Traffic Impact Study

Multi-Family Housing - Lexington, KY

Prepared for

Earthcycle Design, LLC

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Palmer ENGINEERING

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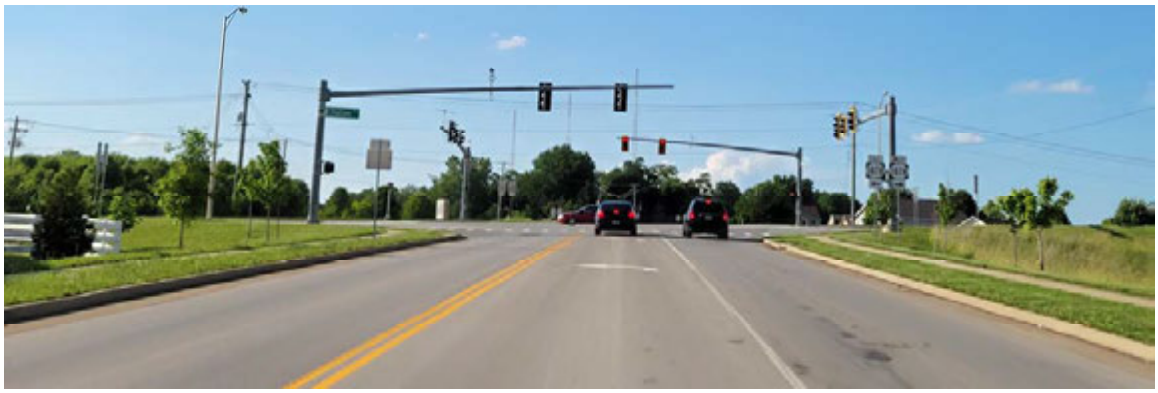
INTRODUCTION

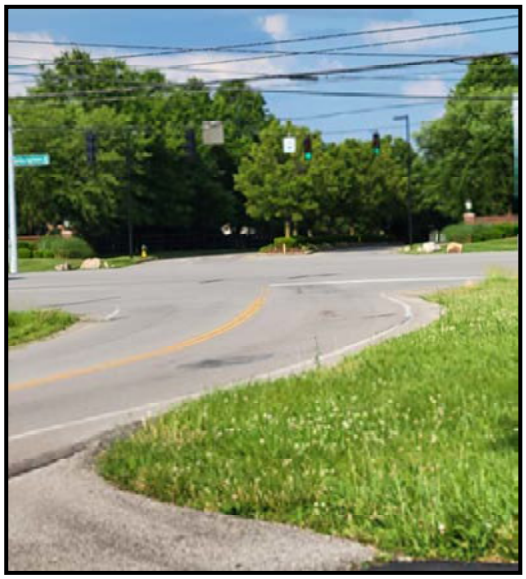
This traffic study was undertaken to assess the traffic impact of a proposed development in Fayette County, Kentucky in the City of Lexington. The development will be located along the east side of Greendale Road adjacent to WUKY and Kentucky Eagle Inc. The vicinity map (Map 1) displays the location of the proposed development and study area.



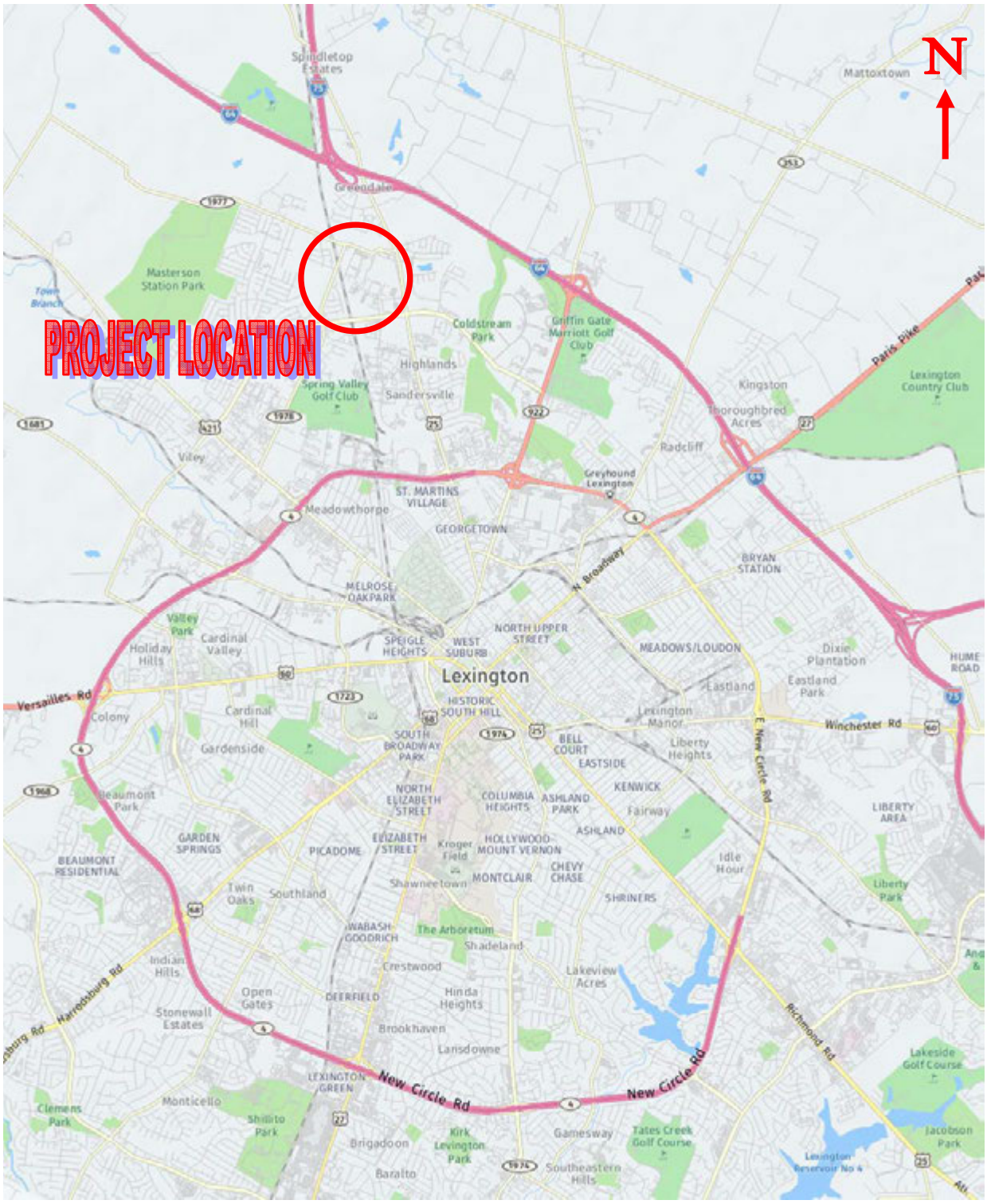
Intersection of Greendale Rd at Citation Blvd

The proposed development consists of multifamily housing located on an undeveloped tract of land. The site of the proposed development is currently zoned (Map 2) I-1 (Light Industrial).

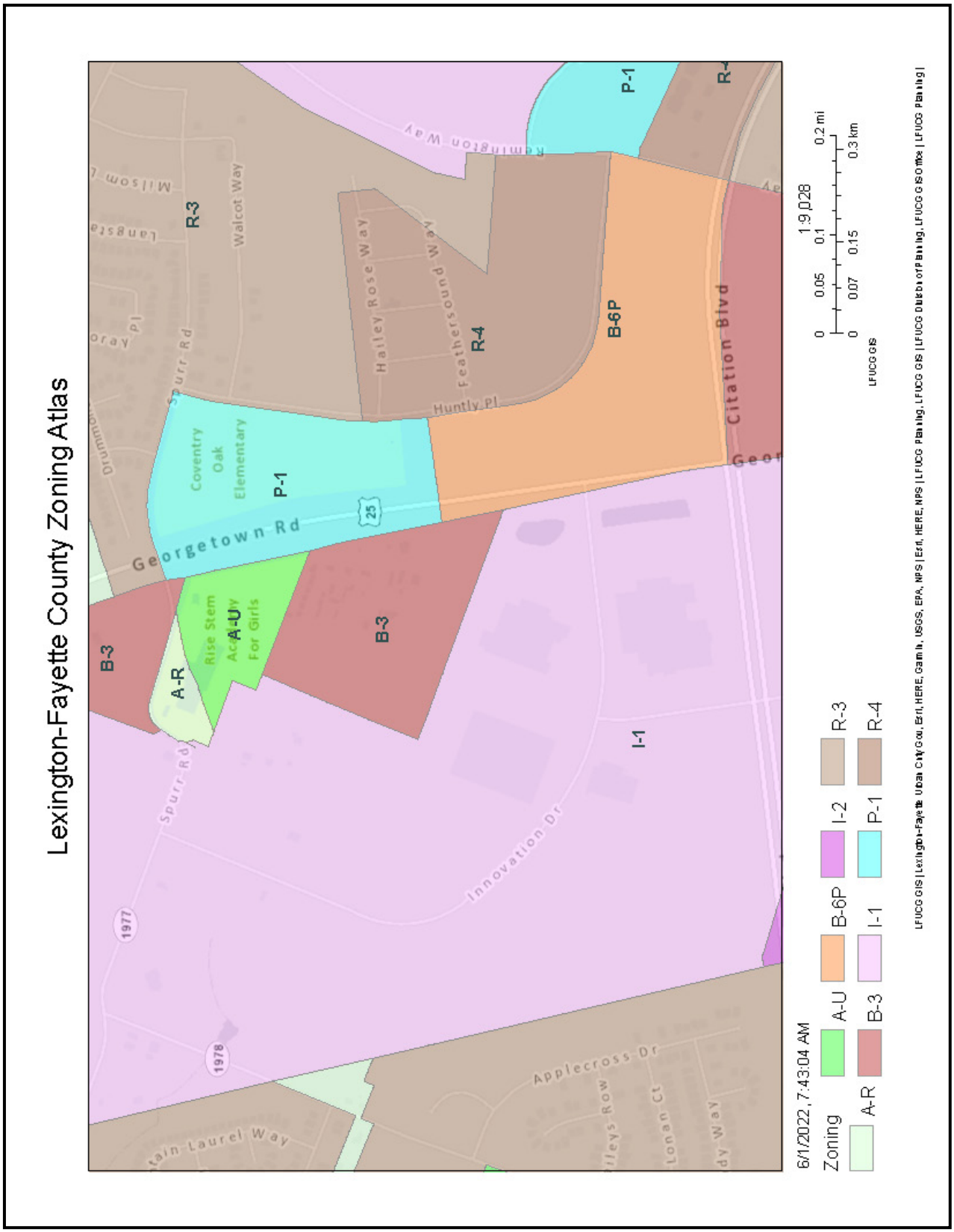
This traffic impact study included 5 intersections; the signalized intersection of Citation Boulevard at Greendale Road, the signalized intersection of Georgetown Road at Spurr Road, the three-way intersection of Greendale Road at Spurr Road, the three-way intersection of Spurr Road at the Kentucky Eagle Inc. access, and the three-way intersection of Spurr Road at Innovation Drive. In the vicinity of the project there are a mixture of residential and industrial land uses.



