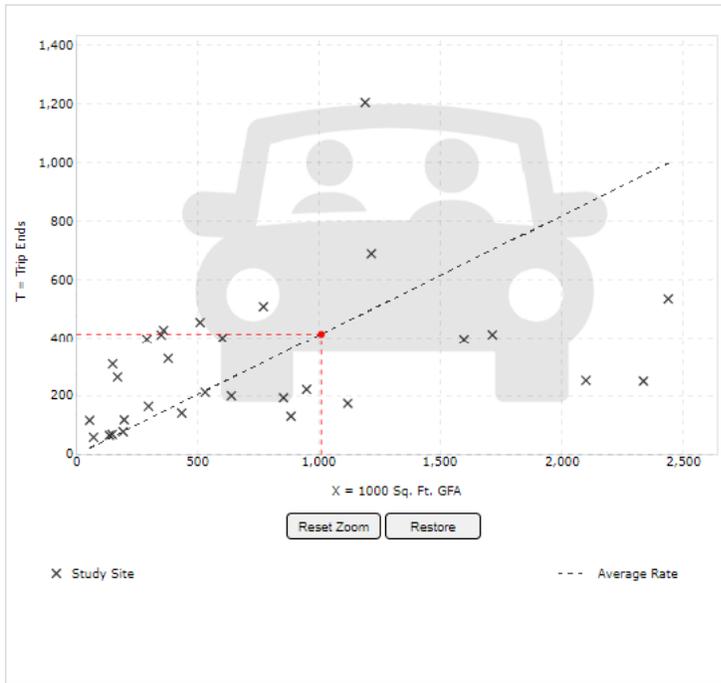
Start Time	Tucker Station Road From North				Pope Lick Road From East			Pope Lick Road From West			Int. Total		
	Left	Right	U-Turn	App. Total	Thru	Right	U-Turn	App. Total	Left	Thru		U-Turn	App. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	30	47	0	77	14	19	0	33	54	104	0	158	268
05:00 PM	31	47	0	78	20	16	0	36	64	121	0	185	299
05:15 PM	20	45	0	65	21	21	0	42	62	93	0	155	262
05:30 PM	29	51	0	80	34	10	0	44	48	89	1	138	262
Total Volume	110	190	0	300	89	66	0	155	228	407	1	636	1091
% App. Total	36.7	63.3	0		57.4	42.6	0		35.8	64	0.2		
PHF	.887	.931	.000	.938	.654	.786	.000	.881	.891	.841	.250	.859	.912
Cars	109	184	0	293	83	65	0	148	225	404	1	630	1071
% Cars	99.1	96.8	0	97.7	93.3	98.5	0	95.5	98.7	99.3	100	99.1	98.2
Buses	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0.1
Trucks	1	6	0	7	6	1	0	7	3	2	0	5	19
% Trucks	0.9	3.2	0	2.3	6.7	1.5	0	4.5	1.3	0.5	0	0.8	1.7



## **APPENDIX C: TRIP GENERATION DATA**

### ITE Land Use Code 210 Single Family Residential (AM Peak)

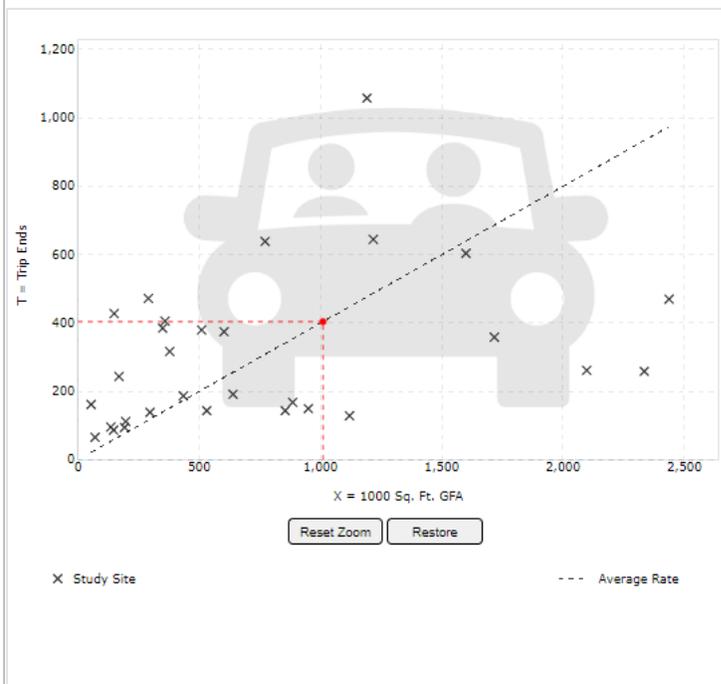
Data Plot and Equation



DATA STATISTICS	
Land Use:	Industrial Park (130) <a href="#">Click for Description and Data Plots</a>
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday AM Peak Hour of Generator
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	30
Avg. 1000 Sq. Ft. GFA:	757
Average Rate:	0.41
Range of Rates:	0.11 - 2.13
Standard Deviation:	0.37
Fitted Curve Equation:	Not Given
R <sup>2</sup> :	****
Directional Distribution:	87% entering, 13% exiting
Calculated Trip Ends:	Average Rate: 414 (Total), 300 (Entry), 54 (Exit)

### ITE Land Use Code 210 Single Family Residential (PM Peak)

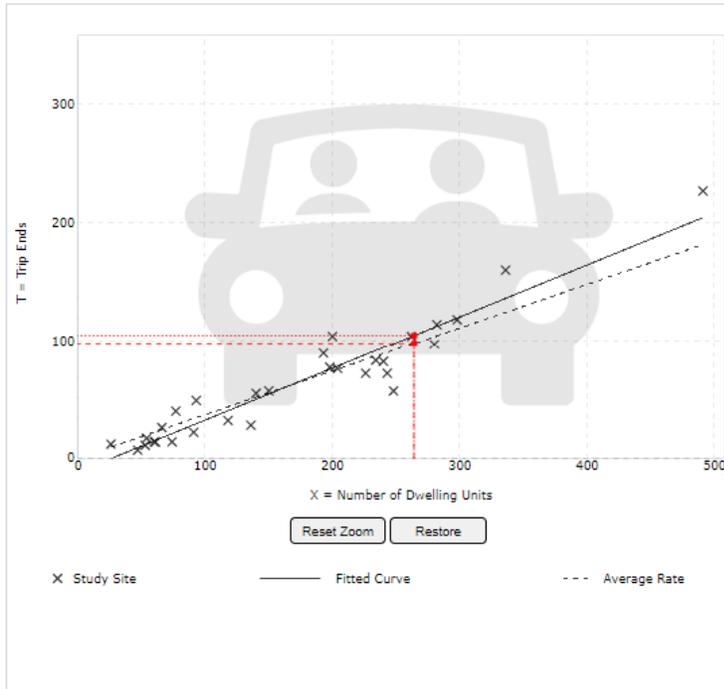
Data Plot and Equation



DATA STATISTICS	
Land Use:	Industrial Park (130) <a href="#">Click for Description and Data Plots</a>
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday PM Peak Hour of Generator
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	30
Avg. 1000 Sq. Ft. GFA:	757
Average Rate:	0.40
Range of Rates:	0.11 - 2.95
Standard Deviation:	0.41
Fitted Curve Equation:	Not Given
R <sup>2</sup> :	****
Directional Distribution:	21% entering, 79% exiting
Calculated Trip Ends:	Average Rate: 404 (Total), 85 (Entry), 319 (Exit)

## ITE Land Use Code 221 Multi Family Housing (AM Peak)

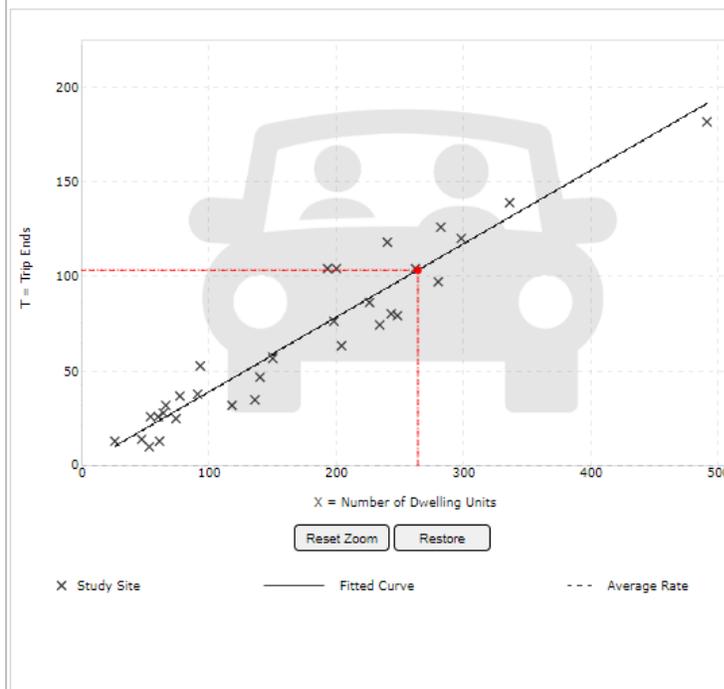
Data Plot and Equation



DATA STATISTICS	
Land Use:	Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) <a href="#">Click for Description and Data Plots</a>
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	30
Avg. Num. of Dwelling Units:	173
Average Rate:	0.37
Range of Rates:	0.15 - 0.63
Standard Deviation:	0.09
Fitted Curve Equation:	$T = 0.44(X) - 11.61$
R <sup>2</sup> :	0.91
Directional Distribution:	23% entering, 77% exiting
Calculated Trip Ends:	Average Rate: 98 (Total), 22 (Entry), 76 (Exit) Fitted Curve: 105 (Total), 24 (Entry), 81 (Exit)

## ITE Land Use Code 221 Multi Family Housing (PM Peak)

Data Plot and Equation



DATA STATISTICS	
Land Use:	Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) <a href="#">Click for Description and Data Plots</a>
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	31
Avg. Num. of Dwelling Units:	189
Average Rate:	0.39
Range of Rates:	0.19 - 0.57
Standard Deviation:	0.08
Fitted Curve Equation:	$T = 0.39(X) + 0.34$
R <sup>2</sup> :	0.91
Directional Distribution:	61% entering, 39% exiting
Calculated Trip Ends:	Average Rate: 103 (Total), 63 (Entry), 40 (Exit) Fitted Curve: 103 (Total), 63 (Entry), 40 (Exit)

## **APPENDIX D: TRAFFIC FORECASTING REPORT (EXCERPT)**

Count Year	2022	Number of Counts	4
Opening Year	2023		
Design Year	2043	Growth Rate	0.43%
Years Back	15		

KYTC Traffic Count Station #1		KYTC Traffic Count Station #2		KYTC Traffic Count Station #3	
Year	AACT	Paste Count Data Here		Paste Count Data Here	
2022					
2021					
2020					
2019					
2018	7155				
2017					
2016					
2015	6939				
2014	7634				
2013	6701				

Historical Traffic Volume Summary  
Station Details:

Sta ID:	056L91
Sta Type:	Full Coverage
Map:	<a href="#">MapIt</a>
District:	5
County:	Jefferson
Route:	056-CS-1002H -000
Route Desc:	BLUEGRASS PKWY

Begin MP:	2.4740
Begin Desc:	KY 913 (BLANKENBAKER PKWY)
End Mp:	2.9270
End Desc:	TUCKER STATION ROAD
Impact Year:	
Year Added:	2012

Newest Count:

AACT:	7155
Year:	2018
% Single:	
% Combo:	
K Factor:	13
D Factor:	66

Definitions:

Sta. ID - Three digit county number + station number

MP - milepoint

Impact Year - year of significant change to traffic pattern within station segment

AACT - Annual Average Daily Traffic - the annualized average 24-hour volume of vehicles on a segment of roadway

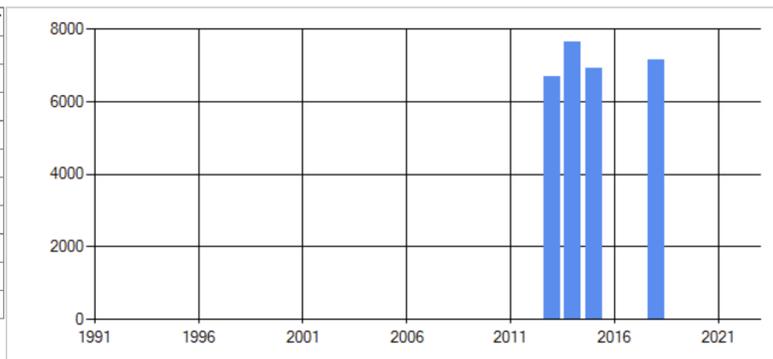
% Single - single unit truck volume as a percentage of the AACT

% Combo - combination truck volume as a percentage of the AACT

K Factor - peak hour volume as a percentage of the AACT

D Factor - percentage of peak hour volume flowing in the peak direction

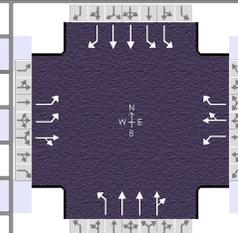
Year	AACT	Year	AACT	Year	AACT
2022		2012		2002	
2021		2011		2001	
2020		2010		2000	
2019		2009		1999	
2018	7155	2008		1998	
2017		2007		1997	
2016		2006		1996	
2015	6939	2005		1995	
2014	7634	2004		1994	
2013	6701	2003		1993	



## **APPENDIX E: CAPACITY ANALYSIS OUTPUT**

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Area Type	Other		
Jurisdiction				PHF	0.92		
Urban Street	Blankenbaker Pkwy	Analysis Date	2/20/2023	Analysis Period	1 > 7:00		
Intersection	Bluegrass Parkway at Bl...	File Name	2023_AM_NB.xus				
Project Description	2023 AM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	342	104	31	79	205	304	133	1072	81	714	1243	773

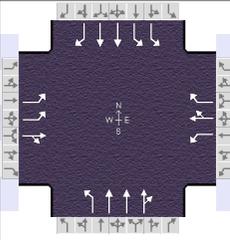
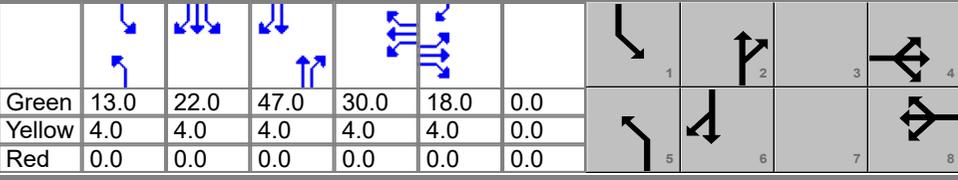
Signal Information				Signal Phases								
Cycle, s	150.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	Off									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	16.0	14.0	52.0	29.0	19.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	0.0	0.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		23.0		33.0	20.0	56.0	38.0	74.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( $MAH$ ), s		3.1		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time ( $g_s$ ), s		17.5		31.0	13.6		34.9	
Green Extension Time ( $g_e$ ), s		0.2		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate ( $v$ ), veh/h	372	147		86	223	330	145	846	407	776	1351	840
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1757	1825		1810	1900	1610	1810	1900	1829	1757	1809	1610
Queue Service Time ( $g_s$ ), s	15.5	11.5		6.0	16.1	29.0	11.6	28.1	28.1	32.9	47.7	66.6
Cycle Queue Clearance Time ( $g_c$ ), s	15.5	11.5		6.0	16.1	29.0	11.6	28.1	28.1	32.9	47.7	66.6
Green Ratio ( $g/C$ )	0.13	0.13		0.19	0.19	0.19	0.11	0.35	0.35	0.23	0.47	0.59
Capacity ( $c$ ), veh/h	445	231		350	367	311	193	1317	634	797	1688	955
Volume-to-Capacity Ratio ( $X$ )	0.835	0.635		0.245	0.607	1.061	0.749	0.642	0.643	0.974	0.800	0.879
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	12.6	10.2		5.2	13.2	25.4	10.8	19.6	19.5	24.2	29.2	45.2
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	64.0	62.2		51.2	55.3	60.5	65.1	41.2	41.2	57.6	34.1	25.9
Incremental Delay ( $d_2$ ), s/veh	16.7	12.6		1.7	7.3	68.2	23.1	2.4	5.0	26.2	4.1	11.4
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	80.7	74.8		52.9	62.5	128.7	88.2	43.6	46.1	83.8	38.1	37.3
Level of Service (LOS)	F	E		D	E	F	F	D	D	F	D	D
Approach Delay, s/veh / LOS	79.0	E		95.4	F		48.9	D		49.8	D	
Intersection Delay, s/veh / LOS	57.6						E					

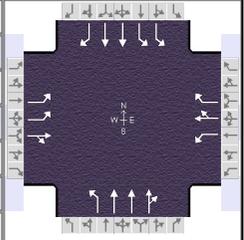
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.76	C	2.30	B	2.11	B
Bicycle LOS Score / LOS	1.34	A	1.54	B	1.26	A	2.94	C

## HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency						Duration, h		0.250													
Analyst			Analysis Date			2/20/2023		Area Type		Other											
Jurisdiction			Time Period					PHF		0.92											
Urban Street			Blankenbaker Pkwy			Analysis Year		2023		Analysis Period					1 > 7:00						
Intersection			Bluegrass Parkway at Bl...			File Name		2023_AM_PostBuild.xus													
Project Description			2023 AM Post Build																		
Demand Information						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand ( v ), veh/h						342	115	31	81	209	310	133	1072	90	791	1243	773				
Signal Information																					
Cycle, s		150.0		Reference Phase		2															
Offset, s		0		Reference Point		End															
Uncoordinated		No		Simult. Gap E/W		Off															
Force Mode		Fixed		Simult. Gap N/S		On															
Green						13.0	22.0	47.0	30.0	18.0	0.0										
Yellow						4.0	4.0	4.0	4.0	4.0	0.0										
Red						0.0	0.0	0.0	0.0	0.0	0.0										
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase								4				8		5		2		1		6	
Case Number								10.0				9.0		2.0		4.0		2.0		3.0	
Phase Duration, s								22.0				34.0		17.0		51.0		43.0		77.0	
Change Period, ( Y+R <sub>c</sub> ), s								4.0				4.0		4.0		4.0		4.0		4.0	
Max Allow Headway ( MAH ), s								3.1				3.2		3.1		0.0		3.1		0.0	
Queue Clearance Time ( g <sub>s</sub> ), s								17.6				32.0		13.9				38.0			
Green Extension Time ( g <sub>e</sub> ), s								0.1				0.0		0.0		0.0		0.4		0.0	
Phase Call Probability								1.00				1.00		1.00				1.00			
Max Out Probability								1.00				1.00		1.00				1.00			
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate ( v ), veh/h						372	159		88	227	337	145	854	409	860	1351	840				
Adjusted Saturation Flow Rate ( s ), veh/h/ln						1757	1830		1810	1900	1610	1810	1900	1822	1757	1809	1610				
Queue Service Time ( g <sub>s</sub> ), s						15.6	12.5		6.1	16.3	30.0	11.9	29.8	29.9	36.0	45.9	64.4				
Cycle Queue Clearance Time ( g <sub>c</sub> ), s						15.6	12.5		6.1	16.3	30.0	11.9	29.8	29.9	36.0	45.9	64.4				
Green Ratio ( g/C )						0.12	0.12		0.20	0.20	0.20	0.09	0.31	0.31	0.26	0.49	0.61				
Capacity ( c ), veh/h						422	220		362	380	322	157	1191	571	914	1761	977				
Volume-to-Capacity Ratio ( X )						0.882	0.723		0.243	0.598	1.046	0.922	0.717	0.717	0.941	0.767	0.860				
Back of Queue ( Q ), ft/ln ( 95 th percentile)																					
Back of Queue ( Q ), veh/ln ( 95 th percentile)						13.0	11.3		5.3	13.3	25.3	12.4	20.9	20.9	25.1	27.9	44.4				
Queue Storage Ratio ( RQ ) ( 95 th percentile)						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Uniform Delay ( d <sub>1</sub> ), s/veh						65.0	63.6		50.5	54.5	60.0	68.0	45.6	45.6	54.4	31.5	24.3				
Incremental Delay ( d <sub>2</sub> ), s/veh						22.4	18.6		1.6	6.8	62.8	53.6	3.7	7.6	18.5	3.3	9.8				
Initial Queue Delay ( d <sub>3</sub> ), s/veh						0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay ( d ), s/veh						87.3	82.2		52.0	61.3	122.8	121.6	49.3	53.2	72.9	34.8	34.1				
Level of Service ( LOS)						F	F		D	E	F	F	D	D	E	C	C				
Approach Delay, s/veh / LOS						85.8		F	91.8		F	57.9		E	45.3		D				
Intersection Delay, s/veh / LOS						57.6						E									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.47		B	2.76		C	2.30		B	2.11		B				
Bicycle LOS Score / LOS						1.36		A	1.56		B	1.26		A	3.00		C				