Intersection of Spurr Rd at Georgetown Rd (Left) Intersection of Spurr Rd at Innovation Dr (Right)



Map 1. **Vicinity Map**



***Map 2.* Zoning Map**

EXISTING CONDITIONS

Regional and Local Access

Greendale Road and Spurr Road will provide local access to the proposed development. Georgetown Road and Citation Boulevard will provide regional access to the proposed site. A brief description of the surrounding roadways follows:

Greendale Road – Greendale Road is a major collector that provides local access to the proposed development. Greendale Road generally runs in a south to north direction in the study area. The road is not currently striped but provides space for one vehicle travelling in each direction. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 45 mph.

Spurr Road – Spurr Road is a major collector that provides local access to the proposed development. Spurr road generally runs in an east to west direction in the study area. Lane widths measure approximately 10 feet. In the vicinity of the project site, this road consists of one thru lane in each direction. The existing speed limit is posted at 45 mph.

Georgetown Road – Georgetown Road is a minor arterial that provides regional access to the proposed development. Georgetown road generally runs in a north-south direction in the study area. Lane widths measure approximately 11 feet with a two-way left turn lane operating as a flush median and intermittent designated turn lanes. In the vicinity of the project site, this road consists of two thru lanes in each direction. The existing speed limit is posted at 55 mph.

Citation Boulevard – Citation Boulevard is a minor arterial that provides regional access to the proposed development. Citation Boulevard generally runs in an east to west direction in the study area. Lane widths measure approximately 12 feet with a depressed grass median and intermittent turn lanes. In the vicinity of the project site, the road consists of two thru lanes in each direction. The existing speed limit is posted at 50 mph.

LEVEL OF SERVICE AND DELAY

Level of Service (LOS) was used as the measure of effectiveness for each lane and turning movement. According to the Highway Capacity Manual, the level of service is defined in terms of delay (See Tables 1 and 2). Delay results in driver discomfort, frustration, fuel consumption, and lost travel time. Delay is caused by a number of factors including traffic signal timing, geometrics, traffic congestion, and accidents at an intersection. Level of Service is based on a grade scale from A to F with A being excellent and F being failure. A Level of Service C is desirable, and D is acceptable in an urban setting.

Table 1 – Unsignalized Intersections

Level of Service	Delay (Seconds per Vehicle)
A	<=10
B	>10 and <=15
C	>15 and <=25
D	>25 and <=35
E	>35 and <=50
F	>50

Table 2 – Signalized Intersections

Level of Service	Delay (Seconds per Vehicle)
A	<=10
B	>10 and <=20
C	>20 and <=35
D	>35 and <=55
E	>55 and <=80
F	>80

Base Traffic Volumes (existing condition)

Manual traffic counts were taken from 6:30 AM to 9:00 AM and 2:00 to 6:00 PM on May 18, 2022 at the intersections of Greendale Road at Citation Boulevard, Greendale Road at Spurr Road, Spurr Road at Kentucky Eagle Inc. Access, Spurr Road at Innovation Drive, and Spurr Road at Georgetown Road. All traffic volumes can be found in the Appendix.

Background Traffic Volumes

The estimated completion date for the proposed development is by the end of 2022. The KYTC historic traffic volumes along Georgetown Road showed an annual increase of 2.26% from 2006 to 2018. Counts after 2019 were ignored due to the COVID-19 pandemic and its effect on traffic volumes. Due to the lack of data along Citation Blvd it was determined that an accurate growth rate could not be calculated with 3 years of traffic data; therefore, it was assumed that since Citation Blvd is in the same vicinity as the Georgetown Rd volumes Citation Blvd will experience similar growth rates. Traffic along Spurr Rd has been decreasing over the past 10 years and historic traffic along Greendale Rd was not considered accurate because the count station is located south of Citation Blvd where many of the trips likely turn off of Greendale Rd. This traffic study assumes a 2.5% annual growth rate for through movements along Georgetown Rd and Citation Blvd. Greendale Rd and Spurr Rd were assumed to have no growth over the next ten years.

METHODOLOGY

Level of Service, delay, and queue length were measures of effectiveness analyzed using the HCS2022 software.

Trips were generated for the proposed development and then distributed to the roadway system based on the existing traffic patterns and engineering judgment. For the analysis, the study uses traffic volumes from the current year, as well as a future build out year in which the traffic volumes were grown at a rate determined by historic traffic counts in the area. The assigned volumes from the proposed development and the background traffic volumes combined to produce the total proposed traffic volumes for existing and build out conditions. HCS2022 was used to analyze the roadway network for existing and proposed conditions in both the current year, build year (2022), and design year (2032). The 2022 background, level-of-service, and vehicle delay can be found in the Appendix along with 2022 no build (Fig 1), 2022 proposed (Fig 6), 2032 No Build (Fig 7), and 2032 Build (Fig 8) traffic volumes.

TRIP GENERATION AND PROJECTED TRAFFIC VOLUMES

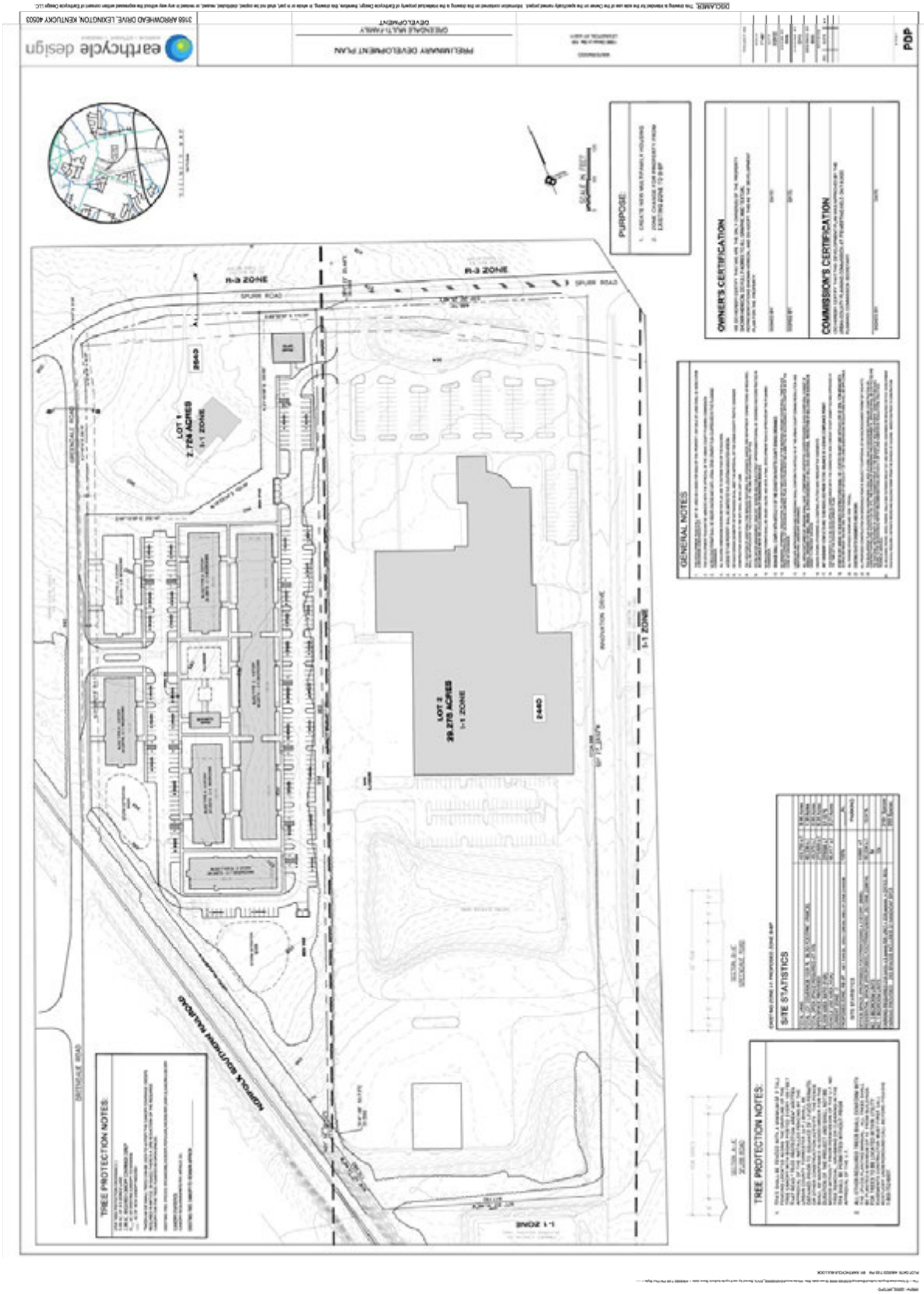
Trip estimates for the proposed development are based upon information provided in the by *Trip Generation, 11th Edition,* a nationally recognized resource of trip generation rates published by the Institute of Transportation Engineers.

SITE TRIP GENERATION

The proposed site will consist of a multifamily housing mid-rise with 216 units and a three story office building totaling in 7,500 sqft. For this study a multifamily housing (mid-rise) not close to rail transit (Code 221) and small office building (Code 712) was used. The ITE rates generate 93 (AM Peak), and 100 vehicles (PM peak).

Proposed Greendale Multifamily Development Trip Generation Tables								
ITE			Average					
Code	Land Use	Sq. Ft./Units	Rate	AM Peak	In	%	Out	%
221	Multifamily Housing (Mid-Rise) Not Close to Rail Transit	216	0.37	*80*	*18*	23%	*62*	77%
712	Small Office Building	7,500	1.67	*13*	*11*	82%	*2*	18%
	AM Total			*93*	*29*		*64*	
ITE			Average					
Code	Land Use	Sq. Ft./Units	Rate	PM Peak	In	%	Out	%
221	Multifamily Housing (Mid-Rise) Not Close to Rail	216	0.39	*84*	*51*	61%	*33*	39%
712	Small Office Building	7,500	2.16	*16*	*5*	34%	*11*	66%
	PM Total			*100*	*56*		*44*	

Table 3 - Trip Generation Table



Map 3. ***Site Map***

TRIP DISTRIBUTION

	Distribution	
From the North via Georgetown Rd	(20%) AM,	30% PM
From the South via Georgetown Rd	(30%) AM,	30% PM
From the East via Citation Blvd	(20%) AM,	15% PM
From the West via Citation Blvd	(20%) AM,	20% PM
From the West via Spurr Rd	(10%) AM,	5% PM

LEVEL OF SERVICE AND DELAY ANALYSIS

All intersection traffic volumes, vehicle delay, and level of service information can be found in the Appendix. The 2032 base traffic volume information will be the focus upon comparisons between the projected background traffic and the proposed traffic volumes (full build out). The 2032 No-Build volumes would exist on the roadway system in the absence of the proposed development and the 2032 Build Volumes are the volumes with the proposed development(s) included.

The No-Build Scenario analysis assumes that no proposed improvements to the roadway system have been implemented. This would be the case assuming the proposed development was not built.

INTERSECTION ANALYSIS

2022 Existing Analysis

The HCS analysis reveals that the signalized intersections currently operate at a LOS "D" or better for all peak hours. Individual movements operate across the spectrum from LOS "A" to LOS "F". The queue analysis reveals the majority of queueing occurs in the major through movements at the signalized intersection where storage lengths are adequate; however there is also significant queueing along the minor road at the intersection of Georgetown Rd and Spurr Rd.

The intersection of Georgetown Rd and Spurr Rd is a signalized intersection with the worst LOS movements. The westbound left turning movement operates as a LOS "F" during the AM peak hour and a LOS "E" during the PM peak hour. With the exception of this movement all other movements operate at a LOS "D" or better during both peaks. The queue analysis revealed that much of the queueing occurs in the northbound and southbound through movements. During the AM peak the eastbound lane exiting Spurr Rd extends to 354 feet or approximately 18 vehicles. The westbound left extends to 326 feet or approximately 16 vehicles.

The intersection of Greendale Rd and Citation Blvd is a signalized intersection and operates as a LOS "C" during both peak hours. The southbound left turning movement from Greendale Rd onto Citation Blvd operates as a LOS "E" during both peak hours. All other movements operate as a LOS "D" or better. The worst queue movement is the northbound through/right movement from Greendale Rd, which extends to 256 feet or approximately 13 vehicles.

The two way stop controlled intersection of Greendale Rd at Spurr Rd, Spurr Rd at Innovation Dr, and Spurr Rd at the KY Eagle Inc. entrance operate with minimal queue lengths and all movements are a LOS "B" or better during both peak hours.

2022 Build Analysis

The HCS analysis reveals that the majority of approaches and turning movements continue to operate at similar levels of service when comparing the proposed conditions to the existing conditions. The intersection of Georgetown Rd at Spurr Rd degrades from a LOS "D" to a LOS "E" and the westbound left turning movement sees a significant increase in delay due to the increased volume exiting Spurr Rd making fewer gaps for westbound lefts. The eastbound lane also degrades from a LOS "D" to a LOS "E" due to the increased vehicles. When comparing the queue lengths the same movements, eastbound lane and westbound left turn lane, at the intersection of Georgetown Rd and Spurr Rd experience the most increase in queue while all other movements in the vicinity remain similar to existing conditions.

The added intersection of Greendale Rd at the new entrance operates as a LOS "A" with minimal queue lengths for any movements.

2032 No Build Analysis

The HCS analysis reveals that the intersections operate under similar conditions to the 2022 no build conditions. The only movements that experienced increased delay were the major through and left movement at the signalized intersections. These include the northbound and southbound through and left movements at the intersection of Georgetown Rd at Spurr Rd as well as the eastbound and westbound through and left turning movements at the intersection of Citation Blvd and Greendale Rd. All other intersections and approaches operate with similar delay and queue as current no build conditions.

2032 Build Analysis

The HCS analysis reveals that the majority of approaches and turning movements continue to operate at similar levels of service when comparing the proposed conditions to the existing conditions. The intersection of Georgetown Rd at Spurr Rd degrades from a LOS "D" to a LOS "E" and the westbound left turning movement sees a significant increase in delay due to the increased volume exiting Spurr Rd making fewer gaps for westbound lefts. The eastbound lane also degrades from a LOS "D" to a LOS "E" due to the increased vehicles. When comparing the queue lengths the same movements, eastbound lane and westbound left turn lane, at the intersection of Georgetown Rd and Spurr Rd experience the most increase in queue while all other movements in the vicinity remain similar to existing conditions.

The added intersection of Greendale Rd at the new entrance operates as a LOS "A" with minimal queue lengths for any movements.

2022 NO BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	0/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A								
Greendale (N-S) & Citation (E-W)	13/B	17/B	14/B	12/B	13/B	11/B	46/D	40/D		57/E	40/D		23/C
Georgetown (N-S) & Spurr (E-W)		51/D		234/F	34/C		19/B	18/B	15/B	15/B	24/C	16/B	37/D
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	0/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A			10/A					
Greendale (N-S) & Citation (E-W)	11/B	15/B	13/B	11/B	14/B	12/B	41/D	46/D		55/E	37/D		22/C
Georgetown (N-S) & Spurr (E-W)		50/D		60/E	43/D		10/A	13/B	9/A	11/B	13/B	10/A	17/B

2022 BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	1/A			12/B					
Innovation (N-S) & Spurr (E-W)				9/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A								
Greendale (N-S) & Citation (E-W)	12/B	17/B	14/B	12/B	13/B	11/B	47/D	40/D		63/E	40/D		24/C
Georgetown (N-S) & Spurr (E-W)		62/E		568/F	34/C		19/B	18/B	15/B	15/B	25/C	16/B	57/E
Greendale (N-S) & New Entrance (E-W)					10/A					8/A	0/A		
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	1/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A			10/A					
Greendale (N-S) & Citation (E-W)	12/B	15/B	13/B	11/B	14/B	12/B	41/D	46/D		55/E	37/D		22/C
Georgetown (N-S) & Spurr (E-W)		48/D		60/E	41/D		11/B	15/B	10/A	12/B	15/B	11/B	18/B
Greendale (N-S) & New Entrance (E-W)					9/A					7/A	0/A		

Table 4. 2022 Level of Service Summary

2032 NO BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	0/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A								
Greendale (N-S) & Citation (E-W)	13/B	18/B	14/B	13/B	14/B	11/B	46/D	40/D		57/E	40/D		23/C
Georgetown (N-S) & Spurr (E-W)		51/D		234/F	34/C		27/C	19/B	15/B	15/B	31/C	16/B	38/D
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	0/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A			10/A					
Greendale (N-S) & Citation (E-W)	12/B	15/B	13/B	11/B	14/B	12/B	41/D	46/D		55/E	37/D		22/C
Georgetown (N-S) & Spurr (E-W)		50/D		60/E	43/D		12/B	16/B	9/A	14/B	15/B	10/A	18/B

2032 BUILD (Delay in sec/LOS)													
AM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	1/A			12/B					
Innovation (N-S) & Spurr (E-W)				9/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A								
Greendale (N-S) & Citation (E-W)	13/B	18/B	14/B	13/B	14/B	11/B	47/D	40/D		63/E	40/D		23/C
Georgetown (N-S) & Spurr (E-W)		62/E		568/F	34/C		28/C	19/B	15/B	16/B	31/C	16/B	56/E
Greendale (N-S) & New Entrance (E-W)					10/A					8/A	0/A		
PM PEAK	Eastbound			Westbound			Northbound			Southbound			Total
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
Greendale (N-S) & Spurr (E-W)				8/A	1/A			11/B					
Innovation (N-S) & Spurr (E-W)				8/A				11/B					
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				8/A	0/A			10/B					
Greendale (N-S) & Citation (E-W)	12/B	16/B	13/B	12/B	15/B	12/B	41/D	46/D		55/E	37/D		22/C
Georgetown (N-S) & Spurr (E-W)		48/D		60/E	41/D		14/B	18/B	10/B	16/B	17/B	11/B	20/B
Greendale (N-S) & New Entrance (E-W)					9/A					7/A	0/A		

Table 5. 2032 Level of Service Summary

2022 NO BUILD (Maximum Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0								
Greendale (N-S) & Citation (E-W)	0	8	1	4	6	1	1	9		8	9	
Georgetown (N-S) & Spurr (E-W)		18		16	4		2	9	3	1	18	2
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				0				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0				0				
Greendale (N-S) & Citation (E-W)	1	6	1	3	6	1	2	13		3	4	
Georgetown (N-S) & Spurr (E-W)		10		3	1		2	14	2	0	11	1

2022 BUILD (Maximum Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0								
Greendale (N-S) & Citation (E-W)	1	8	1	4	6	1	1	9		9	9	
Georgetown (N-S) & Spurr (E-W)		21		23	4		3	9	3	1	18	2
Greendale (N-S) & New Entrance (E-W)					0					0		
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0				0				
Greendale (N-S) & Citation (E-W)	1	6	1	3	6	1	2	13		4	4	
Georgetown (N-S) & Spurr (E-W)		11		3	1		3	14	2	0	11	2
Greendale (N-S) & New Entrance (E-W)					0					0		

Table 6. 2022 Queue Summary

2032 NO BUILD (Maximum Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0								
Greendale (N-S) & Citation (E-W)	0	11	1	4	8	1	1	9		8	9	
Georgetown (N-S) & Spurr (E-W)		18		16	4		3	12	3	1	26	2
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				0				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0				0				
Greendale (N-S) & Citation (E-W)	1	7	1	3	8	1	2	13		3	4	
Georgetown (N-S) & Spurr (E-W)		10		3	1		2	19	2	0	14	1

2032 BUILD (Maximum Queue in Veh/Lane)												
AM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0								
Greendale (N-S) & Citation (E-W)	1	11	1	4	8	1	1	9		9	9	
Georgetown (N-S) & Spurr (E-W)		21		23	4		3	12	3	1	26	2
Greendale (N-S) & New Entrance (E-W)					0					0		
PM PEAK	Eastbound			Westbound			Northbound			Southbound		
INTERSECTION	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Greendale (N-S) & Spurr (E-W)				0				1				
Innovation (N-S) & Spurr (E-W)				0				0				
KY Eagle Inc. Entrance (N-S) & Spurr (E-W)				0				0				
Greendale (N-S) & Citation (E-W)	1	8	1	3	8	1	2	13		4	4	
Georgetown (N-S) & Spurr (E-W)		11		3	1		3	21	2	0	15	2
Greendale (N-S) & New Entrance (E-W)					0					0		

Table 7. 2032 Queue Summary

ADDITIONAL STUDY ITEMS

Turn Lane Analysis

Based on the queue analysis performed using KYTC's "Warrant Calcs Interactive" workbook, turn lanes into the development along Greendale Rd are not warranted based on the low turning volume into the development. The turn lane warrants are included in the Appendix of this report.

Sight Distance Analysis

Figures 9 through 11 in the Appendix provide plan and profile views for the intersection sight distance triangles for the site. The right turning triangle at the new entrance along Greendale Road meets the appropriate sight distance required based on AASHTO/ KYTC standards along a 45 mph route. Vehicles entering the roadway can see adequate distance to enter the roadway safely. However, the left turning movement out of the sight onto Greendale Road requires the driver to look right towards the intersection of Greendale Rd and Spurr Rd. Between the entrance to the development and the two way stop controlled intersection there is a crest in the road the inhibits the sight distance for drivers exiting the development based on a 50 mph design speed. The crest is near the two-way stop controlled intersection; therefore, vehicles turning from Spurr Rd onto Greendale are still early in their acceleration when they are topping the crest. Greendale Rd is narrow and unstriped so it is reasonable to expect that prior to the crest any accelerating vehicles will still be travelling 20 mph or less, which would indicate that the sight distance provided would be adequate for vehicles entering the roadway to pull out and accelerate.