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Area Type	Other		
Jurisdiction				PHF	0.92		
Urban Street	Blankenbaker Pkwy	Analysis Date	2/20/2023	Analysis Period	1 > 7:00		
Intersection	Bluegrass Parkway at Bl...	File Name	2023_PM_NB.xus				
Project Description	2023 PM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	59	239	135	114	122	590	78	1404	134	500	1256	439

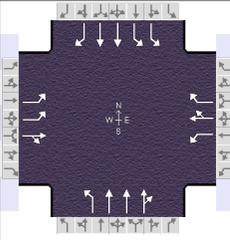
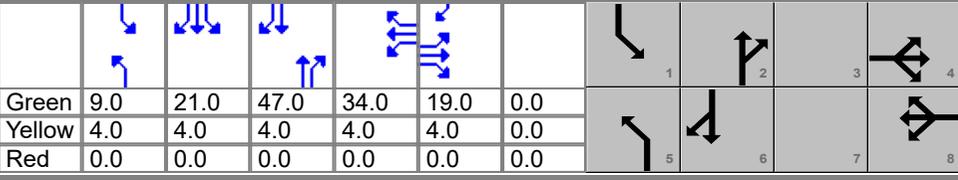
Signal Information												
Cycle, s	170.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	Off									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	14.0	7.0	64.0	39.0	26.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	0.0	0.0	0.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		30.0		43.0	18.0	68.0	29.0	79.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( $MAH$ ), s		3.1		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time ( $g_s$ ), s		28.0		41.0	9.7		27.0	
Green Extension Time ( $g_e$ ), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.18		1.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate ( $v$ ), veh/h	64	407		124	133	641	85	1132	540	543	1365	477
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1757	1784		1810	1900	1610	1810	1900	1812	1757	1809	1610
Queue Service Time ( $g_s$ ), s	2.7	26.0		9.6	9.8	39.0	7.7	45.0	45.0	25.0	57.6	29.1
Cycle Queue Clearance Time ( $g_c$ ), s	2.7	26.0		9.6	9.8	39.0	7.7	45.0	45.0	25.0	57.6	29.1
Green Ratio ( $g/C$ )	0.15	0.15		0.23	0.23	0.23	0.08	0.38	0.38	0.15	0.44	0.59
Capacity ( $c$ ), veh/h	537	273		415	436	369	149	1431	682	517	1596	957
Volume-to-Capacity Ratio ( $X$ )	0.119	1.490		0.298	0.304	1.736	0.569	0.791	0.792	1.052	0.855	0.499
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	2.2	45.8		8.2	8.6	79.2	7.5	29.8	29.7	22.0	35.4	22.9
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	62.1	72.0		54.2	54.3	65.5	75.1	47.1	47.1	72.5	42.6	19.9
Incremental Delay ( $d_2$ ), s/veh	0.5	238.9		1.8	1.8	342.4	14.8	4.5	9.1	53.9	6.1	1.9
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	62.6	310.9		56.0	56.1	407.9	89.9	51.6	56.2	126.4	48.7	21.8
Level of Service ( LOS )	E	F		E	E	F	F	D	E	F	D	C
Approach Delay, s/veh / LOS	277.1	F		307.3	F		54.9	D		61.0	E	
Intersection Delay, s/veh / LOS	117.6						F					

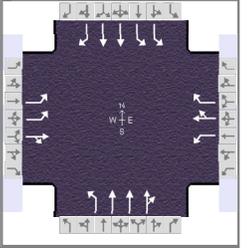
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.48	B	2.76	C	2.30	B	2.12	B
Bicycle LOS Score / LOS	1.26	A	1.97	B	1.45	A	2.46	B

## HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency						Duration, h		0.250													
Analyst			Analysis Date			2/20/2023		Area Type		Other											
Jurisdiction			Time Period					PHF		0.92											
Urban Street			Blankenbaker Pkwy			Analysis Year		2023		Analysis Period					1 > 7:00						
Intersection			Bluegrass Parkway at Bl...			File Name		2023_PM_PostBuild.xus													
Project Description			2023 PM Post Build																		
Demand Information						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand ( v ), veh/h						59	242	135	123	147	626	78	1404	136	518	1256	439				
Signal Information																					
Cycle, s		150.0		Reference Phase		2															
Offset, s		0		Reference Point		End															
Uncoordinated		No		Simult. Gap E/W		Off															
Force Mode		Fixed		Simult. Gap N/S		On															
Green						9.0	21.0	47.0	34.0	19.0	0.0										
Yellow						4.0	4.0	4.0	4.0	4.0	0.0										
Red						0.0	0.0	0.0	0.0	0.0	0.0										
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase								4				8		5		2		1		6	
Case Number								10.0				9.0		2.0		4.0		2.0		3.0	
Phase Duration, s								23.0				38.0		13.0		51.0		38.0		76.0	
Change Period, ( Y+R <sub>c</sub> ), s								4.0				4.0		4.0		4.0		4.0		4.0	
Max Allow Headway ( MAH ), s								3.1				3.3		3.1		0.0		3.1		0.0	
Queue Clearance Time ( g <sub>s</sub> ), s								21.0				36.0		8.9				24.1			
Green Extension Time ( g <sub>e</sub> ), s								0.0				0.0		0.0		0.0		1.1		0.0	
Phase Call Probability								1.00				1.00		1.00				1.00			
Max Out Probability								1.00				1.00		1.00				0.02			
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate ( v ), veh/h						64	410		134	160	680	85	1133	541	563	1365	477				
Adjusted Saturation Flow Rate ( s ), veh/h/ln						1757	1785		1810	1900	1610	1810	1900	1811	1757	1809	1610				
Queue Service Time ( g <sub>s</sub> ), s						2.4	19.0		9.3	10.7	34.0	6.9	43.8	43.8	22.1	47.3	24.8				
Cycle Queue Clearance Time ( g <sub>c</sub> ), s						2.4	19.0		9.3	10.7	34.0	6.9	43.8	43.8	22.1	47.3	24.8				
Green Ratio ( g/C )						0.13	0.13		0.23	0.23	0.23	0.06	0.31	0.31	0.23	0.48	0.61				
Capacity ( c ), veh/h						445	226		410	431	365	109	1191	567	797	1736	977				
Volume-to-Capacity Ratio ( X )						0.144	1.812		0.326	0.371	1.864	0.781	0.952	0.953	0.707	0.786	0.488				
Back of Queue ( Q ), ft/ln ( 95 th percentile)																					
Back of Queue ( Q ), veh/ln ( 95 th percentile)						2.0	51.0		7.9	9.2	84.8	7.9	31.3	32.1	15.6	28.8	19.0				
Queue Storage Ratio ( RQ ) ( 95 th percentile)						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Uniform Delay ( d <sub>1</sub> ), s/veh						58.3	65.5		48.4	49.0	58.0	69.5	50.4	50.4	53.4	32.6	16.5				
Incremental Delay ( d <sub>2</sub> ), s/veh						0.7	382.5		2.1	2.4	399.3	41.6	16.8	27.8	5.2	3.7	1.7				
Initial Queue Delay ( d <sub>3</sub> ), s/veh						0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay ( d ), s/veh						58.9	448.0		50.5	51.4	457.3	111.1	67.2	78.2	58.7	36.2	18.2				
Level of Service ( LOS)						E	F		D	D	F	F	E	E	E	D	B				
Approach Delay, s/veh / LOS						395.4	F		334.9	F		72.7	E		37.9	D					
Intersection Delay, s/veh / LOS						130.5						F									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.47	B		2.76	C		2.30	B		2.11	B					
Bicycle LOS Score / LOS						1.27	A		2.09	B		1.45	A		2.47	B					

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Analysis Date	2/20/2023		
Jurisdiction				Area Type	Other		
Urban Street	Blankenbaker Pkwy			Time Period	PHF		
Intersection	Bluegrass Parkway at Bl...			Analysis Year	2023		
Project Description	2033 AM No Build			Analysis Period	1 > 7:00		
				File Name	2033_AM_NB-2.xus		



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	359	109	33	82	213	316	139	1126	85	748	1305	811

Signal Information				EB						WB				NB				SB			
Cycle, s	150.0	Reference Phase	2																		
Offset, s	0	Reference Point	End																		
Uncoordinated	No	Simult. Gap E/W	Off																		
Force Mode	Fixed	Simult. Gap N/S	On																		
Green	15.0	21.0	49.0	24.0	21.0	0.0															
Yellow	4.0	4.0	4.0	4.0	4.0	0.0															
Red	0.0	0.0	0.0	0.0	0.0	0.0															

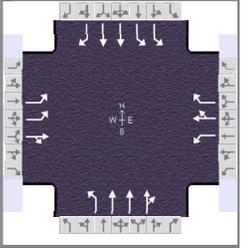
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		25.0		28.0	19.0	53.0	44.0	78.0
Change Period, ( Y+R <sub>c</sub> ), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( MAH ), s		3.1		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time ( g <sub>s</sub> ), s		18.1		26.0	14.3		35.1	
Green Extension Time ( g <sub>e</sub> ), s		0.5		0.0	0.0	0.0	1.2	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		0.45	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate ( v ), veh/h	390	154		89	232	343	151	889	428	813	1418	882
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1757	1824		1810	1900	1610	1810	1900	1829	1757	1809	1610
Queue Service Time ( g <sub>s</sub> ), s	16.1	11.9		6.5	17.5	24.0	12.3	30.8	30.8	33.1	49.0	66.5
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	16.1	11.9		6.5	17.5	24.0	12.3	30.8	30.8	33.1	49.0	66.5
Green Ratio ( g/C )	0.14	0.14		0.16	0.16	0.16	0.10	0.33	0.33	0.27	0.49	0.63
Capacity ( c ), veh/h	492	255		290	304	258	181	1241	597	937	1785	1020
Volume-to-Capacity Ratio ( X )	0.793	0.605		0.308	0.762	1.333	0.835	0.716	0.716	0.868	0.795	0.864
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	12.7	10.3		5.8	14.9	34.0	11.9	21.4	21.5	22.4	29.6	46.7
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	62.4	60.6		55.7	60.3	63.0	66.3	44.4	44.4	52.5	31.7	22.3
Incremental Delay ( d <sub>2</sub> ), s/veh	12.4	10.2		2.7	16.4	174.0	34.4	3.6	7.2	10.7	3.8	9.7
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( d ), s/veh	74.8	70.8		58.4	76.7	237.0	100.7	47.9	51.6	63.2	35.4	32.0
Level of Service ( LOS )	E	E		E	E	F	F	D	D	E	D	C
Approach Delay, s/veh / LOS	73.7	E		157.2	F		54.4	D		41.7	D	
Intersection Delay, s/veh / LOS	61.2						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.76	C	2.30	B	2.11	B
Bicycle LOS Score / LOS	1.39	A	1.58	B	1.29	A	3.06	C

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Analysis Date	2/20/2023		
Jurisdiction				Area Type	Other		
Urban Street	Blankenbaker Pkwy			PHF	0.92		
Intersection	Bluegrass Parkway at Bl...			Analysis Year	2023		
Project Description	2033 AM Post Build			Analysis Period	1 > 7:00		
				File Name	2033_AM_PostBuild.xus		



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	359	120	33	84	217	322	139	1126	94	825	1305	811

Signal Information														
Cycle, s	150.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	Off	Green	15.0	21.0	49.0	24.0	21.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	0.0				
				Red	0.0	0.0	0.0	0.0	0.0	0.0				

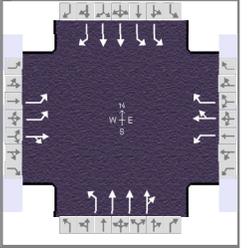
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		25.0		28.0	19.0	53.0	44.0	78.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( $MAH$ ), s		3.1		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time ( $g_s$ ), s		18.1		26.0	14.3		39.7	
Green Extension Time ( $g_e$ ), s		0.5		0.0	0.0	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate ( $v$ ), veh/h	390	166		91	236	350	151	896	430	897	1418	882
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1757	1829		1810	1900	1610	1810	1900	1822	1757	1809	1610
Queue Service Time ( $g_s$ ), s	16.1	12.9		6.7	17.9	24.0	12.3	31.2	31.2	37.7	49.0	66.5
Cycle Queue Clearance Time ( $g_c$ ), s	16.1	12.9		6.7	17.9	24.0	12.3	31.2	31.2	37.7	49.0	66.5
Green Ratio ( $g/C$ )	0.14	0.14		0.16	0.16	0.16	0.10	0.33	0.33	0.27	0.49	0.63
Capacity ( $c$ ), veh/h	492	256		290	304	258	181	1241	595	937	1785	1020
Volume-to-Capacity Ratio ( $X$ )	0.793	0.649		0.315	0.776	1.359	0.835	0.722	0.722	0.957	0.795	0.864
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	12.7	11.1		5.9	15.3	35.2	11.9	21.7	21.7	26.4	29.6	46.7
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	62.4	61.0		55.7	60.4	63.0	66.3	44.5	44.5	54.2	31.7	22.3
Incremental Delay ( $d_2$ ), s/veh	12.4	12.1		2.8	17.5	184.5	34.4	3.7	7.4	20.7	3.8	9.7
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	74.8	73.1		58.6	77.9	247.5	100.7	48.2	51.9	74.8	35.4	32.0
Level of Service (LOS)	E	E		E	E	F	F	D	D	E	D	C
Approach Delay, s/veh / LOS	74.3	E		162.9	F		54.6	D		45.5	D	
Intersection Delay, s/veh / LOS	64.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.76	C	2.30	B	2.11	B
Bicycle LOS Score / LOS	1.41	A	1.60	B	1.30	A	3.12	C

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Analysis Date	2/20/2023		
Jurisdiction				Area Type	Other		
Urban Street	Blankenbaker Pkwy			PHF	0.92		
Intersection	Bluegrass Parkway at Bl...			Analysis Year	2023		
Project Description	2033 PM Post Build			Analysis Period	1 > 7:00		
				File Name	2033_PM_NB-2.xus		



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	62	250	141	119	128	618	82	1474	140	523	1319	461

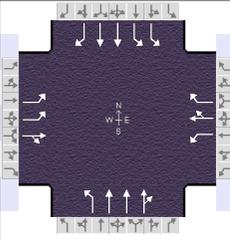
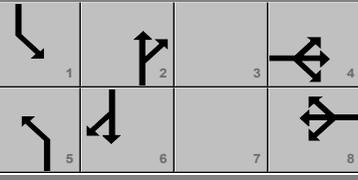
Signal Information													
Cycle, s	160.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	Off										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	13.0	6.0	58.0	39.0	24.0	0.0			
				Yellow	4.0	4.0	4.0	4.0	4.0	0.0			
				Red	0.0	0.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		9.0	2.0	4.0	2.0	3.0
Phase Duration, s		28.0		43.0	17.0	62.0	27.0	72.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0	4.0	4.0	4.0	4.0
Max Allow Headway ( $MAH$ ), s		3.1		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time ( $g_s$ ), s		26.0		41.0	9.6		25.0	
Green Extension Time ( $g_e$ ), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.69		1.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate ( $v$ ), veh/h	67	425		129	139	672	89	1187	567	568	1434	501
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1757	1784		1810	1900	1610	1810	1900	1812	1757	1809	1610
Queue Service Time ( $g_s$ ), s	2.7	24.0		9.3	9.6	39.0	7.6	46.3	46.5	23.0	60.4	30.7
Cycle Queue Clearance Time ( $g_c$ ), s	2.7	24.0		9.3	9.6	39.0	7.6	46.3	46.5	23.0	60.4	30.7
Green Ratio ( $g/C$ )	0.15	0.15		0.24	0.24	0.24	0.08	0.36	0.36	0.14	0.42	0.58
Capacity ( $c$ ), veh/h	527	268		441	463	392	147	1378	657	505	1537	926
Volume-to-Capacity Ratio ( $X$ )	0.128	1.588		0.293	0.300	1.712	0.606	0.862	0.863	1.125	0.932	0.541
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	2.2	49.1		7.9	8.4	80.4	7.6	31.1	31.3	23.6	38.0	23.7
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ( $d_1$ ), s/veh	58.9	68.0		49.3	49.4	60.5	71.0	47.3	47.3	68.5	43.8	21.0
Incremental Delay ( $d_2$ ), s/veh	0.5	281.7		1.7	1.7	330.9	17.2	7.3	14.1	79.2	11.7	2.3
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay ( $d$ ), s/veh	59.4	349.7		51.0	51.0	391.4	88.2	54.6	61.4	147.7	55.5	23.2
Level of Service (LOS)	E	F		D	D	F	F	D	E	F	E	C
Approach Delay, s/veh / LOS	309.9	F		294.2	F		58.3	E		70.0	E	
Intersection Delay, s/veh / LOS	123.2						F					

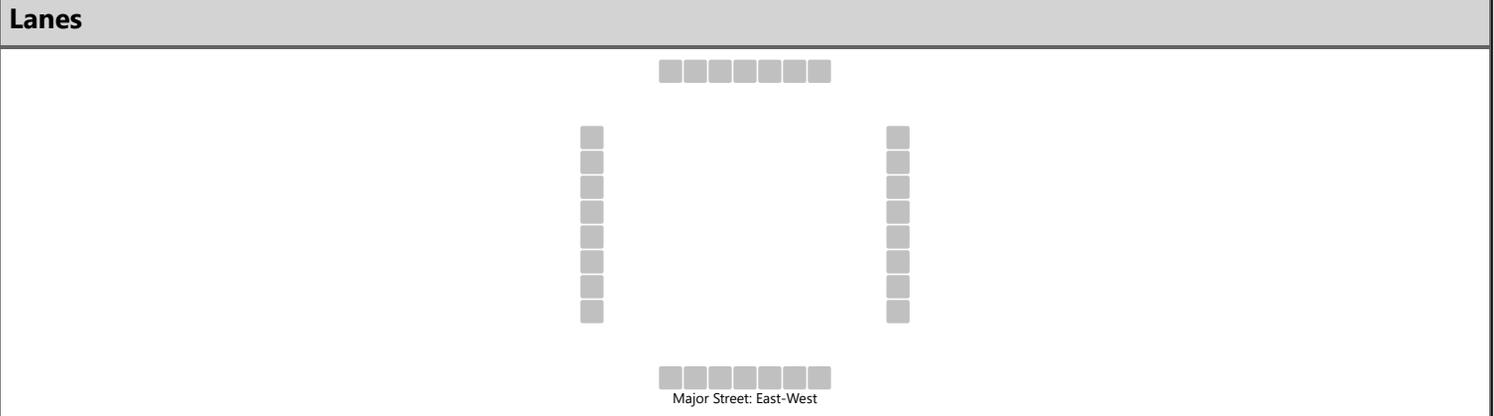
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.76	C	2.30	B	2.12	B
Bicycle LOS Score / LOS	1.30	A	2.04	B	1.50	B	2.55	C

## HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency						Duration, h		0.250													
Analyst			Analysis Date			2/20/2023		Area Type		Other											
Jurisdiction			Time Period					PHF		0.92											
Urban Street			Blankenbaker Pkwy			Analysis Year		2023		Analysis Period					1 > 7:00						
Intersection			Bluegrass Parkway at Bl...			File Name		2033_PM_PostBuild.xus													
Project Description			2033 PM Post Build																		
Demand Information						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand ( v ), veh/h						59	218	134	108	116	559	78	1397	122	456	1250	437				
Signal Information																					
Cycle, s		160.0		Reference Phase		2															
Offset, s		0		Reference Point		End															
Uncoordinated		No		Simult. Gap E/W		Off		Green		13.0		6.0		58.0		39.0		24.0		0.0	
Force Mode		Fixed		Simult. Gap N/S		On		Yellow		4.0		4.0		4.0		4.0		4.0		0.0	
								Red		0.0		0.0		0.0		0.0		0.0		0.0	
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase								4				8		5		2		1		6	
Case Number								10.0				9.0		2.0		4.0		2.0		3.0	
Phase Duration, s								28.0				43.0		17.0		62.0		27.0		72.0	
Change Period, ( Y+R <sub>c</sub> ), s								4.0				4.0		4.0		4.0		4.0		4.0	
Max Allow Headway ( MAH ), s								3.2				3.3		3.1		0.0		3.1		0.0	
Queue Clearance Time ( g <sub>s</sub> ), s								26.0				41.0		9.2				24.5			
Green Extension Time ( g <sub>e</sub> ), s								0.0				0.0		0.0		0.0		0.0		0.0	
Phase Call Probability								1.00				1.00		1.00				1.00			
Max Out Probability								1.00				1.00		0.40				1.00			
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate ( v ), veh/h						64	383		117	126	608	85	1116	535	496	1359	475				
Adjusted Saturation Flow Rate ( s ), veh/h/ln						1757	1778		1810	1900	1610	1810	1900	1819	1757	1809	1610				
Queue Service Time ( g <sub>s</sub> ), s						2.5	24.0		8.4	8.6	39.0	7.2	42.4	42.5	22.5	55.3	28.5				
Cycle Queue Clearance Time ( g <sub>c</sub> ), s						2.5	24.0		8.4	8.6	39.0	7.2	42.4	42.5	22.5	55.3	28.5				
Green Ratio ( g/C )						0.15	0.15		0.24	0.24	0.24	0.08	0.36	0.36	0.14	0.42	0.58				
Capacity ( c ), veh/h						527	267		441	463	392	147	1378	659	505	1537	926				
Volume-to-Capacity Ratio ( X )						0.122	1.434		0.266	0.272	1.548	0.577	0.810	0.811	0.981	0.884	0.513				
Back of Queue ( Q ), ft/ln ( 95 th percentile)																					
Back of Queue ( Q ), veh/ln ( 95 th percentile)						2.1	41.0		7.2	7.7	67.4	7.2	28.4	28.5	18.4	34.4	22.1				
Queue Storage Ratio ( RQ ) ( 95 th percentile)						0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Uniform Delay ( d <sub>1</sub> ), s/veh						58.9	68.0		48.9	49.0	60.5	70.8	46.0	46.1	68.3	42.4	20.5				
Incremental Delay ( d <sub>2</sub> ), s/veh						0.5	215.7		1.5	1.4	259.0	15.4	5.3	10.4	35.7	7.7	2.0				
Initial Queue Delay ( d <sub>3</sub> ), s/veh						0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay ( d ), s/veh						59.3	283.7		50.4	50.5	319.5	86.3	51.3	56.5	103.9	50.1	22.5				
Level of Service ( LOS)						E	F		D	D	F	F	D	E	F	D	C				
Approach Delay, s/veh / LOS						251.5	F		242.5	F		54.6	D		55.9	E					
Intersection Delay, s/veh / LOS						101.4						F									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.47	B		2.76	C		2.30	B		2.12	B					
Bicycle LOS Score / LOS						1.22	A		1.89	B		1.44	A		2.41	B					

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		79	170	134		100	393	17		66	22	92		4	7	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

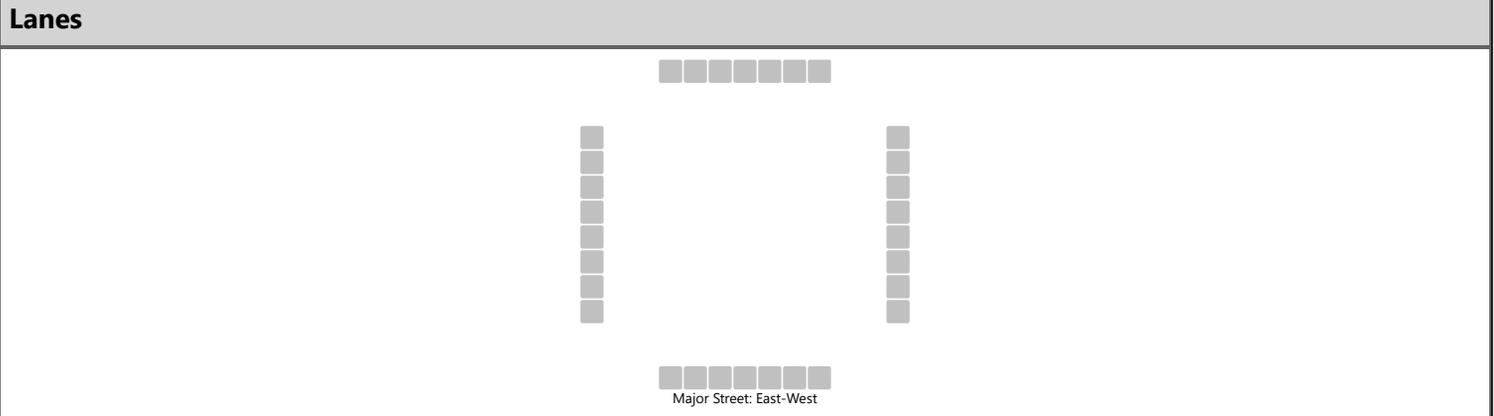
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		86				109				96		100				18	
Capacity, c (veh/h)		1109				1223				180		855				211	
v/c Ratio		0.08				0.09				0.53		0.12				0.09	
95% Queue Length, Q <sub>95</sub> (veh)		0.3				0.3				2.7		0.4				0.3	
Control Delay (s/veh)		8.5				8.2				45.5		9.8				23.7	
Level of Service (LOS)		A				A				E		A				C	
Approach Delay (s/veh)		1.8				1.6				27.2				23.7			
Approach LOS		A				A				D				C			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		79	256	134		103	405	18		66	22	128		8	7	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

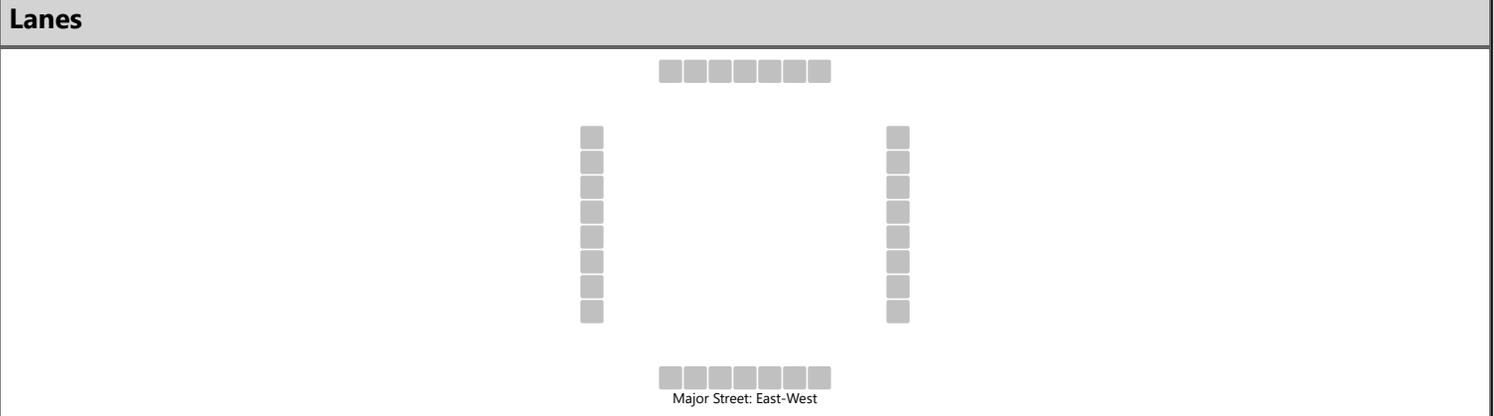
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		86				112				96		139				23	
Capacity, c (veh/h)		1096				1130				149		758				155	
v/c Ratio		0.08				0.10				0.64		0.18				0.15	
95% Queue Length, Q <sub>95</sub> (veh)		0.3				0.3				3.5		0.7				0.5	
Control Delay (s/veh)		8.6				8.5				64.6		10.8				32.2	
Level of Service (LOS)		A				A				F		B				D	
Approach Delay (s/veh)		1.4				1.7				32.7				32.2			
Approach LOS		A				A				D				D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 PM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		17	498	97		132	216	15		119	20	198		19	28	77
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

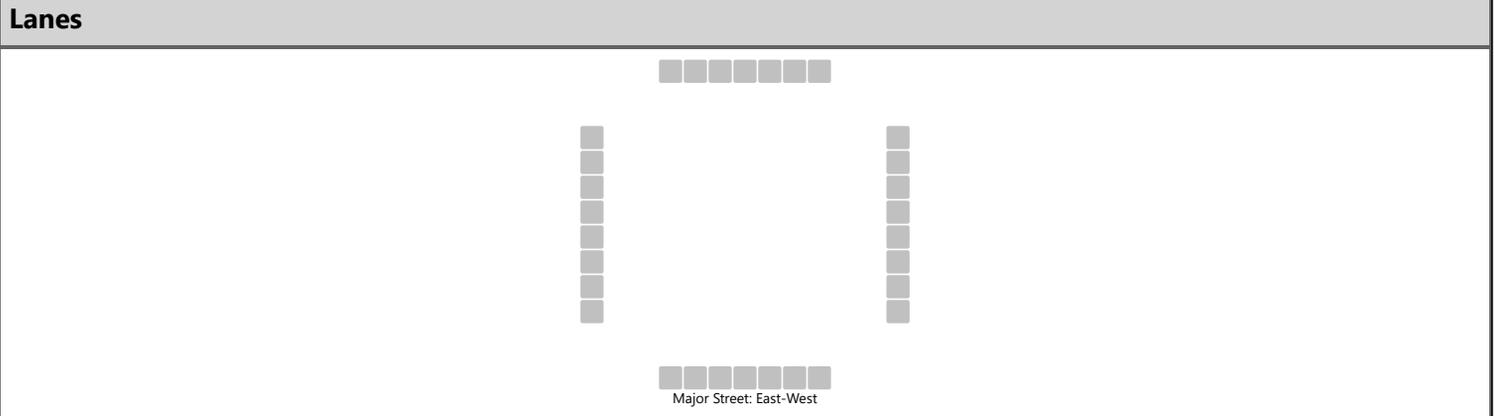
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		18				143				151		215				135	
Capacity, c (veh/h)		1309				934				119		539				241	
v/c Ratio		0.01				0.15				1.26		0.40				0.56	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.5				9.8		1.9				3.1	
Control Delay (s/veh)		7.8				9.6				238.5		16.1				37.4	
Level of Service (LOS)		A				A				F		C				E	
Approach Delay (s/veh)		0.2				3.5				107.8				37.4			
Approach LOS		A				A				F				E			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2023 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



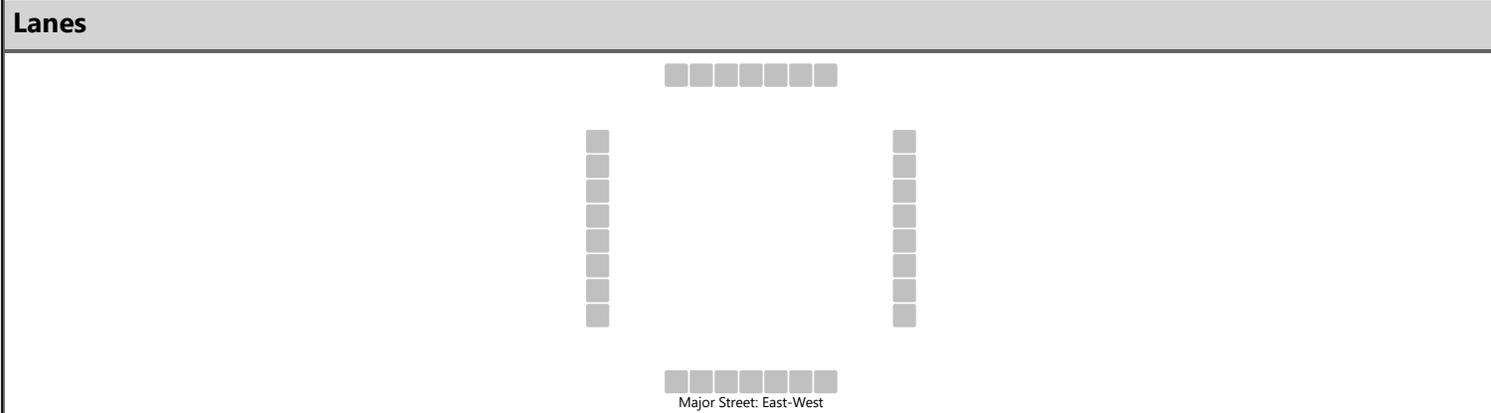
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		17	518	97		150	288	18		119	20	207		20	28	77
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)		18				163				151		225				136
Capacity, c (veh/h)		1221				917				88		524				184
v/c Ratio		0.02				0.18				1.72		0.43				0.74
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.6				12.4		2.1				4.7
Control Delay (s/veh)		8.0				9.8				447.0		16.9				65.7
Level of Service (LOS)		A				A				F		C				F
Approach Delay (s/veh)	0.2				3.2				189.7				65.7			
Approach LOS	A				A				F				F			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		83	179	141		106	415	18		70	23	97		4	7	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

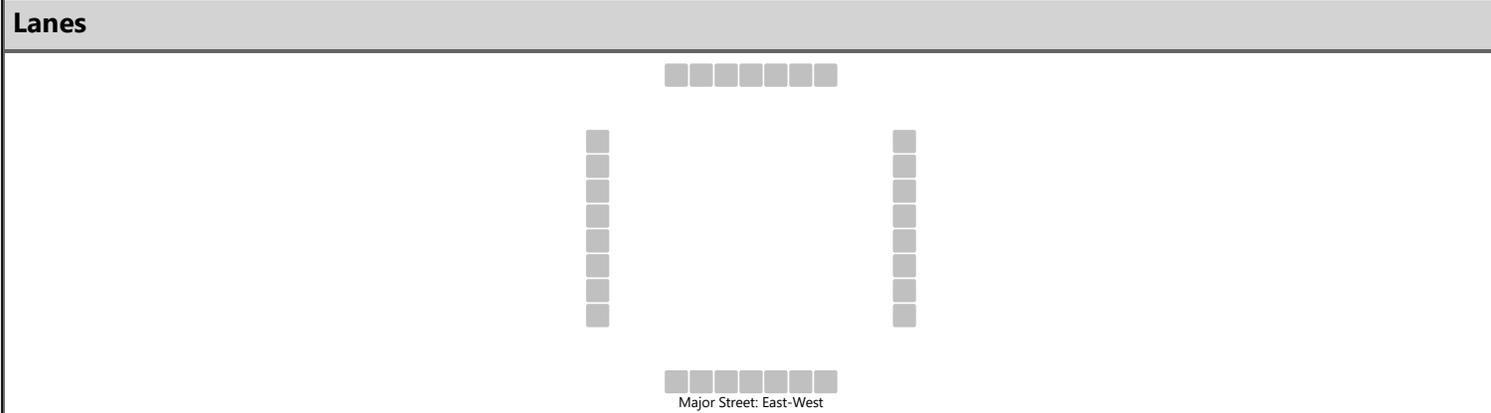
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		90				115				101		105			18		
Capacity, c (veh/h)		1086				1206				163		844			191		
v/c Ratio		0.08				0.10				0.62		0.12			0.10		
95% Queue Length, Q <sub>95</sub> (veh)		0.3				0.3				3.4		0.4			0.3		
Control Delay (s/veh)		8.6				8.3				57.7		9.9			25.9		
Level of Service (LOS)		A				A				F		A			D		
Approach Delay (s/veh)		1.8				1.6				33.3				25.9			
Approach LOS		A				A				D				D			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		83	265	141		109	427	19		70	23	133		8	7	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

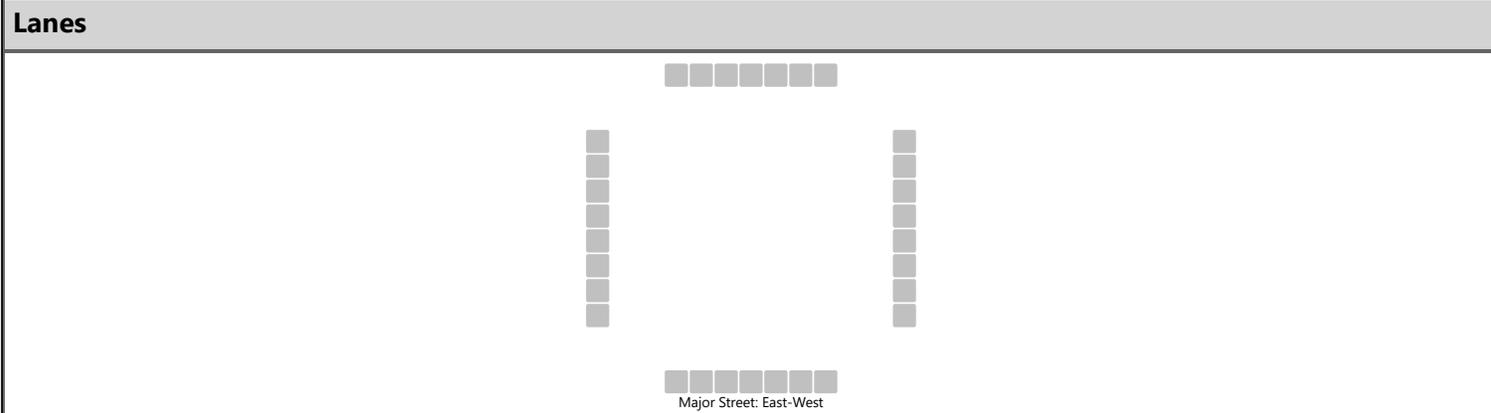
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		90				118				101		145			23		
Capacity, c (veh/h)		1073				1113				134		749			138		
v/c Ratio		0.08				0.11				0.75		0.19			0.17		
95% Queue Length, Q <sub>95</sub> (veh)		0.3				0.4				4.4		0.7			0.6		
Control Delay (s/veh)		8.7				8.6				86.4		11.0			36.2		
Level of Service (LOS)		A				A				F		B			E		
Approach Delay (s/veh)		1.5				1.7				42.0				36.2			
Approach LOS		A				A				E				E			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	BG Parkway at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 PM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		18	525	102		139	228	16		126	21	209		20	30	81
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