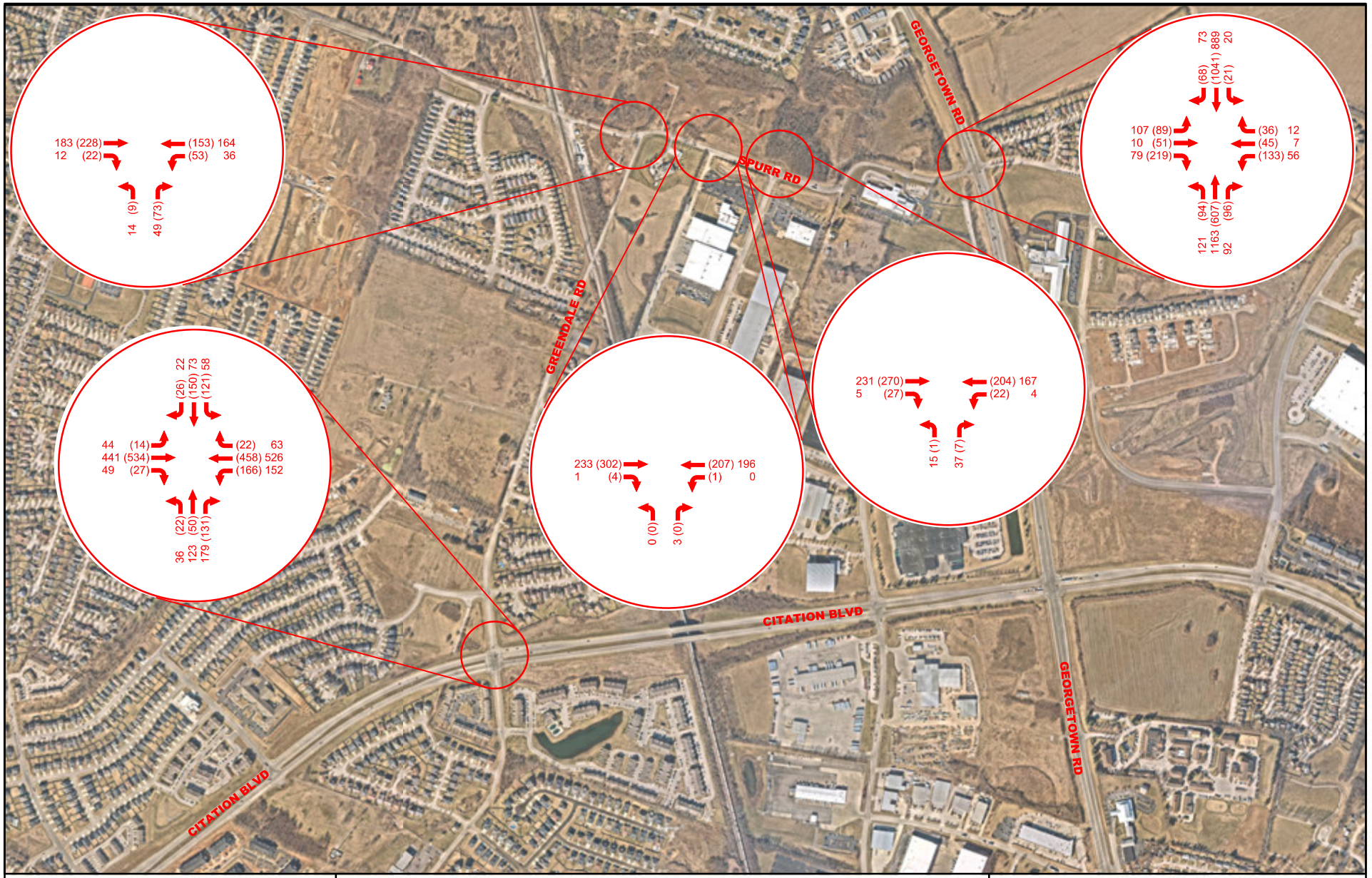
CONCLUSIONS AND RECOMMENDATIONS

All intersection operate under similar conditions with the new development as they currently operate. The proposed development is a low traffic generator and although some intersections see an increase in delay and queue along the minor roads, this could be addressed with optimized timing that provides additional green time to the minor streets; however, this is at the expense of green time on the major approaches.

The turn lane analysis did not show that a right or left turn lane into the site was warranted based on KYTC requirements.

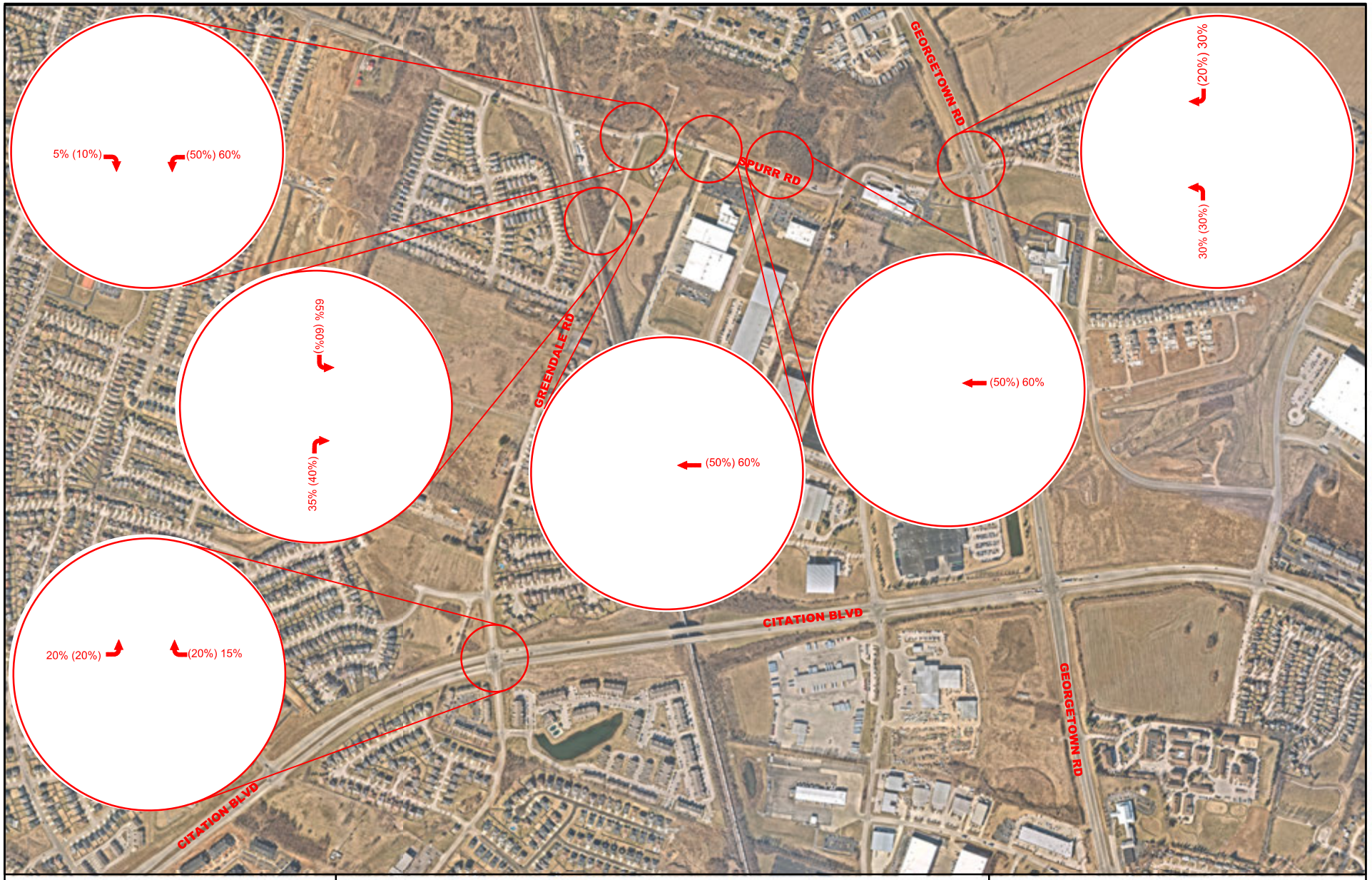
The sight distance analysis at the new entrance from Greendale Rd shows that adequate sight distance for a 45 mph road (50 mph design speed) is provided for right turning vehicles. The left turning movement provided adequate sight distance for 20 mph speeds. Although this seems to be inadequate when the geometry of the roadway and proximity to a three legged intersection of Greendale Rd at Spurr Rd is considered it is expected that this distance is adequate since vehicles turning onto Greendale Rd for Spurr Rd will still be accelerating to the speed limit.

APPENDIX



PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 1
2022 EXISTING COUNTS
(AM) PM



PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

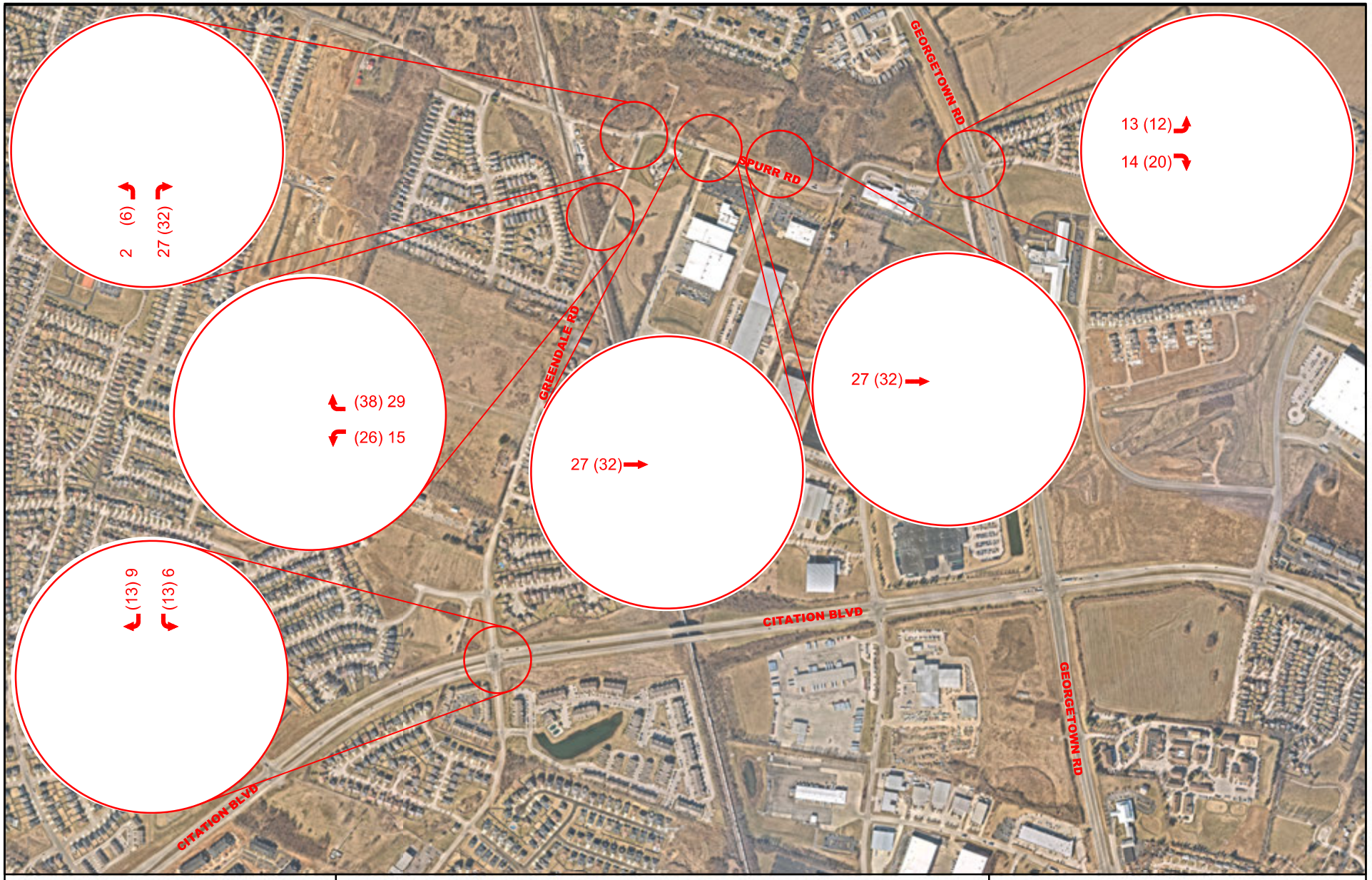
FIGURE 2
2022 ENTERING DISTRIBUTION
(AM) PM

PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 3
2022 EXITING DISTRIBUTION
(AM) PM

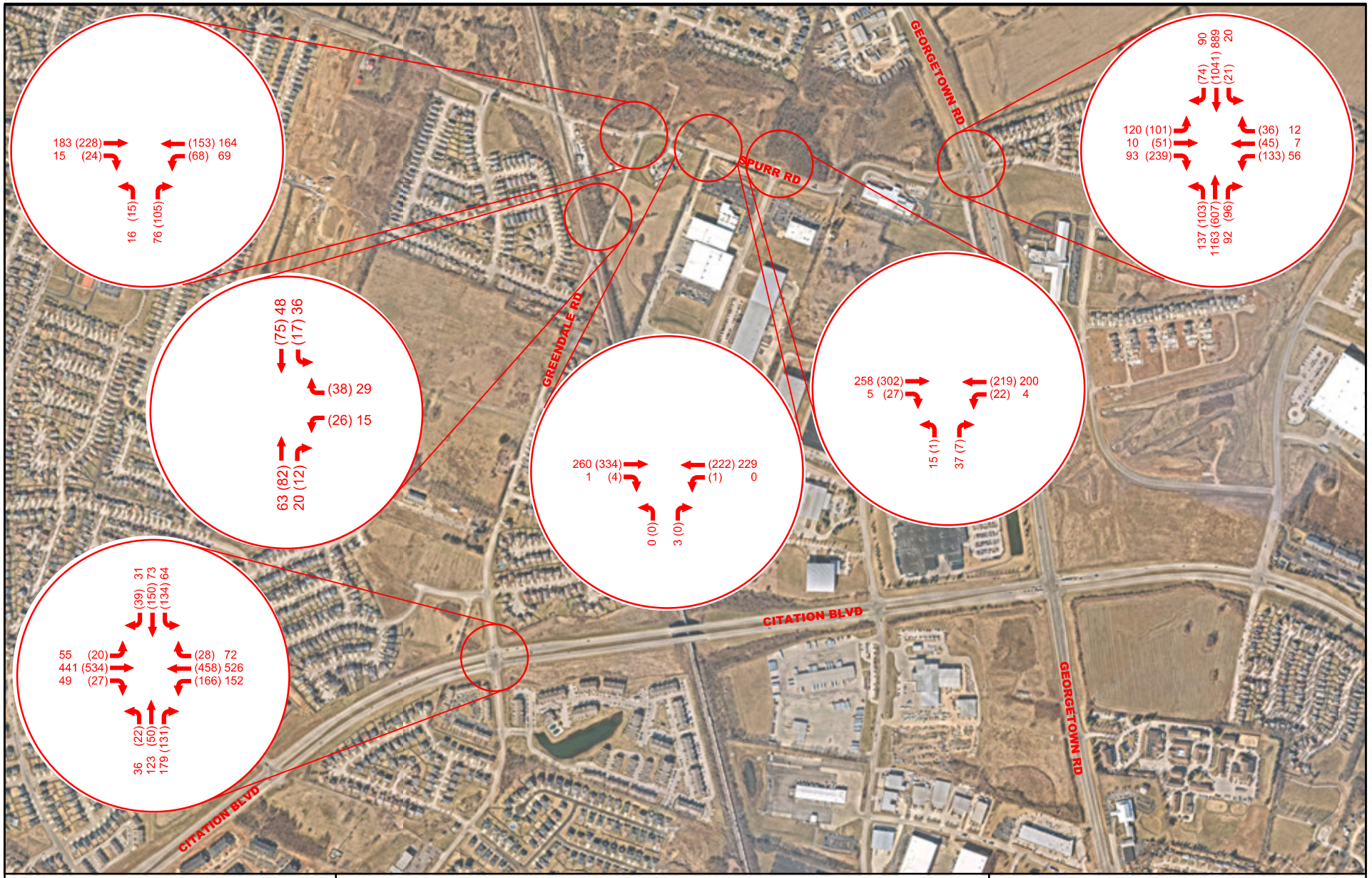
PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 4
2022 ENTERING TRIPS GENERATED
(AM) PM



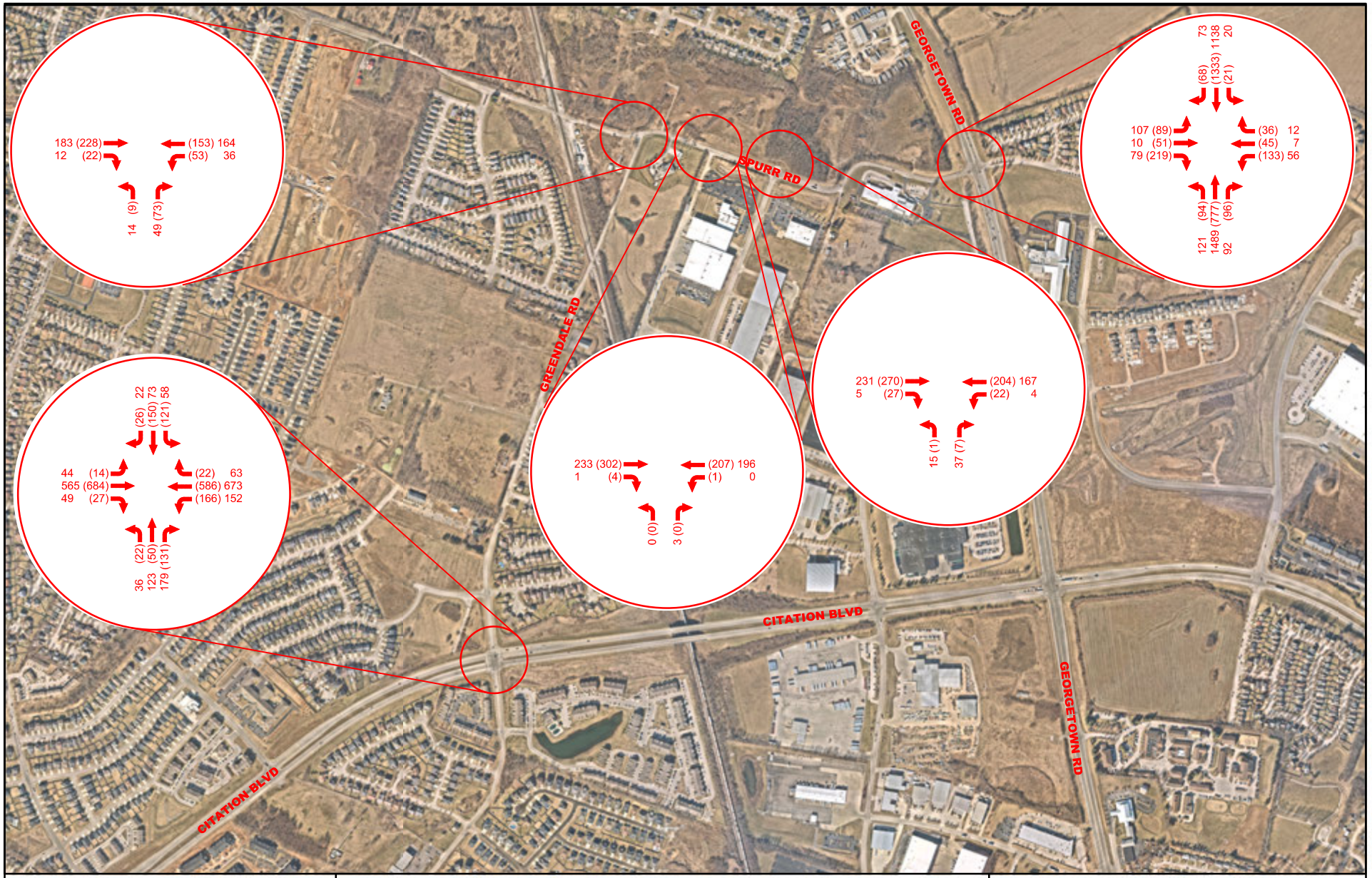
PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 5
2022 EXITING TRIPS GENERATED
(AM) PM