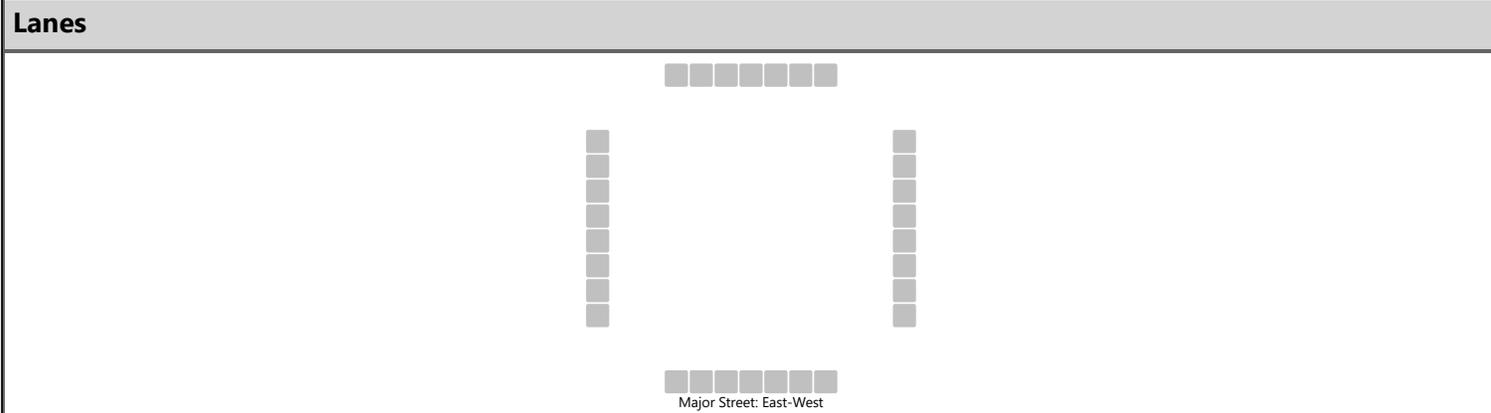
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		20				151				160		227			142		
Capacity, c (veh/h)		1293				906				102		519			210		
v/c Ratio		0.02				0.17				1.56		0.44			0.68		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.6				12.1		2.2			4.2		
Control Delay (s/veh)		7.8				9.8				368.6		17.2			51.8		
Level of Service (LOS)		A				A				F		C			F		
Approach Delay (s/veh)		0.2				3.5				162.3				51.8			
Approach LOS		A				A				F				F			

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Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	1/11/2023			East/West Street	BG Parkway		
Analysis Year	2023			North/South Street	Tucker Station		
Time Analyzed	2033 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Industrial						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	1	0	1	1	0		0	1	1		0	1	0
Configuration		L	T	R		L		TR		LT		R			LTR	
Volume (veh/h)		18	545	102		157	300	19		126	21	218		21	30	81
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No								No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

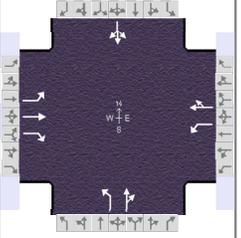
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		20				171				160		237			143		
Capacity, c (veh/h)		1207				890				74		504			158		
v/c Ratio		0.02				0.19				2.16		0.47			0.91		
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.7				14.8		2.5			6.5		
Control Delay (s/veh)		8.0				10.0				652.4		18.3			105.6		
Level of Service (LOS)		A				B				F		C			F		
Approach Delay (s/veh)		0.2				3.3				273.7				105.6			
Approach LOS		A				A				F				F			

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst				Analysis Date	2/20/2023		
Jurisdiction				Area Type	Other		
Urban Street	Bluegrass Parkway	Time Period		PHF	0.92		
Intersection	Bluegrass Parkway at T...	Analysis Year	2023	Analysis Period	1 > 7:00		
Project Description	2023 AM Build			File Name	2023_AM_BuildSig.xus		



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	79	256	134	103	405	18	66	22	128	8	7	6

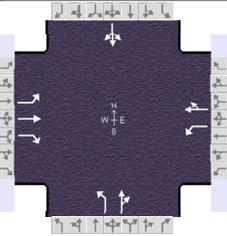
Signal Information												
Cycle, s	21.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	8.8	4.7	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	0.0	0.0	0.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		6.0		6.0		8.0
Phase Duration, s		12.8		12.8		8.7		8.7
Change Period, ( Y+R <sub>c</sub> ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( MAH ), s		3.2		3.2		3.2		3.2
Queue Clearance Time ( g <sub>s</sub> ), s		7.8		6.1		3.8		2.2
Green Extension Time ( g <sub>e</sub> ), s		1.0		1.4		0.1		0.2
Phase Call Probability		1.00		1.00		0.79		0.79
Max Out Probability		1.00		0.62		1.00		0.63

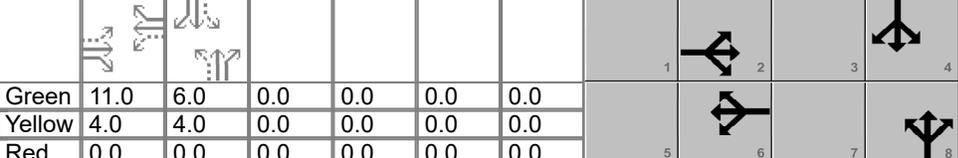
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	86	278	146	112	460		72	163			23	
Adjusted Saturation Flow Rate ( s ), veh/h/ln	947	1900	1610	1118	1886		1422	1647			1647	
Queue Service Time ( g <sub>s</sub> ), s	1.7	2.2	1.3	1.7	4.1		0.9	1.8			0.0	
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	5.8	2.2	1.3	3.8	4.1		1.1	1.8			0.2	
Green Ratio ( g/C )	0.41	0.41	0.41	0.41	0.41		0.22	0.22			0.22	
Capacity ( c ), veh/h	541	777	659	679	771		632	361			592	
Volume-to-Capacity Ratio ( X )	0.159	0.358	0.221	0.165	0.596		0.114	0.452			0.039	
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	0.3	0.3	0.1	0.2	0.6		0.2	0.6			0.1	
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( d <sub>1</sub> ), s/veh	7.2	4.4	4.1	5.7	5.0		7.1	7.3			6.6	
Incremental Delay ( d <sub>2</sub> ), s/veh	0.1	0.1	0.1	0.0	0.3		0.0	0.3			0.0	
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay ( d ), s/veh	7.3	4.5	4.2	5.8	5.2		7.1	7.6			6.7	
Level of Service ( LOS )	A	A	A	A	A		A	A			A	
Approach Delay, s/veh / LOS	4.9		A	5.3		A	7.5		A	6.7		A
Intersection Delay, s/veh / LOS	5.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.63	B	1.87	B	2.06	B
Bicycle LOS Score / LOS	1.33	A	1.43	A	0.87	A	0.53	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency				Duration, h	0.250	
Analyst		Analysis Date	2/20/2023	Area Type	Other	
Jurisdiction		Time Period		PHF	0.92	
Urban Street	Bluegrass Parkway	Analysis Year	2023	Analysis Period	1 > 7:00	
Intersection	Bluegrass Parkway at T...	File Name	2023_PM_BuildSig.xus			
Project Description	2023 PM Build					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand ( $v$ ), veh/h	17	596	97	168	343	19	120	20	237	20	28	77

Signal Information												
Cycle, s	25.0	Reference Phase	2	Green	11.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On									

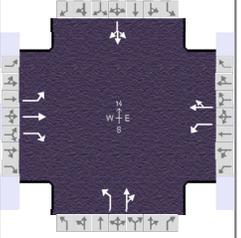
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		6.0		6.0		8.0
Phase Duration, s		15.0		15.0		10.0		10.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( $MAH$ ), s		3.3		3.3		3.3		3.3
Queue Clearance Time ( $g_s$ ), s		9.2		13.0		8.0		6.1
Green Extension Time ( $g_e$ ), s		0.8		0.0		0.0		0.0
Phase Call Probability		1.00		1.00		0.98		0.98
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	18	648	105	183	393		130	279			136	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	1006	1900	1610	796	1882		1299	1630			1282	
Queue Service Time ( $g_s$ ), s	0.3	7.2	1.0	3.8	3.7		1.9	3.9			0.1	
Cycle Queue Clearance Time ( $g_c$ ), s	4.0	7.2	1.0	11.0	3.7		6.0	3.9			4.1	
Green Ratio ( $g/C$ )	0.44	0.44	0.44	0.44	0.44		0.24	0.24			0.24	
Capacity ( $c$ ), veh/h	582	836	708	408	828		389	391			475	
Volume-to-Capacity Ratio ( $X$ )	0.032	0.775	0.149	0.448	0.475		0.335	0.714			0.286	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	0.1	3.1	0.2	1.3	0.8		0.9	2.3			0.6	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( $d_1$ ), s/veh	6.4	5.9	4.2	11.3	5.0		11.7	8.7			7.9	
Incremental Delay ( $d_2$ ), s/veh	0.0	4.2	0.0	0.3	0.2		0.2	5.2			0.1	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay ( $d$ ), s/veh	6.4	10.1	4.2	11.6	5.1		11.9	14.0			8.0	
Level of Service (LOS)	A	B	A	B	A		B	B			A	
Approach Delay, s/veh / LOS	9.2		A	7.2		A	13.3		B	8.0		A
Intersection Delay, s/veh / LOS	9.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.63	B	1.88	B	2.07	B
Bicycle LOS Score / LOS	1.76	B	1.44	A	1.16	A	0.71	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency		Duration, h	0.250			
Analyst		Analysis Date	2/20/2023		Area Type	Other
Jurisdiction		Time Period	PHF			0.92
Urban Street	Bluegrass Parkway	Analysis Year	2023		Analysis Period	1 > 7:00
Intersection	Bluegrass Parkway at T...	File Name	2033_AM_BuildSig.xus			
Project Description	2033 AM Build					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	83	314	141	110	548	19	70	23	136	8	7	6

Signal Information																		
Cycle, s	23.9	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.8	5.0	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	0.0	0.0	0.0	0.0	0.0	0.0								

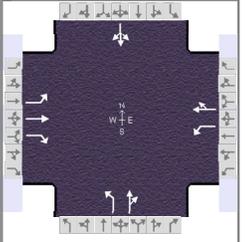
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		6.0		6.0		8.0
Phase Duration, s		14.8		14.8		9.0		9.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( $MAH$ ), s		3.3		3.3		3.2		3.2
Queue Clearance Time ( $g_s$ ), s		10.7		8.3		4.2		2.2
Green Extension Time ( $g_e$ ), s		0.2		1.1		0.1		0.2
Phase Call Probability		1.00		1.00		0.83		0.83
Max Out Probability		1.00		1.00		1.00		0.65

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	90	341	153	120	616		76	173			23	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	819	1900	1610	1056	1889		1422	1647			1645	
Queue Service Time ( $g_s$ ), s	2.4	2.8	1.4	2.0	6.3		1.1	2.2			0.0	
Cycle Queue Clearance Time ( $g_c$ ), s	8.7	2.8	1.4	4.9	6.3		1.3	2.2			0.2	
Green Ratio ( $g/C$ )	0.45	0.45	0.45	0.45	0.45		0.21	0.21			0.21	
Capacity ( $c$ ), veh/h	458	864	732	656	859		586	346			554	
Volume-to-Capacity Ratio ( $X$ )	0.197	0.395	0.209	0.182	0.718		0.130	0.500			0.041	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	0.4	0.4	0.2	0.3	1.9		0.3	0.8			0.1	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( $d_1$ ), s/veh	8.8	4.3	3.9	5.9	5.3		8.1	8.3			7.5	
Incremental Delay ( $d_2$ ), s/veh	0.1	0.1	0.1	0.0	2.4		0.0	0.4			0.0	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay ( $d$ ), s/veh	8.9	4.4	4.0	6.0	7.7		8.1	8.7			7.5	
Level of Service (LOS)	A	A	A	A	A		A	A			A	
Approach Delay, s/veh / LOS	5.0		A	7.4		A	8.5		A	7.5		A
Intersection Delay, s/veh / LOS	6.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.62	B	1.88	B	2.07	B
Bicycle LOS Score / LOS	1.45	A	1.70	B	0.90	A	0.53	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/20/2023	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Bluegrass Parkway	Analysis Year	2023	Analysis Period	1 > 7:00
Intersection	Bluegrass Parkway at T...	File Name	2033_PM_BuildSig.xus		
Project Description	2033 PM Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	18	621	102	175	354	20	126	21	247	21	30	81

Signal Information																		
Cycle, s	25.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	Yes	Simult. Gap E/W	On	Green	11.0	6.0	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	0.0	0.0	0.0	0.0	0.0	0.0								

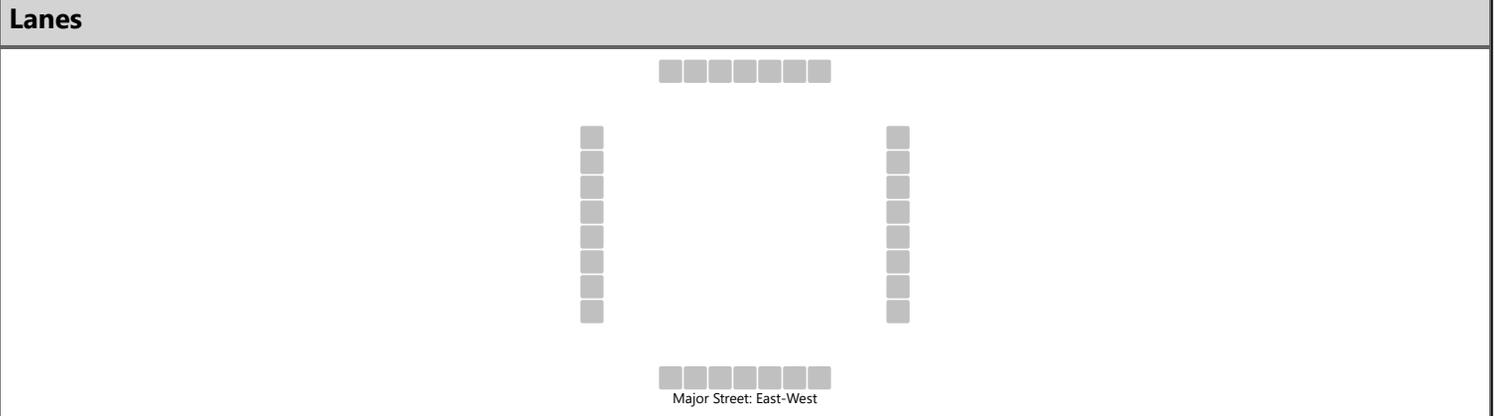
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		6.0		6.0		8.0
Phase Duration, s		15.0		15.0		10.0		10.0
Change Period, ( $Y+R_c$ ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( $MAH$ ), s		3.3		3.3		3.3		3.3
Queue Clearance Time ( $g_s$ ), s		9.7		13.0		8.0		6.3
Green Extension Time ( $g_e$ ), s		0.7		0.0		0.0		0.0
Phase Call Probability		1.00		1.00		0.98		0.98
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	20	675	111	190	407		137	291			143	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	994	1900	1610	776	1882		1291	1630			1218	
Queue Service Time ( $g_s$ ), s	0.4	7.7	1.0	3.3	3.9		1.7	4.1			0.2	
Cycle Queue Clearance Time ( $g_c$ ), s	4.2	7.7	1.0	11.0	3.9		6.0	4.1			4.3	
Green Ratio ( $g/C$ )	0.44	0.44	0.44	0.44	0.44		0.24	0.24			0.24	
Capacity ( $c$ ), veh/h	572	836	708	390	828		376	391			459	
Volume-to-Capacity Ratio ( $X$ )	0.034	0.807	0.156	0.488	0.491		0.364	0.745			0.312	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	0.1	3.7	0.2	1.4	0.8		1.0	2.7			0.6	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( $d_1$ ), s/veh	6.5	6.1	4.2	11.6	5.0		12.0	8.8			7.9	
Incremental Delay ( $d_2$ ), s/veh	0.0	5.5	0.0	0.4	0.2		0.2	6.7			0.1	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay ( $d$ ), s/veh	6.5	11.6	4.2	12.0	5.2		12.2	15.5			8.1	
Level of Service (LOS)	A	B	A	B	A		B	B			A	
Approach Delay, s/veh / LOS	10.4		B	7.3		A	14.4		B	8.1		A
Intersection Delay, s/veh / LOS	10.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.63	B	1.88	B	2.07	B
Bicycle LOS Score / LOS	1.82	B	1.47	A	1.19	A	0.72	A

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access #1 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	Tucker Station Rd		
Analysis Year	2023			North/South Street	Prop. Access 1		
Time Analyzed	2023 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



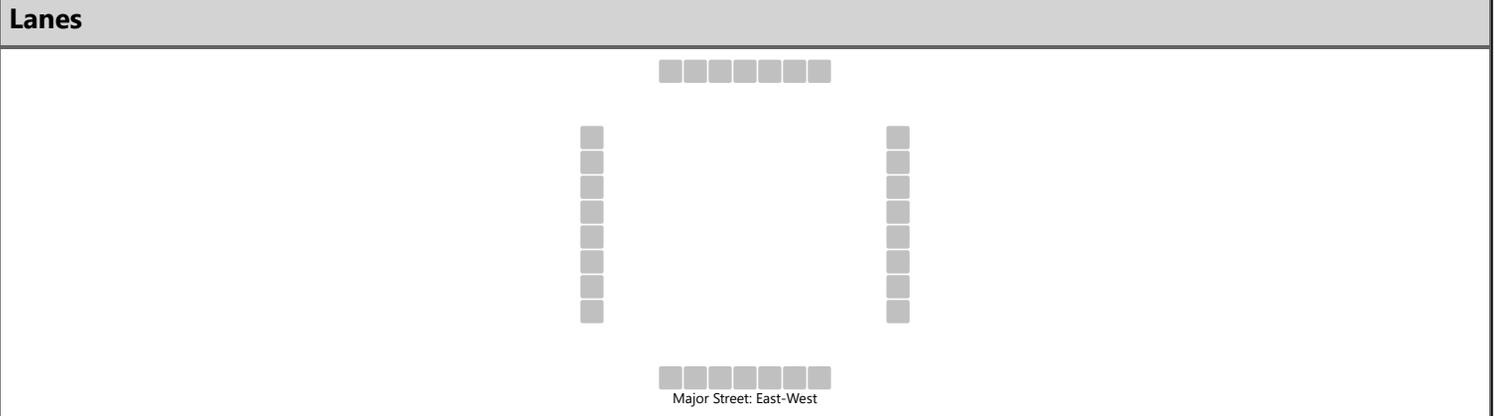
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			269	50		29	703			6		4				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						32					7		4			
Capacity, c (veh/h)						1207					209		719			
v/c Ratio						0.03					0.03		0.01			
95% Queue Length, Q <sub>95</sub> (veh)						0.1					0.1		0.0			
Control Delay (s/veh)						8.1	0.4				22.8		10.0			
Level of Service (LOS)						A	A				C		B			
Approach Delay (s/veh)					0.7				17.7							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access 2 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	Tucker Station Rd		
Analysis Year	2023			North/South Street	Prop. Access 2		
Time Analyzed	2023 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



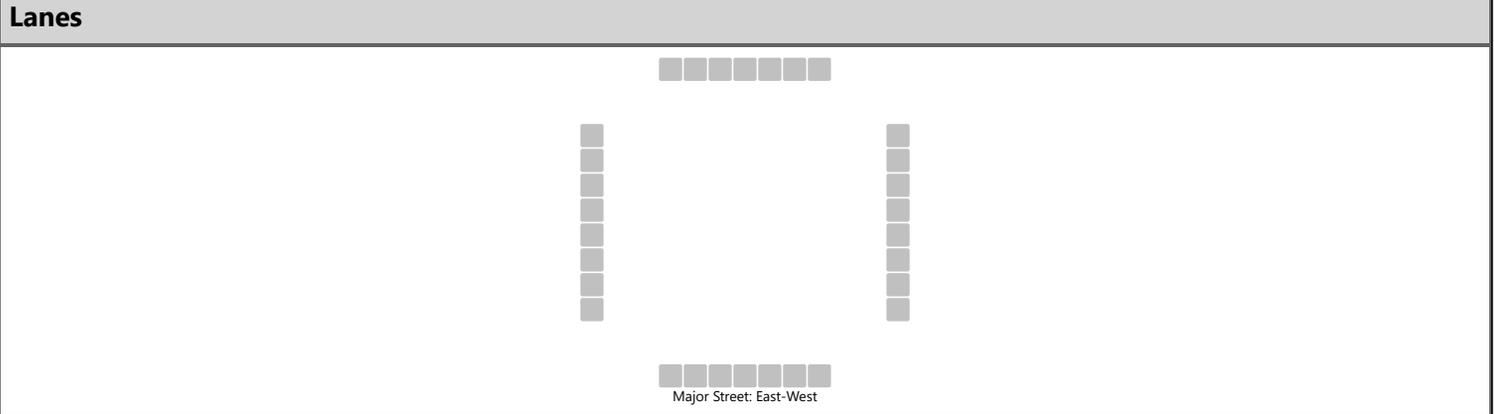
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			673	11		8	257			42		29				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						9				46		32				
Capacity, c (veh/h)						859				253		416				
v/c Ratio						0.01				0.18		0.08				
95% Queue Length, Q <sub>95</sub> (veh)						0.0				0.6		0.2				
Control Delay (s/veh)						9.2	0.1			22.3		14.4				
Level of Service (LOS)						A	A			C		B				
Approach Delay (s/veh)					0.4				19.1							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access #1 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	Tucker Station Rd		
Analysis Year	2023			North/South Street	Prop. Access 1		
Time Analyzed	2033 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			276	50		29	731			6		4				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