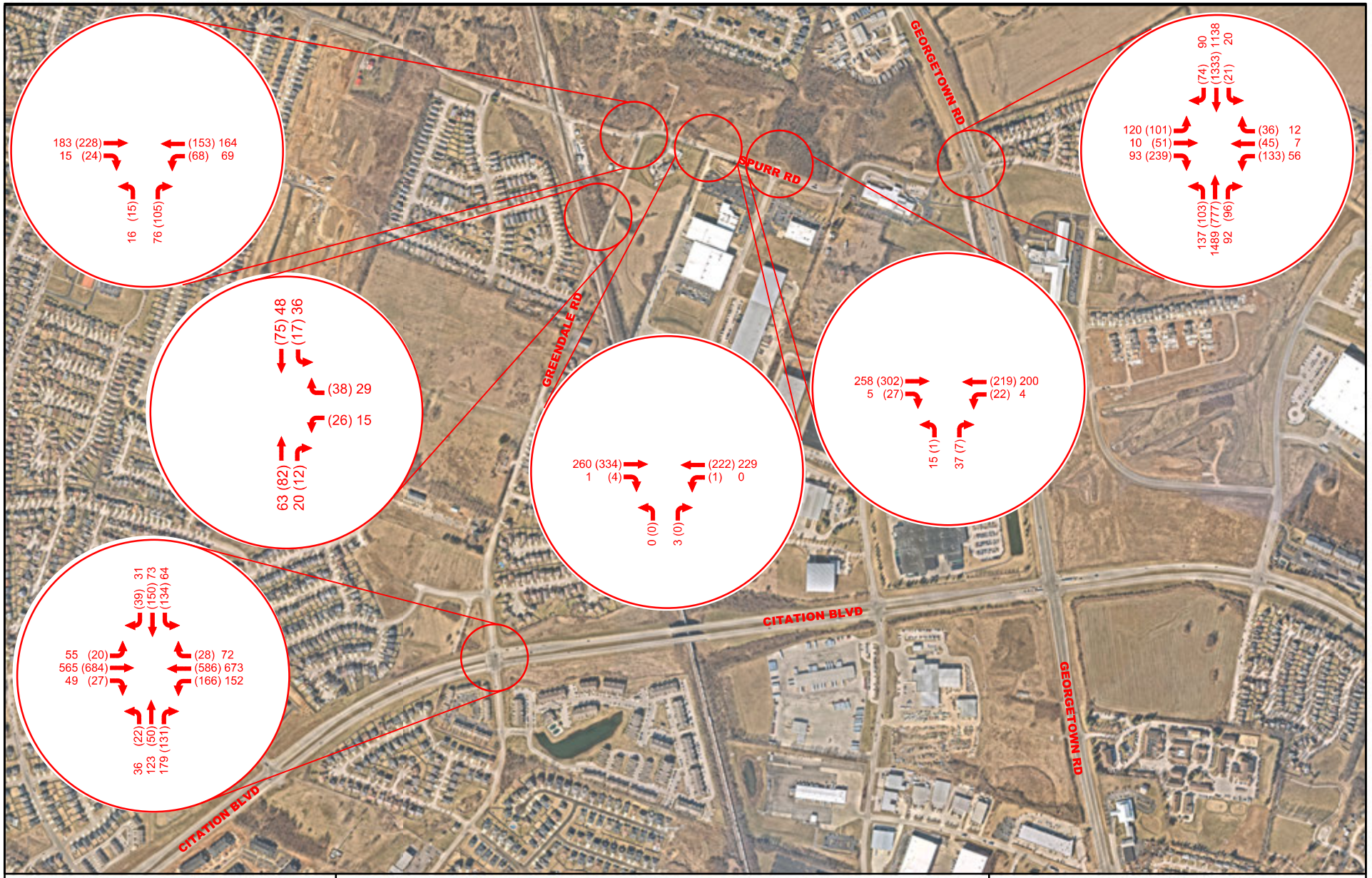
PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 6
2022 BUILD VOLUMES
(AM) PM



PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 7
2032 NO BUILD VOLUMES
(AM) PM

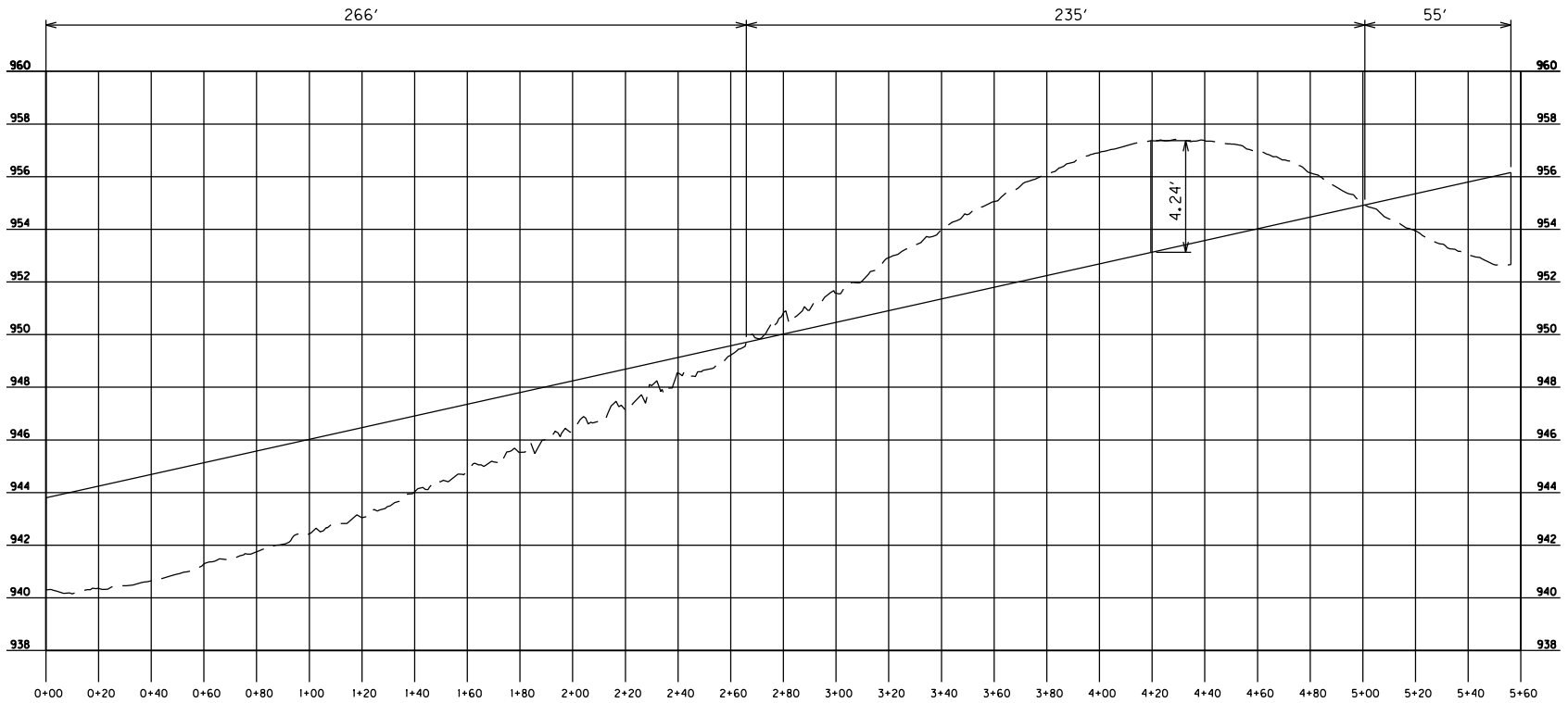


PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 8
2032 BUILD VOLUMES
(AM) PM

PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 9
SIGHT TRIANGES
PLAN VIEW

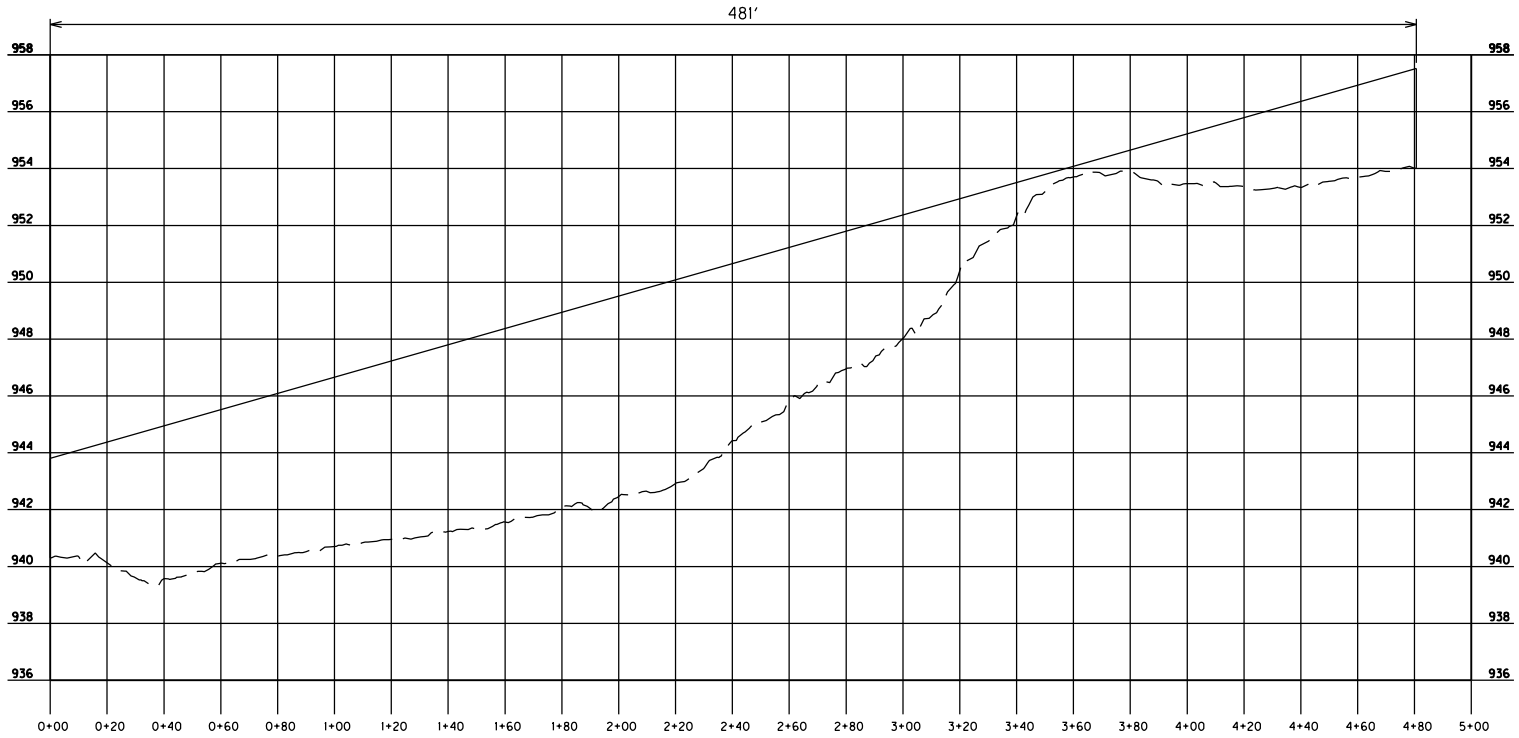


ENTRANCE TO GREENDALE
LEFT TURN (LOOKING RIGHT)
555 FEET ALONG GREENDALE ROAD

SCALE = NTS

PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 10
SIGHT TRIANGES
PROFILE VIEW



ENTRANCE TO GREENDALE
RIGHT TURN (LOOKING LEFT)
480 FEET ALONG GREENDALE ROAD

SCALE = NTS

PROPOSED GREENDALE
MULTIFAMILY DEVELOPMENT
LEXINGTON, KENTUCKY

FIGURE 11
SIGHT TRIANGES
PROFILE VIEW

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07:15 AM	0	0	0	0	0	0	46	20	0	66	23	0	3	0	26	3	59	0	0	62	154
07:30 AM	0	0	0	0	0	0	39	18	0	57	27	0	3	0	30	12	59	0	0	71	158
07:45 AM	0	0	0	0	0	0	37	9	0	46	13	0	2	0	15	4	62	0	0	66	127
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*** BREAK ***																					
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05:00 PM	0	0	0	0	0	0	38	7	0	45	7	0	3	0	10	6	26	0	0	32	87

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% Unshifted	0	0	0	0	0	0	97.2	98.2	0	97.3	98.5	0	89.5	0	96.4	96.6	97.3	0	0	97.2	97.2
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	25	3	0	28	4	0	8	0	12	3	25	0	0	28	68
% Bank 2	0	0	0	0	0	0	2.8	1.8	0	2.7	1.5	0	10.5	0	3.6	3.4	2.7	0	0	2.8	2.8

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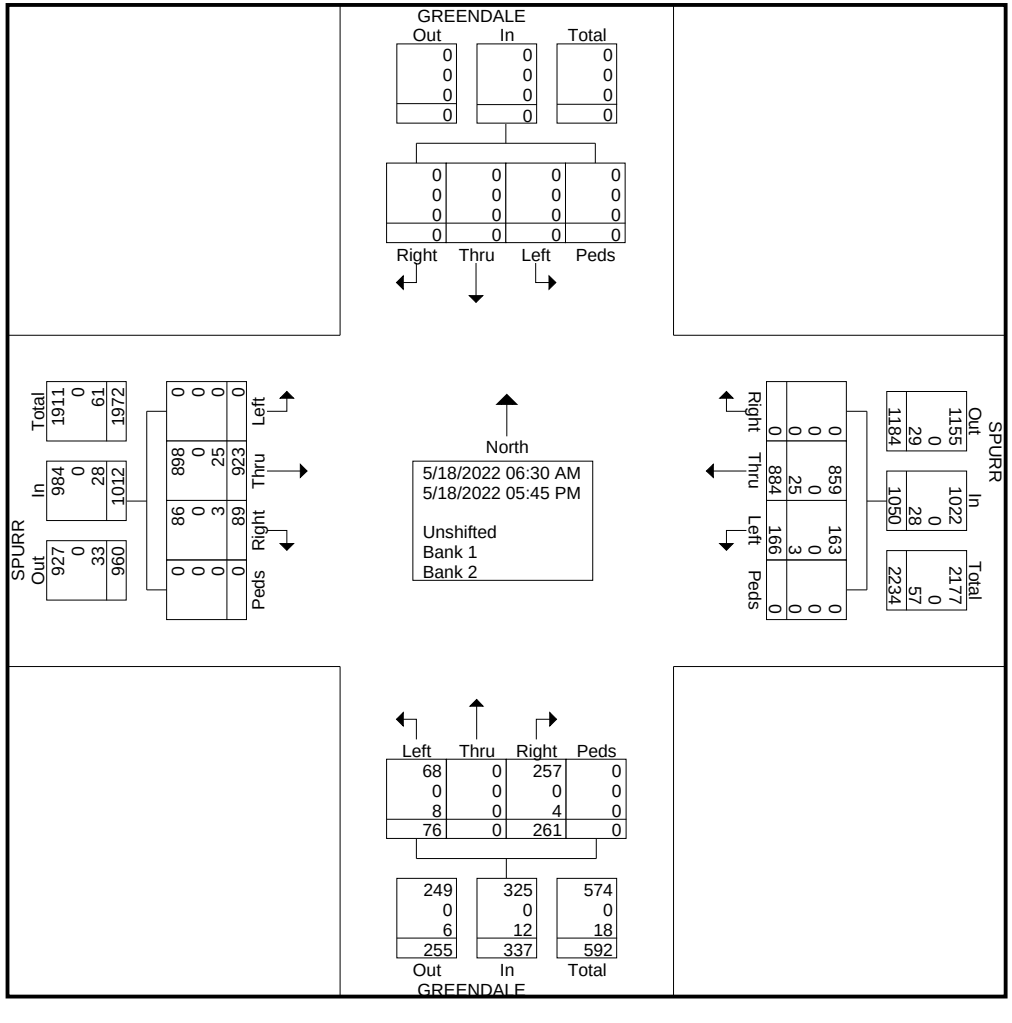

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Peak Hour for Entire Intersection Begins at 07:00 AM																					
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07:15 AM	0	0	0	0	0	0	46	20	0	66	23	0	3	0	26	3	59	0	0	62	154
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07:45 AM	0	0	0	0	0	0	37	9	0	46	13	0	2	0	15	4	62	0	0	66	127
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% App. Total	0	0	0	0		0	74.3	25.7	0		89	0	11	0		8.8	91.2	0	0		
PHF	.000	.000	.000	.000	.000	.000	.832	.663	.000	.780	.676	.000	.750	.000	.683	.458	.919	.000	.000	.880	.851
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																					
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Total Volume	0	0	0	0	0	0	164	36	0	200	49	0	14	0	63	12	183	0	0	195	458
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PHF	.000	.000	.000	.000	.000	.000	.759	.600	.000	.806	.721	.000	.700	.000	.750	.750	.738	.000	.000	.739	.874

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08:00 AM	0	0	0	0	0	0	24	5	0	29	1	0	0	0	1	2	52	0	0	54	84
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Total	0	0	0	0	0	0	179	3	0	182	30	0	14	0	44	3	228	0	0	231	457

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Groups Printed- Unshifted - Bank 1 - Bank 2

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05:15 PM	0	0	0	0	0	0	46	1	0	47	4	0	3	0	7	0	29	0	0	29	83
05:30 PM	0	0	0	0	0	0	52	2	0	54	4	0	3	0	7	1	31	0	0	32	93
05:45 PM	0	0	0	0	0	0	39	0	0	39	0	0	3	0	3	0	21	0	0	21	63
Total	0	0	0	0	0	0	175	4	0	179	23	0	20	0	43	2	110	0	0	112	334
Grand Total	0	0	0	0	0	0	975	71	0	1046	137	0	68	0	205	55	1106	0	0	1161	2412
Apprch %	0	0	0	0		0	93.2	6.8	0		66.8	0	33.2	0		4.7	95.3	0	0		
Total %	0	0	0	0	0	0	40.4	2.9	0	43.4	5.7	0	2.8	0	8.5	2.3	45.9	0	0	48.1	
Unshifted	0	0	0	0	0	0	951	54	0	1005	129	0	68	0	197	54	1088	0	0	1142	2344
% Unshifted	0	0	0	0	0	0	97.5	76.1	0	96.1	94.2	0	100	0	96.1	98.2	98.4	0	0	98.4	97.2
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	24	17	0	41	8	0	0	0	8	1	18	0	0	19	68
% Bank 2	0	0	0	0	0	0	2.5	23.9	0	3.9	5.8	0	0	0	3.9	1.8	1.6	0	0	1.6	2.8

Palmer Engineering

400 Shoppers Drive
Winchester, KY 40391

Default Comments
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Select File/Preference in the Main Scree
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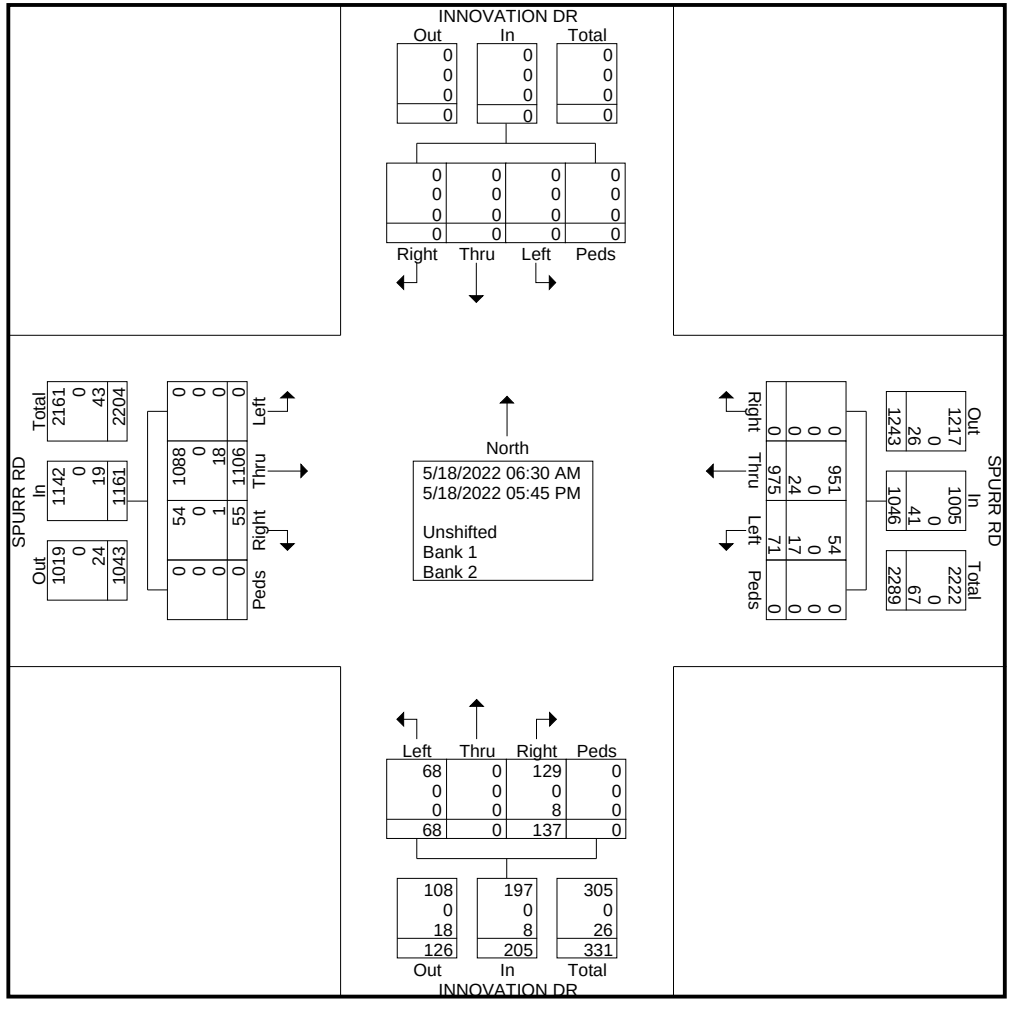
File Name : Spurr-Innovation Dr
Site Code : 00000000
Start Date : 5/18/2022
Page No : 3



Palmer Engineering

400 Shoppers Drive
Winchester, KY 40391

Default Comments
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Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Spurr-Innovation Dr
Site Code : 00000000
Start Date : 5/18/2022