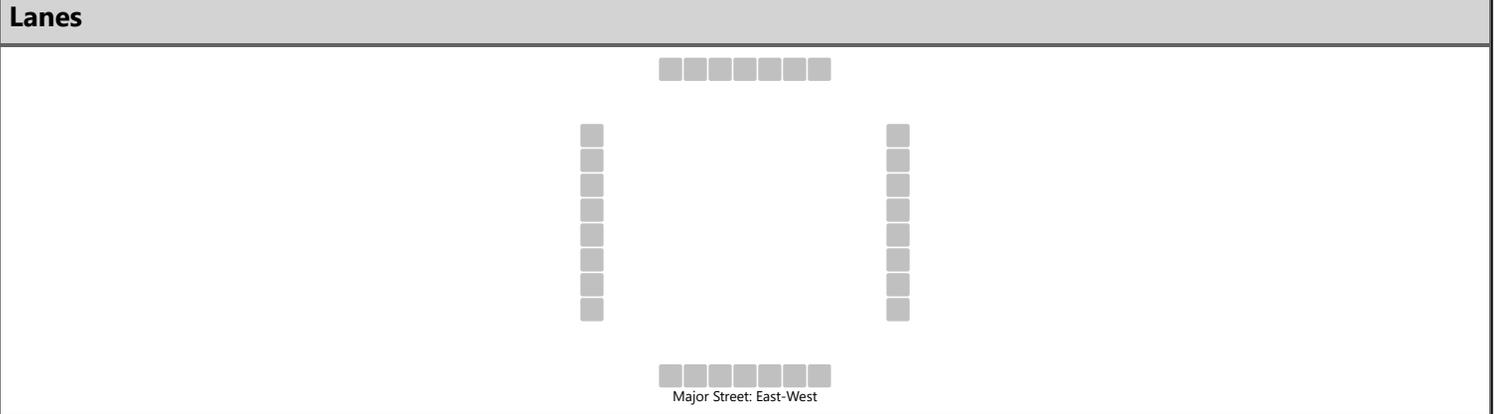
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)						32					7		4			
Capacity, c (veh/h)						1199					198		712			
v/c Ratio						0.03					0.03		0.01			
95% Queue Length, Q <sub>95</sub> (veh)						0.1					0.1		0.0			
Control Delay (s/veh)						8.1	0.4				23.8		10.1			
Level of Service (LOS)						A	A				C		B			
Approach Delay (s/veh)					0.7				18.3							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access #1 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	Tucker Station Rd		
Analysis Year	2023			North/South Street	Prop. Access 1		
Time Analyzed	2033 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			793	12		7	427			32		26				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

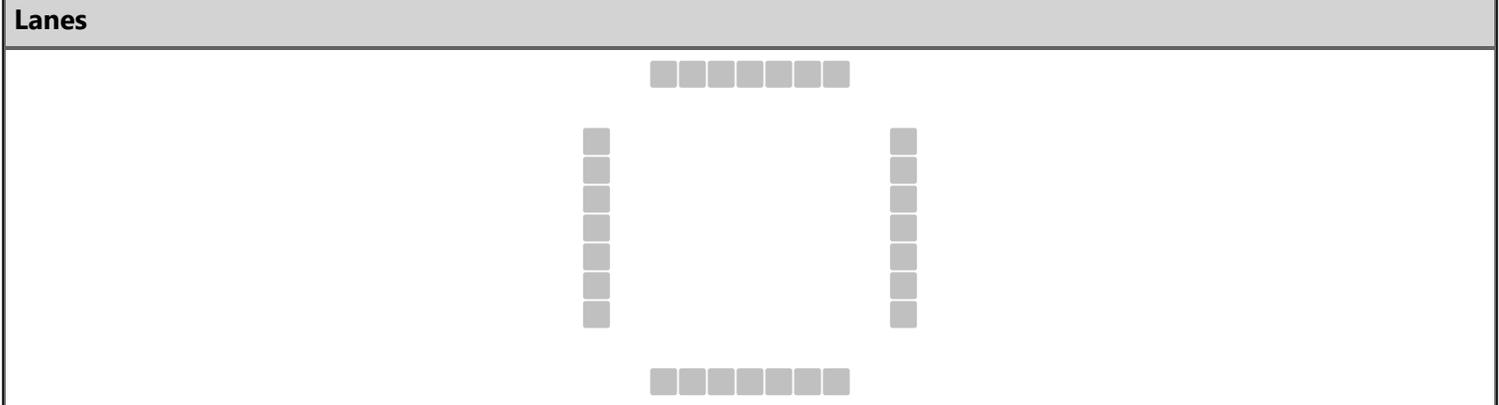
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)						8					35		28			
Capacity, c (veh/h)						767					163		350			
v/c Ratio						0.01					0.21		0.08			
95% Queue Length, Q <sub>95</sub> (veh)						0.0					0.8		0.3			
Control Delay (s/veh)						9.7	0.1				32.9		16.2			
Level of Service (LOS)						A	A				D		C			
Approach Delay (s/veh)					0.3				25.4							
Approach LOS					A				D							

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 AM No Build		
Project Description	Xebec Development		



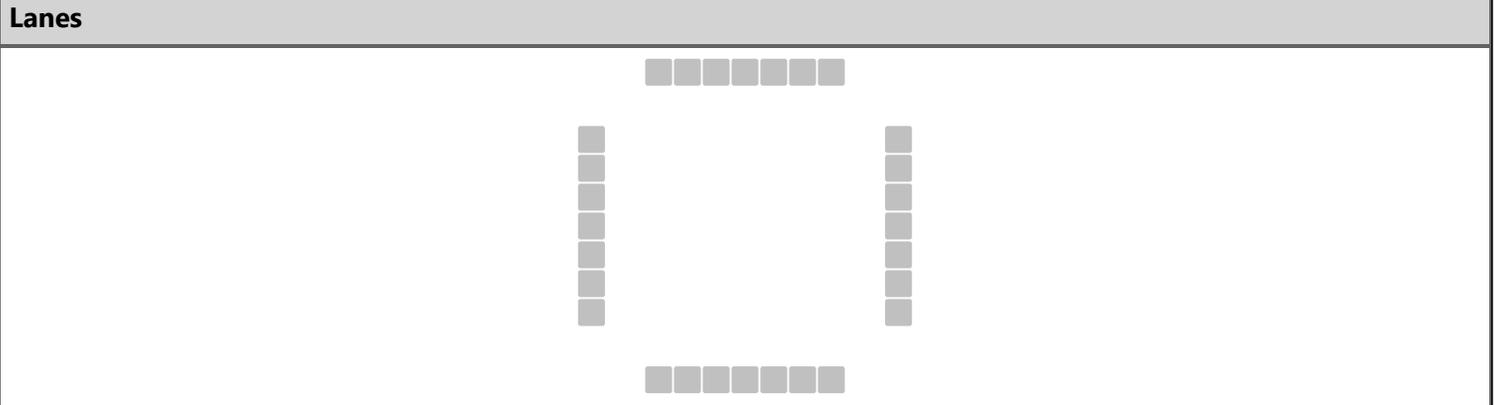
Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	71	107			512	144				30		177
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	193			713						225		
Percent Heavy Vehicles	2			2						2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20			3.20						3.20		
Initial Degree of Utilization, x	0.172			0.634						0.200		
Final Departure Headway, hd (s)	5.64			4.79						5.66		
Final Degree of Utilization, x	0.303			0.948						0.354		
Move-Up Time, m (s)	2.0			2.0						2.0		
Service Time, ts (s)	3.64			2.79						3.66		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	193			713						225		
Capacity	639			752						636		
95% Queue Length, Q <sub>95</sub> (veh)	1.3			14.1						1.6		
Control Delay (s/veh)	11.1			42.7						11.7		
Level of Service, LOS	B			E						B		
Approach Delay (s/veh)	11.1			42.7						11.7		
Approach LOS	B			E						B		
Intersection Delay, s/veh   LOS	31.2						D					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 AM Build		
Project Description	Xebec Development		



**Vehicle Volume and Adjustments**

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	71	158	43	29	548	144	7	11	4	30	72	177
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	77	218		32	752		8	16		303		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

**Departure Headway and Service Time**

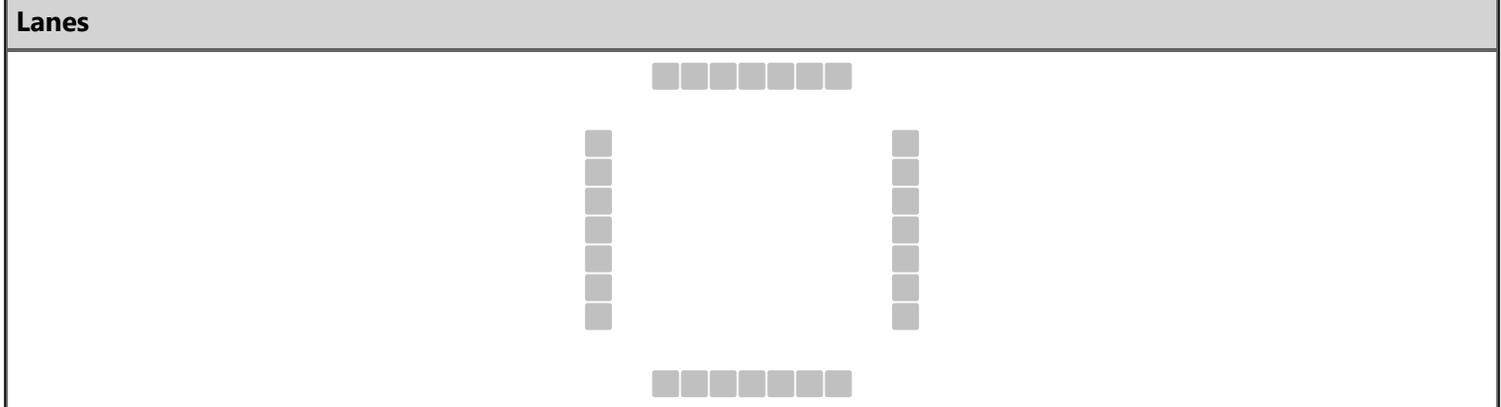
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.069	0.194		0.028	0.669		0.007	0.014		0.270		
Final Departure Headway, hd (s)	7.06	6.42		6.66	6.01		8.31	7.64		6.62		
Final Degree of Utilization, x	0.151	0.389		0.058	1.255		0.018	0.035		0.558		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.76	4.12		4.36	3.71		6.01	5.34		4.62		

**Capacity, Delay and Level of Service**

Flow Rate, v (veh/h)	77	218		32	752		8	16		303		
Capacity	510	561		541	599		433	471		544		
95% Queue Length, Q <sub>95</sub> (veh)	0.5	1.8		0.2	28.9		0.1	0.1		3.4		
Control Delay (s/veh)	11.0	13.2		9.8	147.7		11.2	10.6		17.6		
Level of Service, LOS	B	B		A	F		B	B		C		
Approach Delay (s/veh)	12.6			142.2			10.8			17.6		
Approach LOS	B			F			B			C		
Intersection Delay, s/veh   LOS	85.9						F					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 PM No Build		
Project Description	Xebec Development		



Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	229	511			142	100				111		191
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	804			263						328		
Percent Heavy Vehicles	2			2						2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20			3.20						3.20		
Initial Degree of Utilization, x	0.715			0.234						0.292		
Final Departure Headway, hd (s)	5.51			5.73						6.01		
Final Degree of Utilization, x	1.231			0.419						0.548		
Move-Up Time, m (s)	2.0			2.0						2.0		
Service Time, ts (s)	3.51			3.73						4.01		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	804			263						328		
Capacity	653			628						599		
95% Queue Length, Q <sub>95</sub> (veh)	29.2			2.1						3.3		
Control Delay (s/veh)	136.4			12.8						16.1		
Level of Service, LOS	F			B						C		
Approach Delay (s/veh)	136.4			12.8						16.1		
Approach LOS	F			B						C		
Intersection Delay, s/veh   LOS	84.8						F					

# HCS All-Way Stop Control Report

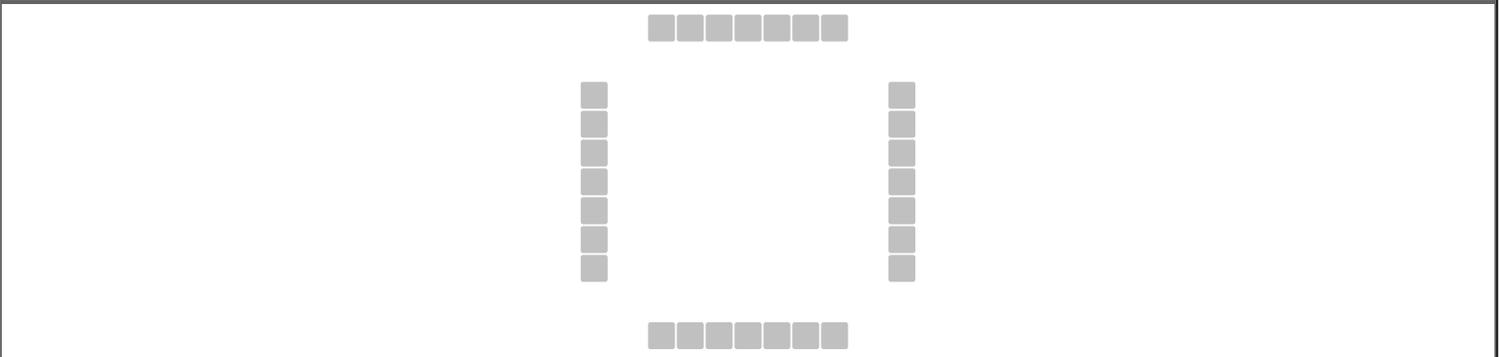
## General Information

Analyst	AJK
Agency/Co.	AKE
Date Performed	2/20/2023
Analysis Year	2023
Analysis Time Period (hrs)	0.25
Time Analyzed	2023 PM Build
Project Description	Xebec Development

## Site Information

Intersection	Tucker Station at S. Pope Lick
Jurisdiction	Jefferson
East/West Street	S. Pope Lick
North/South Street	Tucker Station
Peak Hour Factor	0.92

## Lanes



## Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	229	548	10	7	190	100	38	64	26	111	17	191
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	249	607		8	315		41	98		347		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

## Departure Headway and Service Time

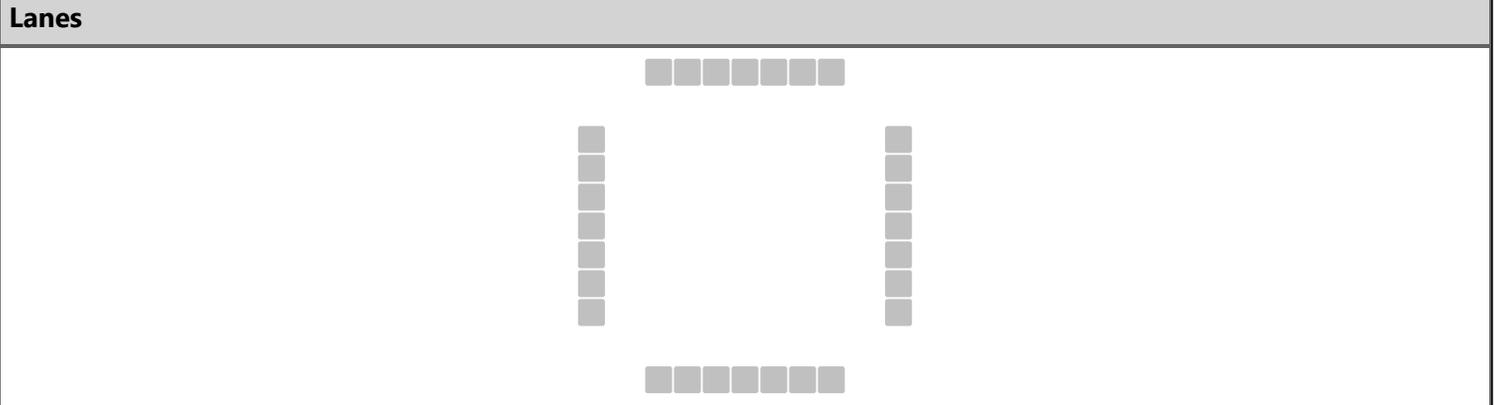
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.221	0.539		0.007	0.280		0.037	0.087		0.308		
Final Departure Headway, hd (s)	7.65	7.12		8.17	7.43		8.92	8.23		7.33		
Final Degree of Utilization, x	0.529	1.200		0.017	0.650		0.102	0.224		0.706		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	5.35	4.82		5.87	5.13		6.62	5.93		5.33		

## Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	249	607		8	315		41	98		347		
Capacity	471	505		441	485		403	437		491		
95% Queue Length, Q <sub>95</sub> (veh)	3.0	22.7		0.1	4.6		0.3	0.8		5.5		
Control Delay (s/veh)	18.6	131.5		11.0	22.9		12.6	13.3		26.0		
Level of Service, LOS	C	F		B	C		B	B		D		
Approach Delay (s/veh)	98.6			22.6			13.1			26.0		
Approach LOS	F			C			B			D		
Intersection Delay, s/veh   LOS	61.6						F					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2033 AM No Build		
Project Description	Xebec Development		



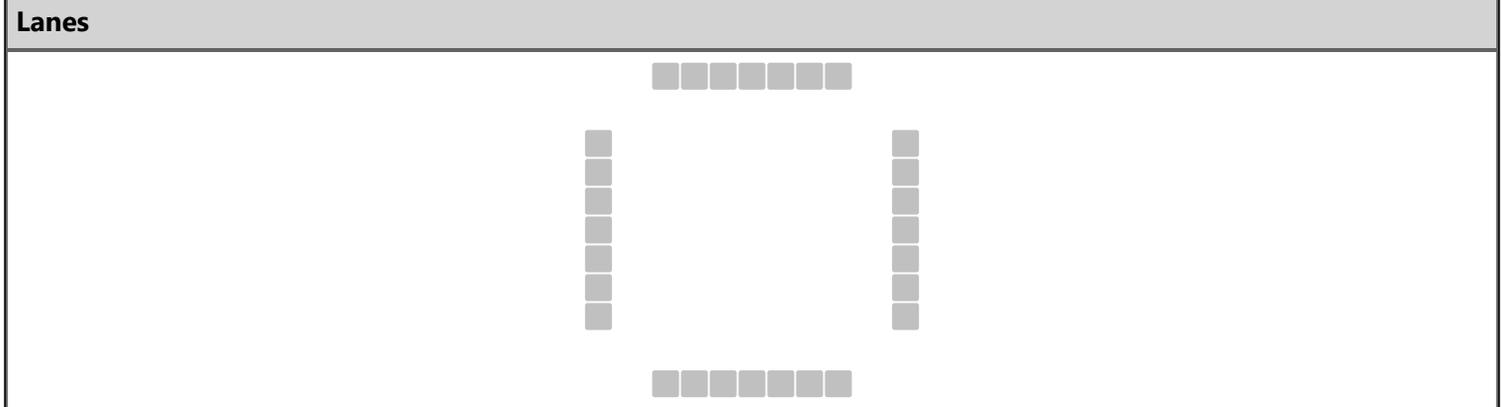
Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	75	111			532	149				31		186
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	202			740						236		
Percent Heavy Vehicles	2			2						2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20			3.20						3.20		
Initial Degree of Utilization, x	0.180			0.658						0.210		
Final Departure Headway, hd (s)	5.74			4.85						5.77		
Final Degree of Utilization, x	0.323			0.998						0.378		
Move-Up Time, m (s)	2.0			2.0						2.0		
Service Time, ts (s)	3.74			2.85						3.77		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	202			740						236		
Capacity	627			742						624		
95% Queue Length, Q <sub>95</sub> (veh)	1.4			16.6						1.8		
Control Delay (s/veh)	11.5			54.1						12.2		
Level of Service, LOS	B			F						B		
Approach Delay (s/veh)	11.5			54.1						12.2		
Approach LOS	B			F						B		
Intersection Delay, s/veh   LOS	38.4						E					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2033 AM Build		
Project Description	Xebec Development		



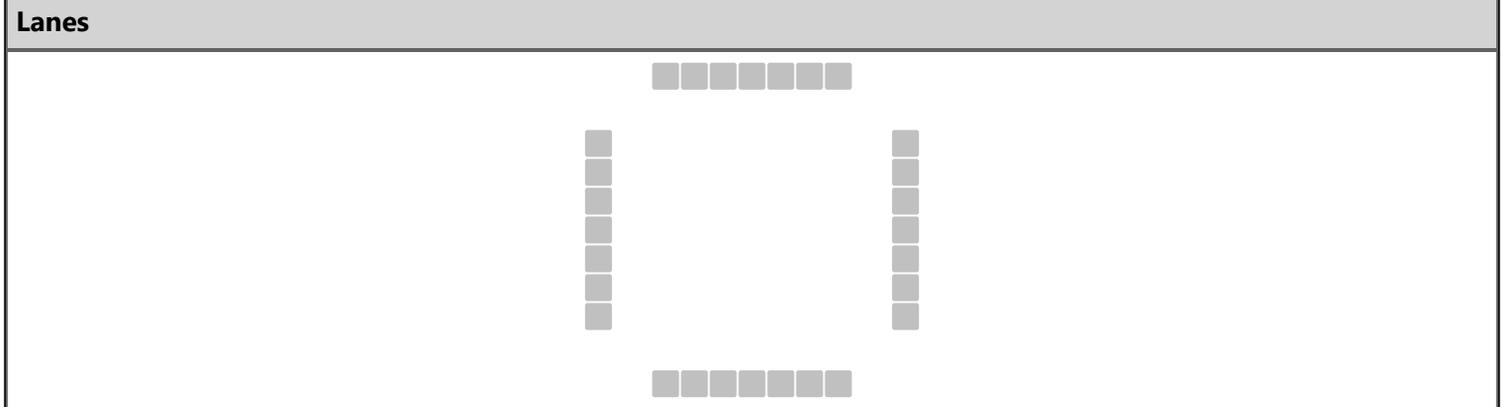
Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	75	162	43	29	568	149	7	11	4	31	72	186
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	82	223		32	779		8	16		314		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.072	0.198		0.028	0.693		0.007	0.014		0.279		
Final Departure Headway, hd (s)	7.12	6.47		6.72	6.07		8.37	7.69		6.63		
Final Degree of Utilization, x	0.161	0.401		0.059	1.314		0.018	0.035		0.579		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.82	4.17		4.42	3.77		6.07	5.39		4.63		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	82	223		32	779		8	16		314		
Capacity	506	556		536	593		430	468		543		
95% Queue Length, Q <sub>95</sub> (veh)	0.6	1.9		0.2	32.3		0.1	0.1		3.7		
Control Delay (s/veh)	11.2	13.4		9.8	172.0		11.2	10.7		18.3		
Level of Service, LOS	B	B		A	F		B	B		C		
Approach Delay (s/veh)	12.8			165.7			10.8			18.3		
Approach LOS	B			F			B			C		
Intersection Delay, s/veh   LOS	99.3						F					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2033 PM No Build		
Project Description	Xebec Development		



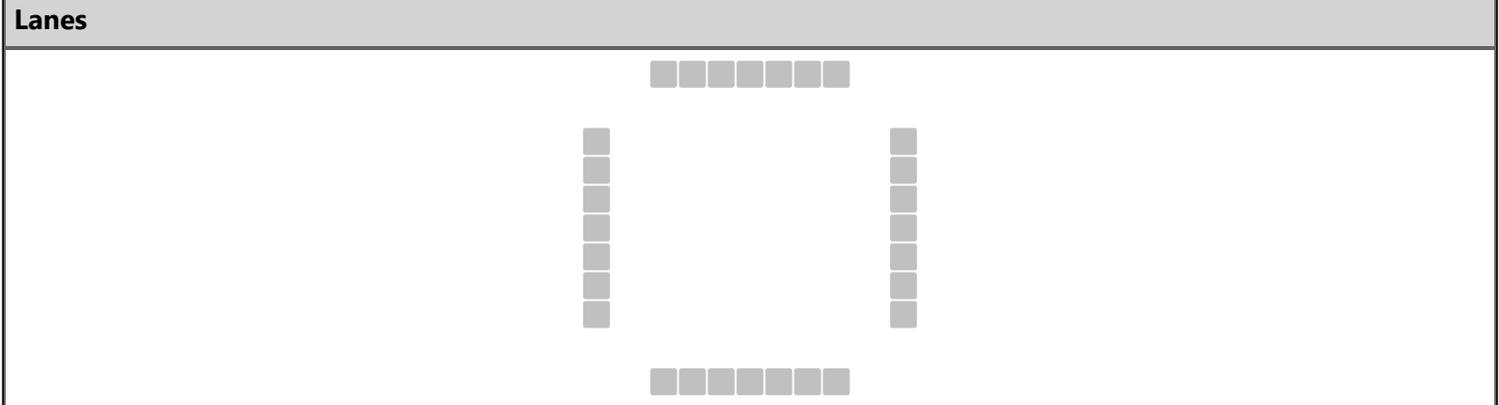
Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	241	531			147	104				116		200
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	839			273						343		
Percent Heavy Vehicles	2			2						2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20			3.20						3.20		
Initial Degree of Utilization, x	0.746			0.243						0.305		
Final Departure Headway, hd (s)	5.59			5.80						6.04		
Final Degree of Utilization, x	1.303			0.439						0.576		
Move-Up Time, m (s)	2.0			2.0						2.0		
Service Time, ts (s)	3.59			3.80						4.04		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	839			273						343		
Capacity	644			621						596		
95% Queue Length, Q <sub>95</sub> (veh)	33.7			2.2						3.7		
Control Delay (s/veh)	165.9			13.3						16.9		
Level of Service, LOS	F			B						C		
Approach Delay (s/veh)	165.9			13.3						16.9		
Approach LOS	F			B						C		
Intersection Delay, s/veh   LOS	102.1						F					

# HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2033 PM Build		
Project Description	Xebec Development		



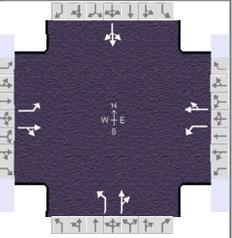
Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	241	568	10	7	195	104	38	64	26	116	17	200
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	262	628		8	325		41	98		362		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.233	0.558		0.007	0.289		0.037	0.087		0.322		
Final Departure Headway, hd (s)	7.77	7.25		8.26	7.52		9.03	8.34		7.37		
Final Degree of Utilization, x	0.565	1.265		0.017	0.679		0.104	0.227		0.741		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	5.47	4.95		5.96	5.22		6.73	6.04		5.37		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	262	628		8	325		41	98		362		
Capacity	463	497		436	479		399	432		488		
95% Queue Length, Q <sub>95</sub> (veh)	3.4	25.6		0.1	5.0		0.3	0.9		6.2		
Control Delay (s/veh)	20.1	157.0		11.1	24.7		12.8	13.5		28.6		
Level of Service, LOS	C	F		B	C		B	B		D		
Approach Delay (s/veh)	116.7			24.3			13.3			28.6		
Approach LOS	F			C			B			D		
Intersection Delay, s/veh   LOS	72.1						F					

# HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency		Duration, h	0.250			
Analyst		Analysis Date	2/20/2023		Area Type	Other
Jurisdiction		Time Period			PHF	0.92
Urban Street	Tucker Station	Analysis Year	2023		Analysis Period	1 > 7:00
Intersection	S. Pope Lick at Tucker...	File Name	2023_AM_BuildSig.xus			
Project Description	2023 AM Build					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	71	158	43	29	548	144	7	11	4	30	72	177

Signal Information				Signal Phases								
Cycle, s	28.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	14.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

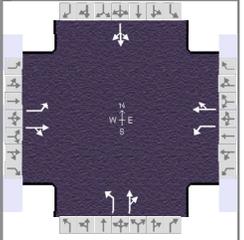
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		6.0		8.0
Phase Duration, s		18.0		18.0		10.5		10.5
Change Period, ( Y+R <sub>c</sub> ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( MAH ), s		3.3		3.3		3.3		3.3
Queue Clearance Time ( g <sub>s</sub> ), s		15.1		12.1		7.0		6.9
Green Extension Time ( g <sub>e</sub> ), s		0.0		1.9		0.0		0.2
Phase Call Probability		1.00		1.00		0.93		0.93
Max Out Probability		1.00		0.04		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	77	218		32	752		8	16			303	
Adjusted Saturation Flow Rate ( s ), veh/h/ln	722	1830		1181	1831		1126	1813			1672	
Queue Service Time ( g <sub>s</sub> ), s	2.9	2.0		0.5	10.1		0.2	0.2			2.3	
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	13.1	2.0		2.4	10.1		5.0	0.2			4.9	
Green Ratio ( g/C )	0.49	0.49		0.49	0.49		0.23	0.23			0.23	
Capacity ( c ), veh/h	351	899		753	900		318	414			521	
Volume-to-Capacity Ratio ( X )	0.220	0.243		0.042	0.835		0.024	0.039			0.582	
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	0.6	0.4		0.1	2.5		0.1	0.1			2.1	
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( d <sub>1</sub> ), s/veh	11.9	4.2		4.9	6.3		12.7	8.6			10.4	
Incremental Delay ( d <sub>2</sub> ), s/veh	0.1	0.1		0.0	0.8		0.0	0.0			0.4	
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay ( d ), s/veh	12.0	4.2		4.9	7.1		12.8	8.6			10.7	
Level of Service ( LOS )	B	A		A	A		B	A			B	
Approach Delay, s/veh / LOS	6.3		A	7.0		A	9.9		A	10.7		B
Intersection Delay, s/veh / LOS	7.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.62	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.98	A	1.78	B	0.53	A	0.99	A

# HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/20/2023	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Tucker Station	Analysis Year	2023	Analysis Period	1 > 7:00
Intersection	S. Pope Lick at Tucker...	File Name	2023_PM_BuildSig.xus		
Project Description	2023 PM Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( v ), veh/h	229	548	10	7	190	100	38	64	26	111	17	191

Signal Information				Signal Phases								
Cycle, s	25.2	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	10.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

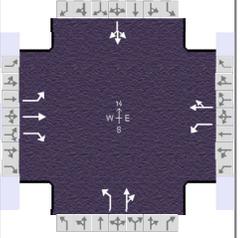
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		6.0		8.0
Phase Duration, s		14.0		14.0		11.1		11.1
Change Period, ( Y+R <sub>c</sub> ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( MAH ), s		3.2		3.2		3.3		3.3
Queue Clearance Time ( g <sub>s</sub> ), s		10.7		9.3		8.0		7.2
Green Extension Time ( g <sub>e</sub> ), s		0.0		0.7		0.0		0.2
Phase Call Probability		1.00		1.00		0.97		0.97
Max Out Probability		1.00		0.02		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	249	607		8	315		41	98			347	
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1081	1894		827	1789		1173	1806			1544	
Queue Service Time ( g <sub>s</sub> ), s	5.5	7.1		0.2	3.2		0.8	1.0			3.9	
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	8.7	7.1		7.3	3.2		6.0	1.0			5.2	
Green Ratio ( g/C )	0.40	0.40		0.40	0.40		0.28	0.28			0.28	
Capacity ( c ), veh/h	579	756		382	714		378	512			630	
Volume-to-Capacity Ratio ( X )	0.430	0.802		0.020	0.441		0.109	0.191			0.550	
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	1.2	3.9		0.0	0.8		0.3	0.4			1.6	
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( d <sub>1</sub> ), s/veh	8.7	6.7		9.9	5.5		11.1	6.8			8.3	
Incremental Delay ( d <sub>2</sub> ), s/veh	0.2	5.8		0.0	0.2		0.0	0.1			0.3	
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay ( d ), s/veh	8.9	12.5		9.9	5.7		11.1	6.9			8.5	
Level of Service ( LOS )	A	B		A	A		B	A			A	
Approach Delay, s/veh / LOS	11.4		B	5.8		A	8.2		A	8.5		A
Intersection Delay, s/veh / LOS	9.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.86	B	1.63	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.90	B	1.02	A	0.72	A	1.06	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency				Duration, h	0.250		
Analyst		Analysis Date	2/20/2023	Area Type	Other		
Jurisdiction		Time Period		PHF	0.92		
Urban Street	Bluegrass Parkway	Analysis Year	2023	Analysis Period	1 > 7:00		
Intersection	Bluegrass Parkway at T...	File Name	2033_AM_BuildSig.xus				
Project Description	2033 AM Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand ( $v$ ), veh/h	79	256	134	103	405	18	66	22	128	8	7	6

Signal Information													
Cycle, s	21.5	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	8.8	4.7	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	0.0	0.0	0.0	0.0	0.0	0.0			

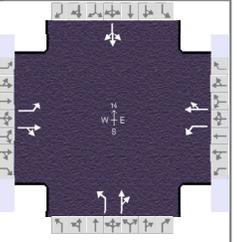
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		6.0		6.0		8.0
Phase Duration, s		12.8		12.8		8.7		8.7
Change Period, ( $Y+R_c$ ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( $MAH$ ), s		3.2		3.2		3.2		3.2
Queue Clearance Time ( $g_s$ ), s		7.8		6.1		3.8		2.2
Green Extension Time ( $g_e$ ), s		1.0		1.4		0.1		0.2
Phase Call Probability		1.00		1.00		0.79		0.79
Max Out Probability		1.00		0.62		1.00		0.63

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( $v$ ), veh/h	86	278	146	112	460		72	163			23	
Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln	947	1900	1610	1118	1886		1422	1647			1647	
Queue Service Time ( $g_s$ ), s	1.7	2.2	1.3	1.7	4.1		0.9	1.8			0.0	
Cycle Queue Clearance Time ( $g_c$ ), s	5.8	2.2	1.3	3.8	4.1		1.1	1.8			0.2	
Green Ratio ( $g/C$ )	0.41	0.41	0.41	0.41	0.41		0.22	0.22			0.22	
Capacity ( $c$ ), veh/h	541	777	659	679	771		632	361			592	
Volume-to-Capacity Ratio ( $X$ )	0.159	0.358	0.221	0.165	0.596		0.114	0.452			0.039	
Back of Queue ( $Q$ ), ft/ln ( 95 th percentile)												
Back of Queue ( $Q$ ), veh/ln ( 95 th percentile)	0.3	0.3	0.1	0.2	0.6		0.2	0.6			0.1	
Queue Storage Ratio ( $RQ$ ) ( 95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00			0.00	
Uniform Delay ( $d_1$ ), s/veh	7.2	4.4	4.1	5.7	5.0		7.1	7.3			6.6	
Incremental Delay ( $d_2$ ), s/veh	0.1	0.1	0.1	0.0	0.3		0.0	0.3			0.0	
Initial Queue Delay ( $d_3$ ), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay ( $d$ ), s/veh	7.3	4.5	4.2	5.8	5.2		7.1	7.6			6.7	
Level of Service (LOS)	A	A	A	A	A		A	A			A	
Approach Delay, s/veh / LOS	4.9		A	5.3		A	7.5		A	6.7		A
Intersection Delay, s/veh / LOS	5.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.85	B	1.63	B	1.87	B	2.06	B
Bicycle LOS Score / LOS	1.33	A	1.43	A	0.87	A	0.53	A

## HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency		Duration, h	0.250			
Analyst		Analysis Date	2/20/2023		Area Type	Other
Jurisdiction		Time Period	PHF			0.92
Urban Street	Tucker Station	Analysis Year	2023		Analysis Period	1 > 7:00
Intersection	S. Pope Lick at Tucker...	File Name	2033_PM_BuildSig.xus			
Project Description	2033 PM Build					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand ( v ), veh/h	241	568	10	7	195	104	38	64	26	116	17	200

Signal Information														
Cycle, s	26.4	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.7	7.6	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
				Red	0.0	0.0	0.0	0.0	0.0	0.0				

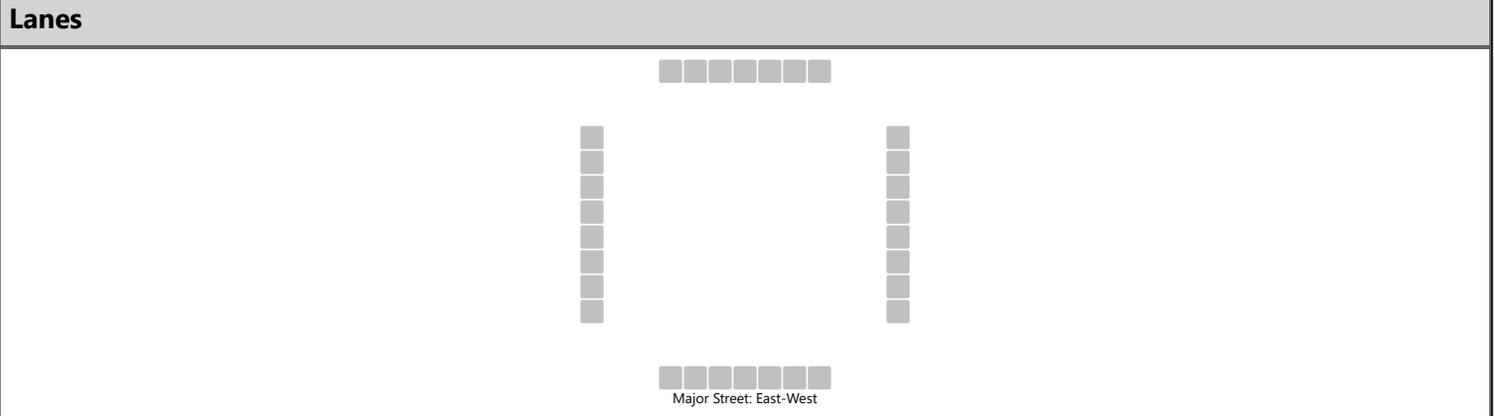
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		6.0		8.0
Phase Duration, s		14.7		14.7		11.6		11.6
Change Period, ( Y+R <sub>c</sub> ), s		4.0		4.0		4.0		4.0
Max Allow Headway ( MAH ), s		3.2		3.2		3.3		3.3
Queue Clearance Time ( g <sub>s</sub> ), s		11.6		10.0		8.6		7.7
Green Extension Time ( g <sub>e</sub> ), s		0.0		0.7		0.0		0.2
Phase Call Probability		1.00		1.00		0.97		0.97
Max Out Probability		1.00		0.03		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate ( v ), veh/h	262	628		8	325		41	98				362
Adjusted Saturation Flow Rate ( s ), veh/h/ln	1072	1894		810	1788		1163	1806				1543
Queue Service Time ( g <sub>s</sub> ), s	6.2	7.8		0.2	3.5		0.9	1.1				4.3
Cycle Queue Clearance Time ( g <sub>c</sub> ), s	9.6	7.8		8.0	3.5		6.6	1.1				5.7
Green Ratio ( g/C )	0.41	0.41		0.41	0.41		0.29	0.29				0.29
Capacity ( c ), veh/h	568	771		364	728		360	524				631
Volume-to-Capacity Ratio ( X )	0.461	0.815		0.021	0.446		0.115	0.187				0.573
Back of Queue ( Q ), ft/ln ( 95 th percentile)												
Back of Queue ( Q ), veh/ln ( 95 th percentile)	1.4	4.5		0.0	0.9		0.3	0.4				1.9
Queue Storage Ratio ( RQ ) ( 95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00				0.00
Uniform Delay ( d <sub>1</sub> ), s/veh	9.2	6.9		10.5	5.7		11.7	7.0				8.6
Incremental Delay ( d <sub>2</sub> ), s/veh	0.2	6.3		0.0	0.2		0.1	0.1				0.4
Initial Queue Delay ( d <sub>3</sub> ), s/veh	0.0	0.0		0.0	0.0		0.0	0.0				0.0
Control Delay ( d ), s/veh	9.4	13.2		10.5	5.8		11.8	7.1				9.0
Level of Service ( LOS )	A	B		B	A		B	A				A
Approach Delay, s/veh / LOS	12.1	B		5.9	A		8.5	A		9.0		A
Intersection Delay, s/veh / LOS	10.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.86	B	1.63	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	1.96	B	1.04	A	0.72	A	1.08	A

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access 2 at Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	S. Pope Lick		
Analysis Year	2023			North/South Street	Prop. Access 2		
Time Analyzed	2023 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			135	47		32	712			7		5				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

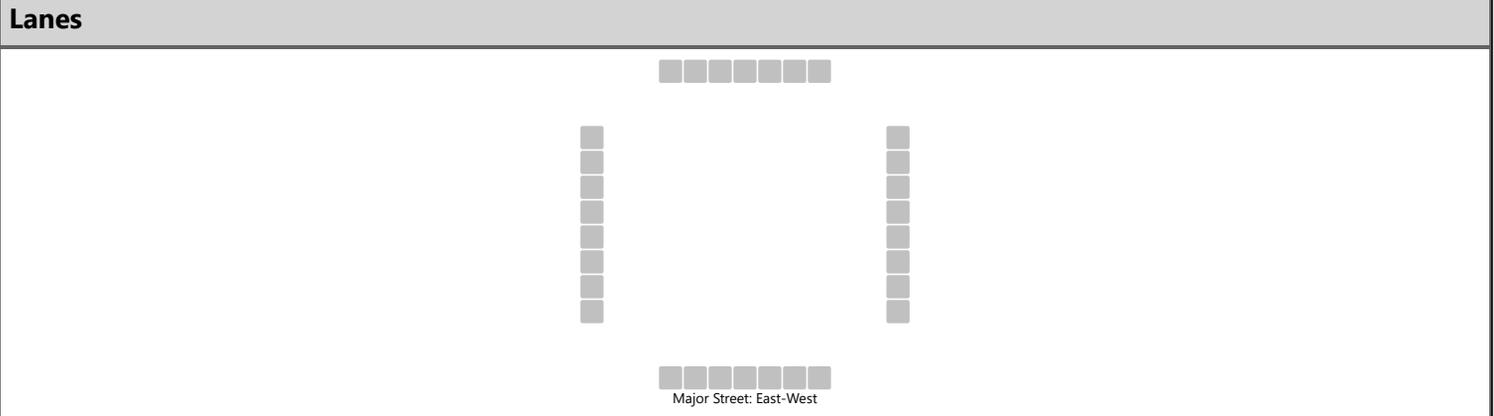
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)						35					8		5			
Capacity, c (veh/h)						1369					251		869			
v/c Ratio						0.03					0.03		0.01			
95% Queue Length, Q <sub>95</sub> (veh)						0.1					0.1		0.0			
Control Delay (s/veh)						7.7	0.3				19.8		9.2			
Level of Service (LOS)						A	A				C		A			
Approach Delay (s/veh)					0.7				15.4							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access 2 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	S. Pope Lick		
Analysis Year	2023			North/South Street	Prop. Access 2		
Time Analyzed	2023 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



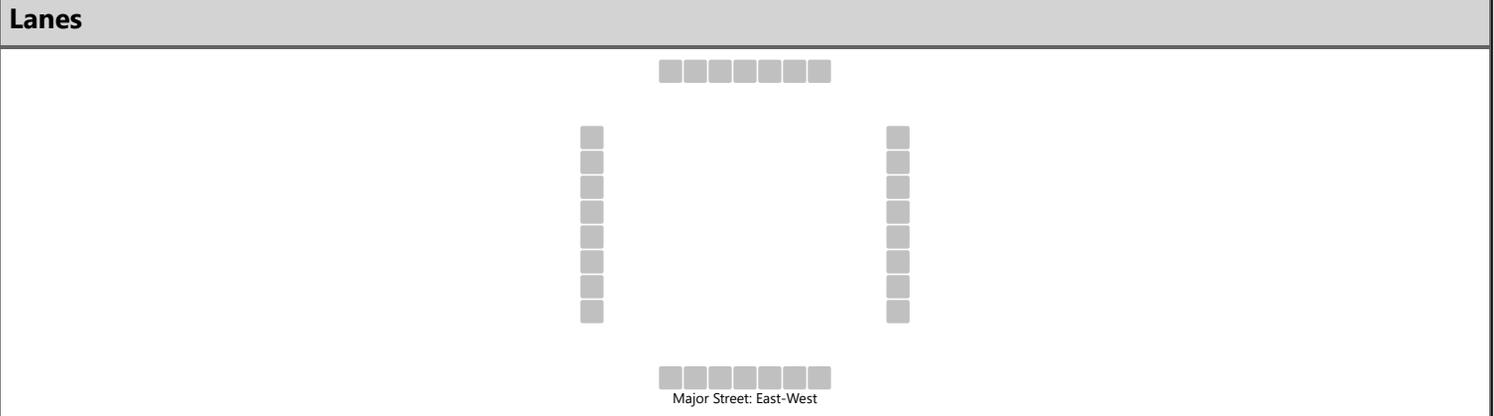
Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			673	11		8	257			42		29				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						9					46		32			
Capacity, c (veh/h)						859					253		416			
v/c Ratio						0.01					0.18		0.08			
95% Queue Length, Q <sub>95</sub> (veh)						0.0					0.6		0.2			
Control Delay (s/veh)						9.2	0.1				22.3		14.4			
Level of Service (LOS)						A	A				C		B			
Approach Delay (s/veh)					0.4				19.1							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access 2 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	S. Pope Lick		
Analysis Year	2023			North/South Street	Prop. Access 2		
Time Analyzed	2033 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



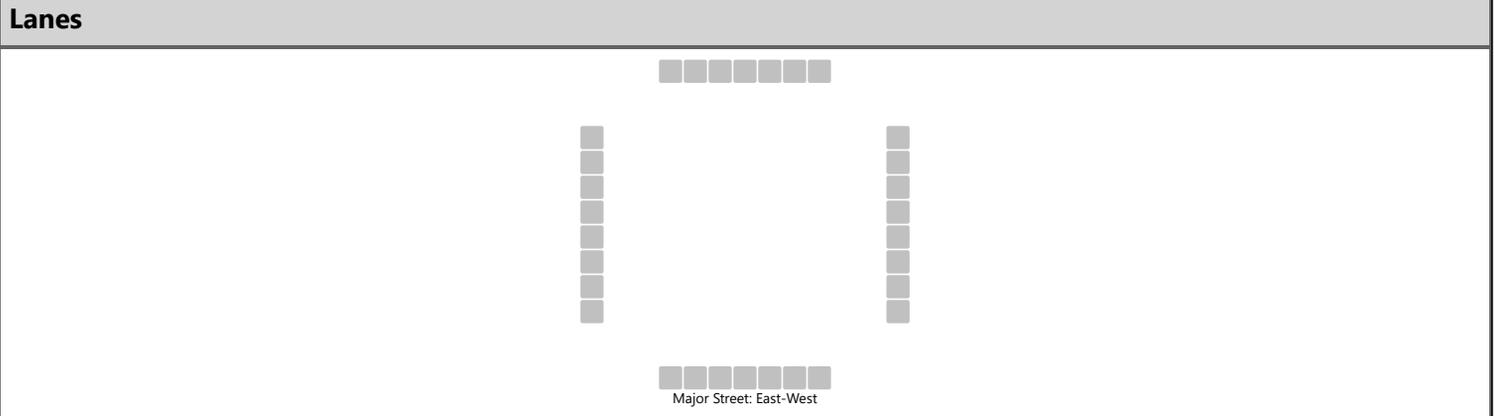
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			140	47		32	737			7		5				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)							4.1					7.1		6.2		
Critical Headway (sec)							4.13					6.43		6.23		
Base Follow-Up Headway (sec)							2.2					3.5		3.3		
Follow-Up Headway (sec)							2.23					3.53		3.33		

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)							35					8		5		
Capacity, c (veh/h)							1362					240		863		
v/c Ratio							0.03					0.03		0.01		
95% Queue Length, Q <sub>95</sub> (veh)							0.1					0.1		0.0		
Control Delay (s/veh)							7.7	0.4				20.5		9.2		
Level of Service (LOS)							A	A				C		A		
Approach Delay (s/veh)					0.7				15.8							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Prop Access 2 Tucker Station		
Agency/Co.	AKE			Jurisdiction	Jefferson County		
Date Performed	2/20/2023			East/West Street	S. Pope Lick		
Analysis Year	2023			North/South Street	Prop. Access 2		
Time Analyzed	2033 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



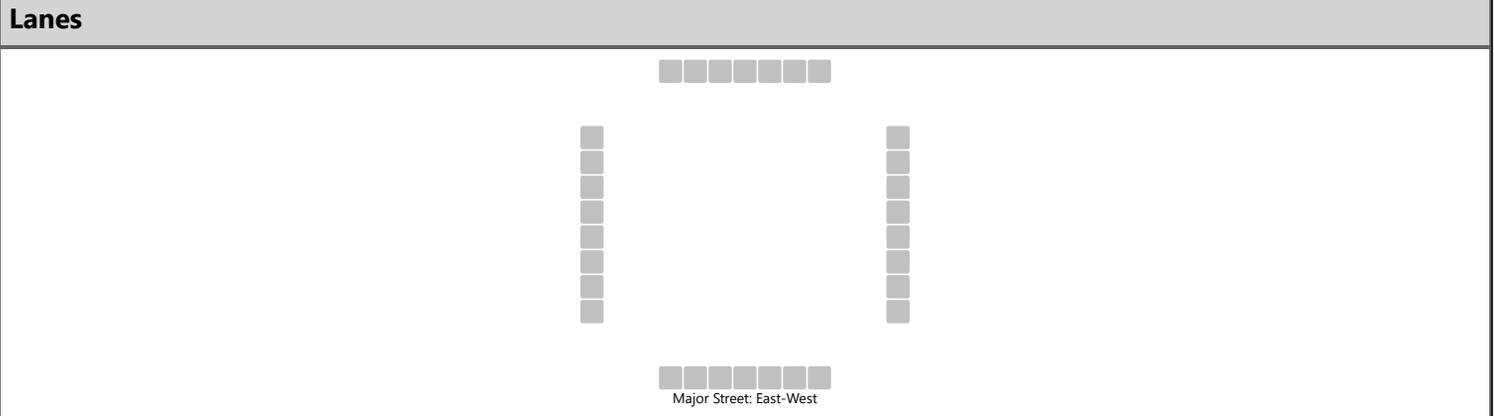
Vehicle Volumes and Adjustments																
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Configuration				TR		LT				L		R				
Volume (veh/h)			698	11		8	265			42		29				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized									No							
Median Type   Storage	Undivided															

Critical and Follow-up Headways																
Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

Delay, Queue Length, and Level of Service																
Flow Rate, v (veh/h)						9					46		32			
Capacity, c (veh/h)						840					241		402			
v/c Ratio						0.01					0.19		0.08			
95% Queue Length, Q <sub>95</sub> (veh)						0.0					0.7		0.3			
Control Delay (s/veh)						9.3	0.1				23.4		14.7			
Level of Service (LOS)						A	A				C		B			
Approach Delay (s/veh)					0.4				19.9							
Approach LOS					A				C							

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2023 AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		11	172	21		2	110	2		1	0	0		0	0	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

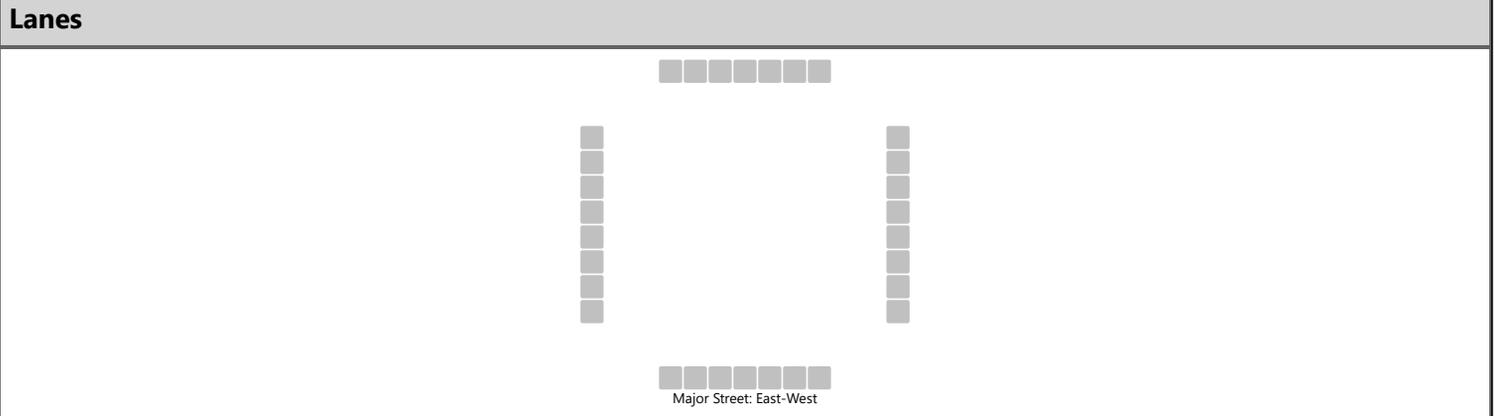
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		12				2					1					7	
Capacity, c (veh/h)		1456				1351					630					988	
v/c Ratio		0.01				0.00					0.00					0.01	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.0	
Control Delay (s/veh)		7.5	0.1			7.7	0.0				10.7					8.7	
Level of Service (LOS)		A	A			A	A				B					A	
Approach Delay (s/veh)		0.5				0.1				10.7				8.7			
Approach LOS		A				A				B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2023 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		47	172	21		2	110	38		1	0	0		6	0	12
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

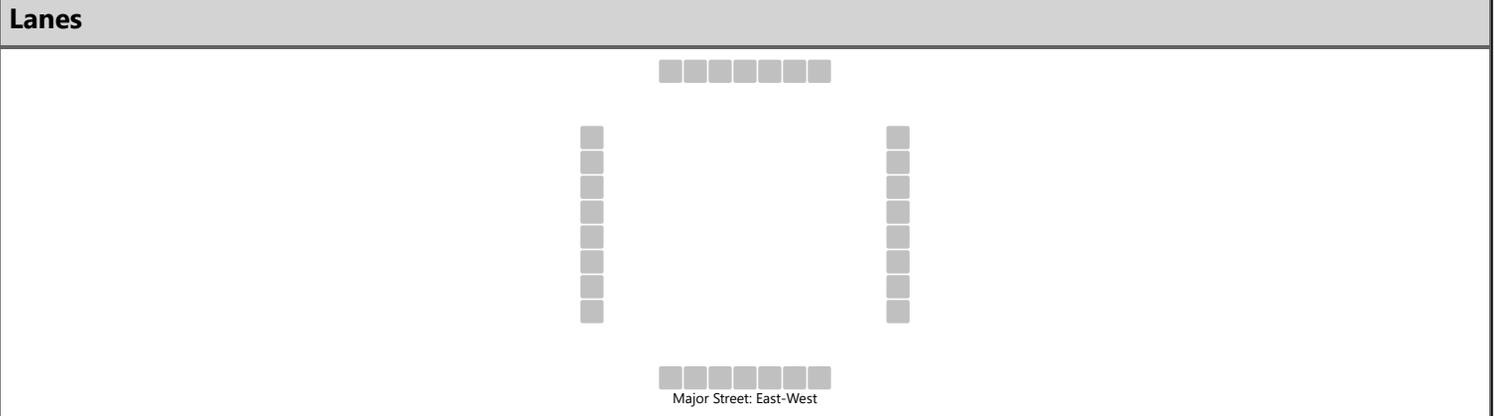
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		51				2					1					20	
Capacity, c (veh/h)		1408				1351					534					778	
v/c Ratio		0.04				0.00					0.00					0.03	
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					0.0					0.1	
Control Delay (s/veh)		7.7	0.2			7.7	0.0				11.8					9.7	
Level of Service (LOS)		A	A			A	A				B					A	
Approach Delay (s/veh)		1.6				0.1				11.8				9.7			
Approach LOS		A				A				B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2023 PM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		3	137	2		0	156	1		16	0	1		2	0	11
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

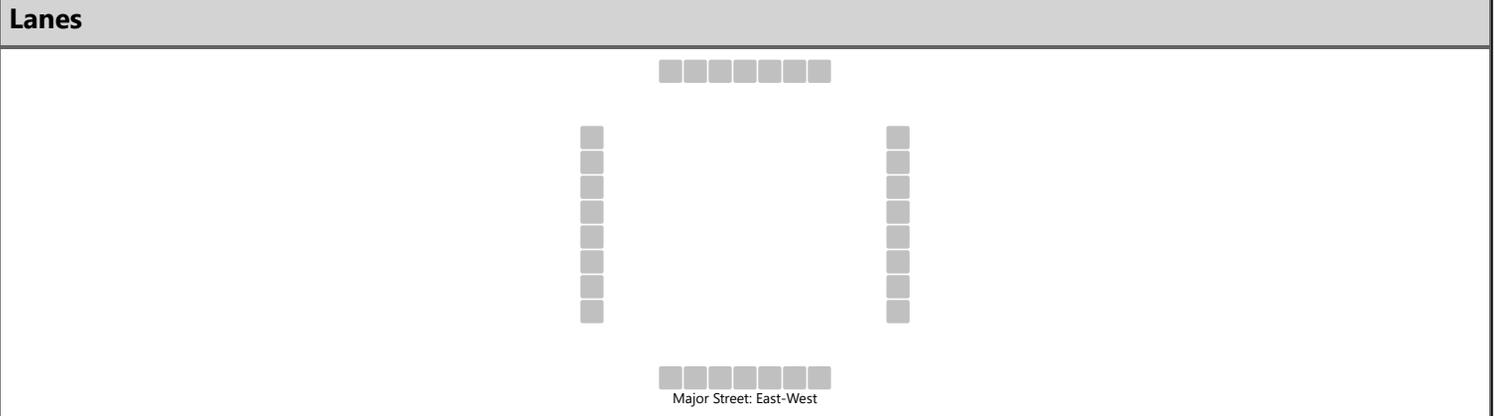
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		3				0					18					14	
Capacity, c (veh/h)		1397				1420					692					897	
v/c Ratio		0.00				0.00					0.03					0.02	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.0	
Control Delay (s/veh)		7.6	0.0			7.5	0.0				10.3					9.1	
Level of Service (LOS)		A	A			A	A				B					A	
Approach Delay (s/veh)		0.2				0.0				10.3				9.1			
Approach LOS		A				A				B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2023 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		12	137	2		0	156	10		16	0	1		34	0	43
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

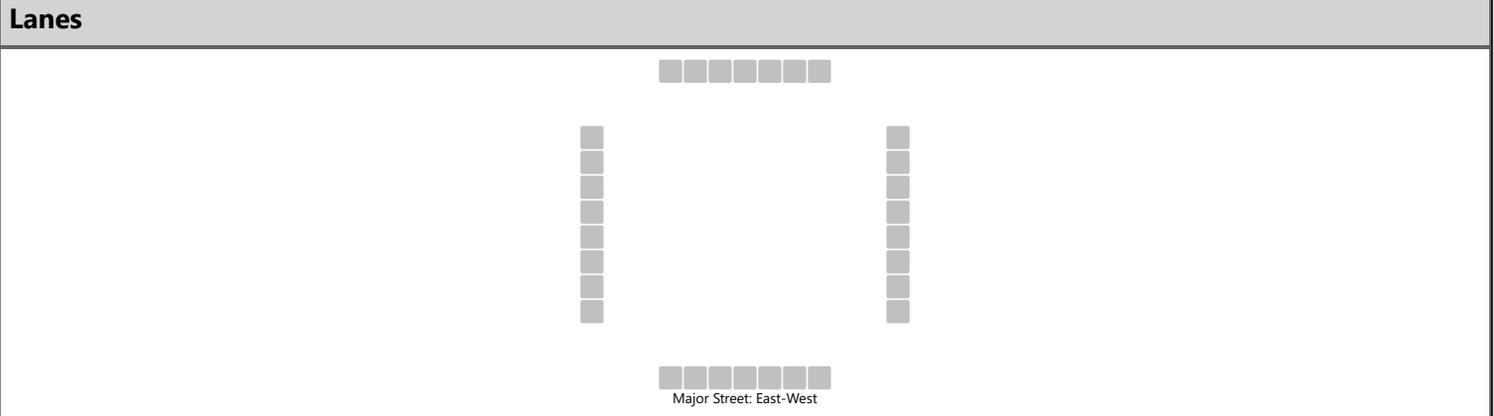
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		13				0					18					84	
Capacity, c (veh/h)		1385				1420					642					785	
v/c Ratio		0.01				0.00					0.03					0.11	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.4	
Control Delay (s/veh)		7.6	0.1			7.5	0.0				10.8					10.1	
Level of Service (LOS)		A	A			A	A				B					B	
Approach Delay (s/veh)		0.7				0.0				10.8				10.1			
Approach LOS		A				A				B				B			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2033 AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0	0	1	0	0	0	1	0	
Configuration		LT		TR		LT		TR		LTR				LTR		
Volume (veh/h)		12	180	22		2	115	2		1	0	0		0	0	6
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

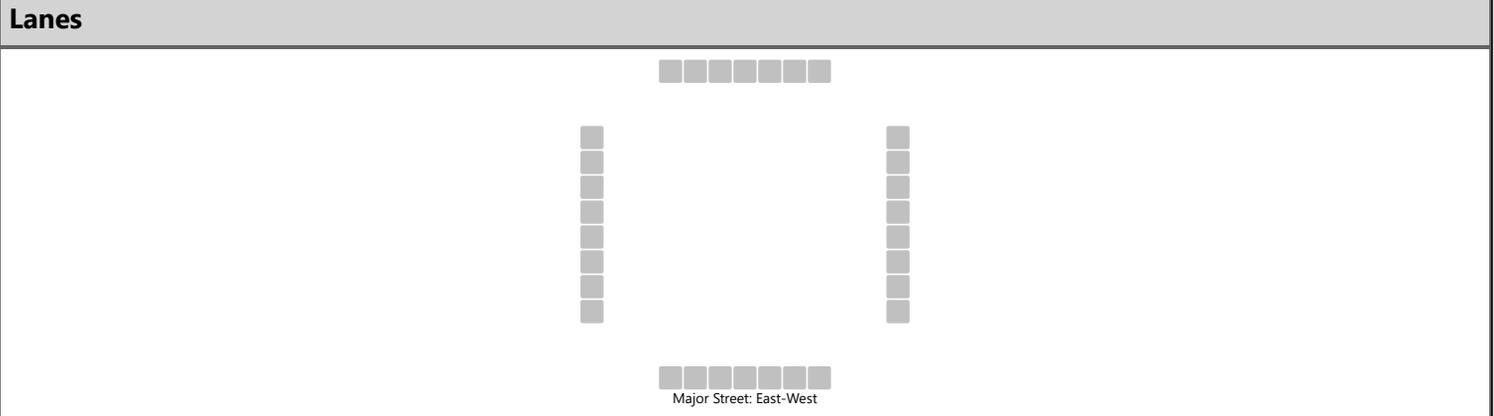
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		13				2					1					7	
Capacity, c (veh/h)		1449				1340					615					984	
v/c Ratio		0.01				0.00					0.00					0.01	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.0					0.0	
Control Delay (s/veh)		7.5	0.1			7.7	0.0				10.9					8.7	
Level of Service (LOS)		A	A			A	A				B					A	
Approach Delay (s/veh)		0.5				0.1				10.9				8.7			
Approach LOS		A				A				B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2033 AM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		48	180	22		2	115	38		1	0	0		6	0	12
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

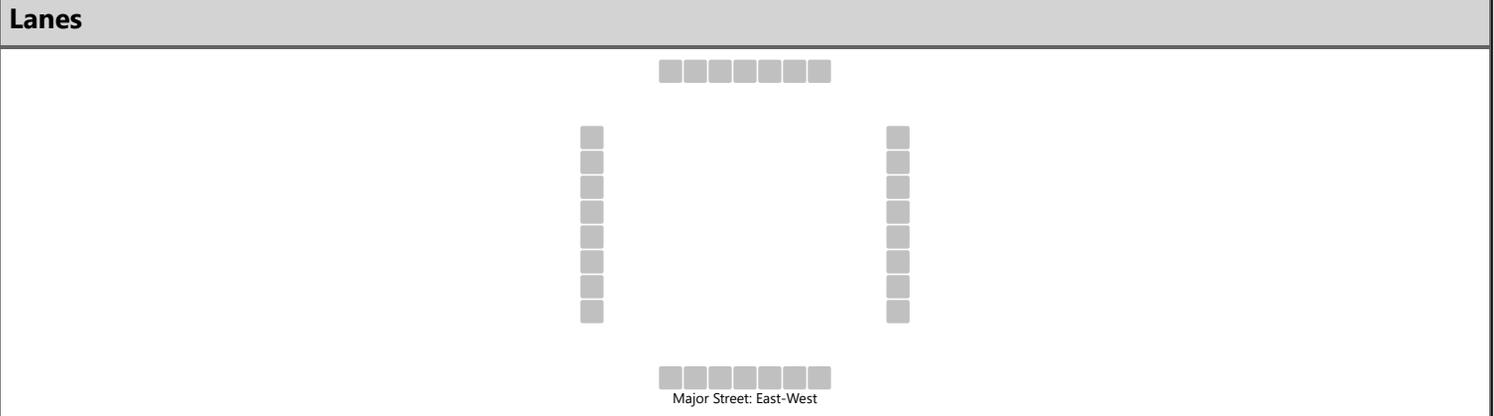
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		52				2					1					20		
Capacity, c (veh/h)		1402				1340					521					769		
v/c Ratio		0.04				0.00					0.00					0.03		
95% Queue Length, Q <sub>95</sub> (veh)		0.1				0.0					0.0					0.1		
Control Delay (s/veh)		7.7	0.2			7.7	0.0				11.9					9.8		
Level of Service (LOS)		A	A			A	A				B					A		
Approach Delay (s/veh)		1.6				0.1					11.9				9.8			
Approach LOS		A				A					B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2033 PM No Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		3	143	2		0	164	1		17	0	1		2	0	12
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

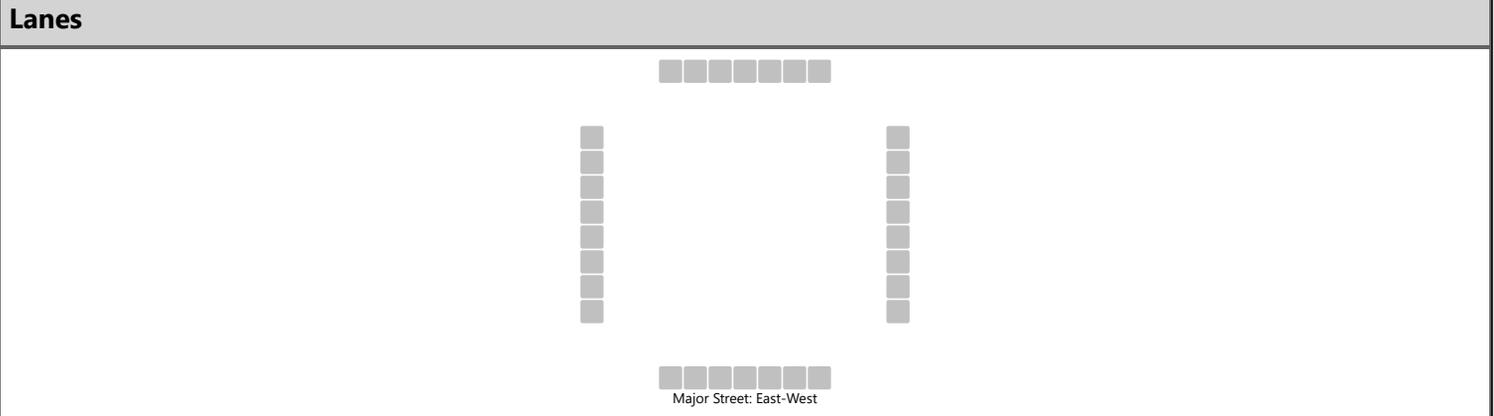
Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		3				0					20					15	
Capacity, c (veh/h)		1386				1412					678					893	
v/c Ratio		0.00				0.00					0.03					0.02	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.1	
Control Delay (s/veh)		7.6	0.0			7.5	0.0				10.5					9.1	
Level of Service (LOS)		A	A			A	A				B					A	
Approach Delay (s/veh)		0.2				0.0				10.5				9.1			
Approach LOS		A				A				B				A			

# HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	AJK			Intersection	Schutte Station at Plantside Dr		
Agency/Co.	AKE			Jurisdiction	Jefferson Co		
Date Performed	2/20/2023			East/West Street	Plantside Dr.		
Analysis Year	2023			North/South Street	Schutte Station		
Time Analyzed	2033 PM Build			Peak Hour Factor	0.92		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Xebec Development						



**Vehicle Volumes and Adjustments**

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	2	0	0	0	2	0		0	1	0		0	1	0
Configuration		LT		TR		LT		TR			LTR				LTR	
Volume (veh/h)		12	143	2		0	164	10		17	0	1		34	0	44
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type   Storage	Undivided															

**Critical and Follow-up Headways**

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.16				4.16				7.56	6.56	6.96		7.56	6.56	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

**Delay, Queue Length, and Level of Service**

Flow Rate, v (veh/h)		13				0					20					85	
Capacity, c (veh/h)		1375				1412					630					776	
v/c Ratio		0.01				0.00					0.03					0.11	
95% Queue Length, Q <sub>95</sub> (veh)		0.0				0.0					0.1					0.4	
Control Delay (s/veh)		7.6	0.1			7.5	0.0				10.9					10.2	
Level of Service (LOS)		A	A			A	A				B					B	
Approach Delay (s/veh)		0.6				0.0				10.9				10.2			
Approach LOS		A				A				B				B			

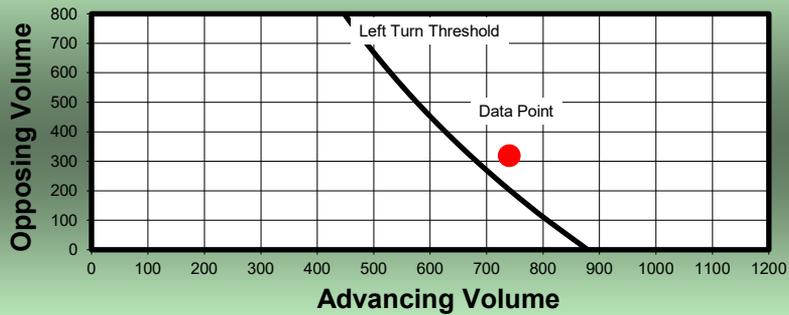
## **APPENDIX F: AUXILLIARY TURN LANE WARRANTS**

## Access Point 1 (AM Peak) Westbound Left Turn Lane Warrants

### Input Fields

Left Turn Volume (vph)	29	Speed Limit (mph)	35
Advancing Volume (vph)	732	No. of through lanes	1
Opposing Volume (vph)	319	Percent Heavy Vehicles (decimal percent)	0.05

### Left Turn Lane Warrants



**Left Turn Lane WARRANTED**

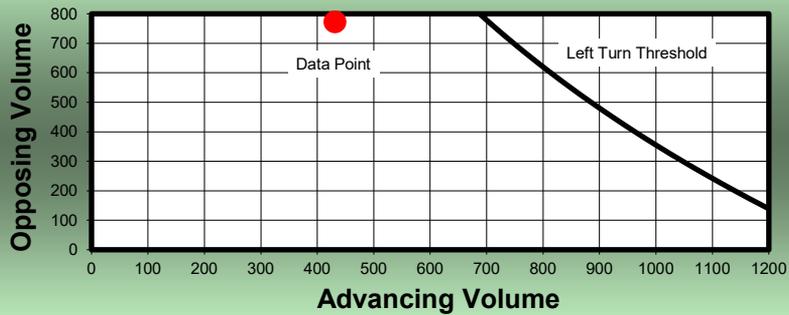
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 1 (PM Peak) Westbound Left Turn Lane Warrants

### Input Fields

Left Turn Volume (vph)	7	Speed Limit (mph)	35
Advancing Volume (vph)	420	No. of through lanes	1
Opposing Volume (vph)	773	Percent Heavy Vehicles (decimal percent)	0.05

### Left Turn Lane Warrants



**Left Turn Lane NOT Warranted**

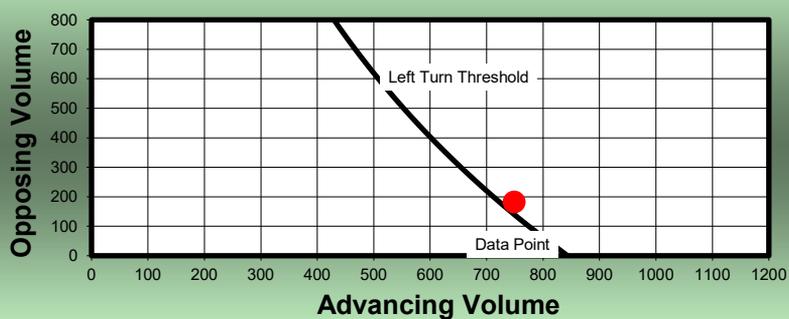
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 2 (AM Peak) Westbound Left Turn Lane Warrants

### Input Fields

Left Turn Volume (vph)	32	Speed Limit (mph)	35
Advancing Volume (vph)	744	No. of through lanes	1
Opposing Volume (vph)	182	Percent Heavy Vehicles (decimal percent)	0.05

### Left Turn Lane Warrants



**Left Turn Lane WARRANTED**

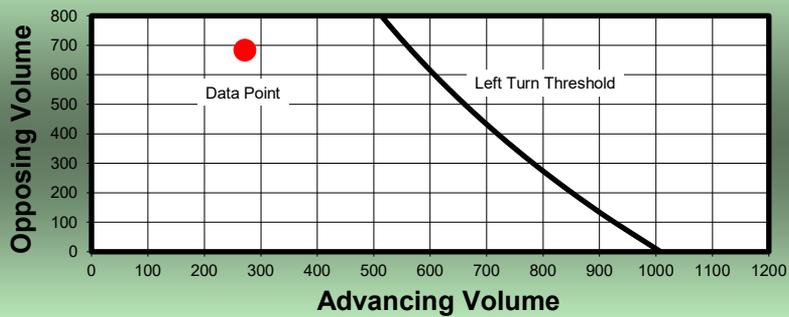
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 2 (PM Peak) Westbound Left Turn Lane Warrants

### Input Fields

Left Turn Volume (vph)	8	Speed Limit (mph)	35
Advancing Volume (vph)	265	No. of through lanes	1
Opposing Volume (vph)	684	Percent Heavy Vehicles (decimal percent)	0.05

### Left Turn Lane Warrants



**Left Turn Lane NOT Warranted**

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 1 (AM Peak) Eastbound Right Turn Lane Warrants

### Input Fields

Right Turn Volume (vph)

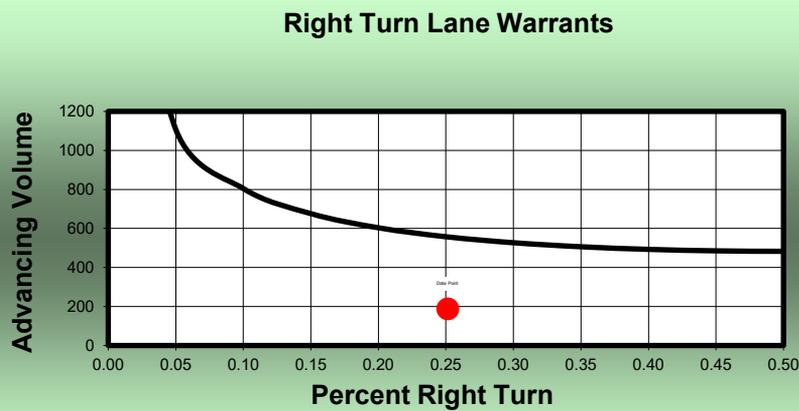
47

Speed Limit (mph)

35

Advancing Volume (vph)

187



**Right Turn Lane NOT Warranted**

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 1 (PM Peak) Eastbound Right Turn Lane Warrants

### Input Fields

Right Turn Volume (vph)

11

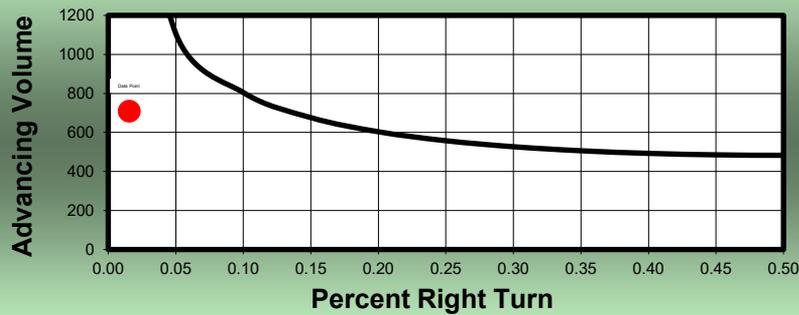
Speed Limit (mph)

35

Advancing Volume (vph)

709

### Right Turn Lane Warrants



Right Turn Lane NOT Warranted

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## Access Point 2 (AM Peak) Eastbound Right Turn Lane Warrants

### Input Fields

Right Turn Volume (vph)

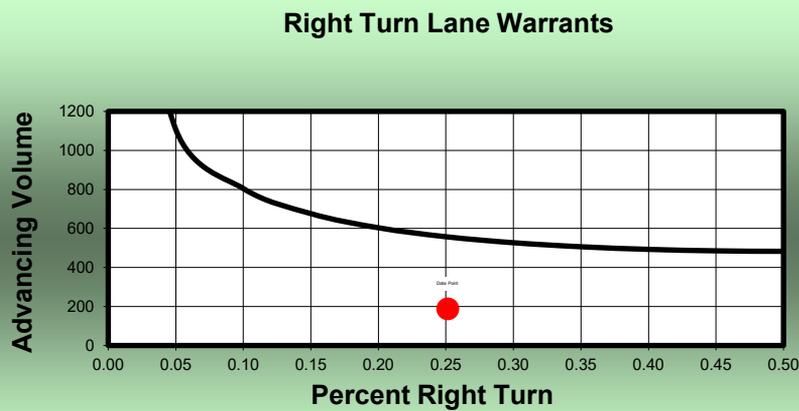
47

Speed Limit (mph)

35

Advancing Volume (vph)

187



**Right Turn Lane NOT Warranted**

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

## Access Point 2 (PM Peak) Eastbound Right Turn Lane Warrants

### Input Fields

Right Turn Volume (vph)

11

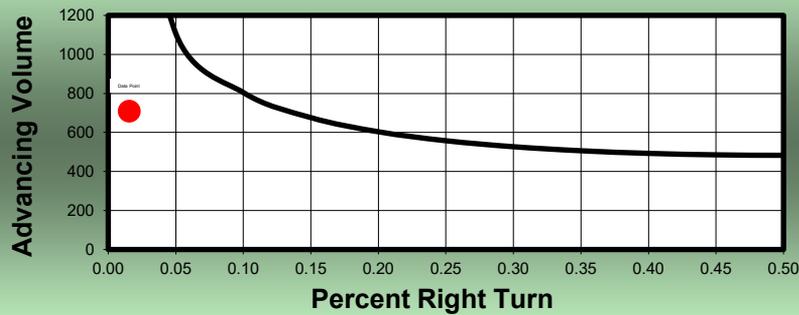
Speed Limit (mph)

35

Advancing Volume (vph)

709

### Right Turn Lane Warrants



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.