	INNOVATION DR From North					SPURR RD From East					INNOVATION DR From South					SPURR RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	35	3	0	38	**3**	0	**1**	0	**4**	4	55	0	0	59	101
07:15 AM	0	0	0	0	0	0	**67**	3	0	**70**	1	0	0	0	1	7	71	0	0	78	149
07:30 AM	0	0	0	0	0	0	57	**8**	0	65	2	0	0	0	2	**8**	**84**	0	0	**92**	**159**
07:45 AM	0	0	0	0	0	0	45	8	0	53	1	0	0	0	1	8	60	0	0	68	122
Total Volume	0	0	0	0	0	0	204	22	0	226	7	0	1	0	8	27	270	0	0	297	531
% App. Total	0	0	0	0		0	90.3	9.7	0		87.5	0	12.5	0		9.1	90.9	0	0		
PHF	.000	.000	.000	.000	.000	.000	.761	.688	.000	.807	.583	.000	.250	.000	.500	.844	.804	.000	.000	.807	.835
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	34	**2**	0	36	12	0	3	0	15	1	60	0	0	61	112
03:45 PM	0	0	0	0	0	0	49	1	0	50	5	0	1	0	6	**3**	47	0	0	50	106
04:00 PM	0	0	0	0	0	0	**50**	1	0	**51**	**13**	0	**6**	0	**19**	1	**67**	0	0	**68**	**138**
04:15 PM	0	0	0	0	0	0	34	0	0	34	7	0	5	0	12	0	57	0	0	57	103
Total Volume	0	0	0	0	0	0	167	4	0	171	37	0	15	0	52	5	231	0	0	236	459
% App. Total	0	0	0	0		0	97.7	2.3	0		71.2	0	28.8	0		2.1	97.9	0	0		
PHF	.000	.000	.000	.000	.000	.000	.835	.500	.000	.838	.712	.000	.625	.000	.684	.417	.862	.000	.000	.868	.832

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
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File Name : Spurr-KY Eagle
Site Code : 00000000
Start Date : 5/18/2022

Groups Printed- Unshifted - Bank 1 - Bank 2

	EAGLEENTER From North					SPURR From East					EAGLEENTER From South					SPURR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	1	20	0	0	21	42
06:45 AM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	35	0	0	35	71
Total	0	0	0	0	0	0	57	0	0	57	0	0	0	0	0	1	55	0	0	56	113
07:00 AM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	61	0	0	61	97
07:15 AM	0	0	0	0	0	0	67	0	0	67	0	0	0	0	0	1	78	0	0	79	146
07:30 AM	0	0	0	0	0	0	57	0	0	57	0	0	0	0	0	1	91	0	0	92	149
07:45 AM	0	0	0	0	0	0	47	1	0	48	0	0	0	0	0	2	72	0	0	74	122
Total	0	0	0	0	0	0	207	1	0	208	0	0	0	0	0	4	302	0	0	306	514
08:00 AM	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	1	55	0	0	56	80
08:15 AM	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	41	0	0	41	64
08:30 AM	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	28	0	0	28	49
08:45 AM	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	31	0	0	31	50
Total	0	0	0	0	0	0	87	0	0	87	0	0	0	0	0	1	155	0	0	156	243
*** BREAK ***																					
02:00 PM	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	33	0	0	33	51
02:15 PM	0	0	0	0	0	0	27	0	0	27	1	0	0	0	1	0	37	0	0	37	65
02:30 PM	0	0	0	0	0	0	40	0	0	40	0	0	0	0	0	0	27	0	0	27	67
02:45 PM	0	0	0	0	0	0	58	0	0	58	1	0	0	0	1	1	39	0	0	40	99
Total	0	0	0	0	0	0	143	0	0	143	2	0	0	0	2	1	136	0	0	137	282
03:00 PM	0	0	0	0	0	0	43	0	0	43	0	0	0	0	0	0	41	0	0	41	84
03:15 PM	0	0	0	0	0	0	34	0	0	34	0	0	1	0	1	0	29	0	0	29	64
03:30 PM	0	0	0	0	0	0	36	1	0	37	1	0	0	0	1	1	61	0	0	62	100
03:45 PM	0	0	0	0	0	0	48	1	0	49	0	0	0	0	0	0	56	0	0	56	105
Total	0	0	0	0	0	0	161	2	0	163	1	0	1	0	2	1	187	0	0	188	353
04:00 PM	0	0	0	0	0	0	55	0	0	55	0	0	0	0	0	1	72	0	0	73	128
04:15 PM	0	0	0	0	0	0	39	0	0	39	0	0	1	0	1	0	57	0	0	57	97
04:30 PM	0	0	0	0	0	0	42	0	0	42	0	0	1	0	1	0	55	0	0	55	98
04:45 PM	0	0	0	0	0	0	60	0	0	60	0	0	1	0	1	0	49	0	0	49	110
Total	0	0	0	0	0	0	196	0	0	196	0	0	3	0	3	1	233	0	0	234	433
05:00 PM	0	0	0	0	0	0	45	0	0	45	0	0	0	0	0	0	30	0	0	30	75

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
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File Name : Spurr-KY Eagle
Site Code : 00000000
Start Date : 5/18/2022

Groups Printed- Unshifted - Bank 1 - Bank 2

	EAGLEENTER From North					SPURR From East					EAGLEENTER From South					SPURR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:15 PM	0	0	0	0	0	0	51	0	0	51	0	0	0	0	0	0	30	0	0	30	81
05:30 PM	0	0	0	0	0	0	56	0	0	56	0	0	0	0	0	0	35	0	0	35	91
05:45 PM	0	0	0	0	0	0	44	0	0	44	0	0	0	0	0	0	20	0	0	20	64
Total	0	0	0	0	0	0	196	0	0	196	0	0	0	0	0	0	115	0	0	115	311
Grand Total	0	0	0	0	0	0	1047	3	0	1050	3	0	4	0	7	9	1183	0	0	1192	2249
Apprch %	0	0	0	0		0	99.7	0.3	0		42.9	0	57.1	0		0.8	99.2	0	0		
Total %	0	0	0	0	0	0	46.6	0.1	0	46.7	0.1	0	0.2	0	0.3	0.4	52.6	0	0	53	
Unshifted	0	0	0	0	0	0	1019	3	0	1022	3	0	4	0	7	9	1156	0	0	1165	2194
% Unshifted	0	0	0	0	0	0	97.3	100	0	97.3	100	0	100	0	100	100	97.7	0	0	97.7	97.6
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	27	0	0	27	55
% Bank 2	0	0	0	0	0	0	2.7	0	0	2.7	0	0	0	0	0	0	2.3	0	0	2.3	2.4

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400 Shoppers Drive
Winchester KY, 40392

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Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Spurr-KY Eagle
Site Code : 00000000
Start Date : 5/18/2022

	EAGLEENTER From North					SPURR From East					EAGLEENTER From South					SPURR From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	61	0	0	61	97
07:15 AM	0	0	0	0	0	0	67	0	0	67	0	0	0	0	0	1	78	0	0	79	146
07:30 AM	0	0	0	0	0	0	57	0	0	57	0	0	0	0	0	1	91	0	0	92	149
07:45 AM	0	0	0	0	0	0	47	1	0	48	0	0	0	0	0	2	72	0	0	74	122
Total Volume	0	0	0	0	0	0	207	1	0	208	0	0	0	0	0	4	302	0	0	306	514
% App. Total	0	0	0	0		0	99.5	0.5	0		0	0	0	0		1.3	98.7	0	0		
PHF	.000	.000	.000	.000	.000	.000	.772	.250	.000	.776	.000	.000	.000	.000	.000	.500	.830	.000	.000	.832	.862
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	55	0	0	55	0	0	0	0	0	1	72	0	0	73	128
04:15 PM	0	0	0	0	0	0	39	0	0	39	0	0	1	0	1	0	57	0	0	57	97
04:30 PM	0	0	0	0	0	0	42	0	0	42	0	0	1	0	1	0	55	0	0	55	98
04:45 PM	0	0	0	0	0	0	60	0	0	60	0	0	1	0	1	0	49	0	0	49	110
Total Volume	0	0	0	0	0	0	196	0	0	196	0	0	3	0	3	1	233	0	0	234	433
% App. Total	0	0	0	0		0	100	0	0		0	0	100	0		0.4	99.6	0	0		
PHF	.000	.000	.000	.000	.000	.000	.817	.000	.000	.817	.000	.000	.750	.000	.750	.250	.809	.000	.000	.801	.846

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
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File Name : Citation-Glendale
Site Code : 00000000
Start Date : 5/18/2022
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	GREENDALE From North					CITATION From East					GREENDALE From South					CITATION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	7	25	20	0	52	3	100	32	0	135	23	4	5	0	32	2	75	4	0	81	300
06:45 AM	6	20	27	1	54	3	105	40	0	148	11	4	2	0	17	3	92	5	1	101	320
Total	13	45	47	1	106	6	205	72	0	283	34	8	7	0	49	5	167	9	1	182	620
07:00 AM	6	25	20	0	51	5	92	31	0	128	25	7	7	0	39	4	119	1	0	124	342
07:15 AM	9	43	20	0	72	10	115	38	0	163	29	10	7	0	46	16	96	5	0	117	398
07:30 AM	4	55	59	0	118	6	125	47	0	178	43	14	6	0	63	4	144	3	0	151	510
07:45 AM	7	27	22	0	56	1	126	50	0	177	34	19	2	0	55	3	175	5	0	183	471
Total	26	150	121	0	297	22	458	166	0	646	131	50	22	0	203	27	534	14	0	575	1721
08:00 AM	3	21	23	0	47	3	83	36	0	122	39	15	3	0	57	3	99	5	0	107	333
08:15 AM	7	25	20	0	52	9	55	23	0	87	25	15	3	0	43	3	104	3	0	110	292
08:30 AM	9	27	12	0	48	13	61	22	0	96	22	14	3	0	39	2	101	1	0	104	287
08:45 AM	2	21	10	0	33	14	56	10	0	80	25	13	3	0	41	0	106	0	0	106	260
Total	21	94	65	0	180	39	255	91	0	385	111	57	12	0	180	8	410	9	0	427	1172
*** BREAK ***																					
02:00 PM	3	7	13	0	23	8	88	14	0	110	22	11	4	0	37	7	70	6	0	83	253
02:15 PM	3	7	8	0	18	9	87	22	0	118	21	8	8	0	37	6	98	3	1	108	281
02:30 PM	8	20	10	0	38	7	98	27	0	132	24	23	2	0	49	2	78	4	0	84	303
02:45 PM	8	22	11	0	41	17	100	29	1	147	26	22	5	0	53	8	94	11	0	113	354
Total	22	56	42	0	120	41	373	92	1	507	93	64	19	0	176	23	340	24	1	388	1191
03:00 PM	8	20	13	0	41	10	123	31	0	164	26	26	4	1	57	5	86	7	0	98	360
03:15 PM	3	19	10	0	32	10	107	23	0	140	40	28	8	0	76	6	104	6	0	116	364
03:30 PM	5	22	8	0	35	10	121	36	0	167	39	23	4	0	66	2	127	13	0	142	410
03:45 PM	2	20	14	0	36	14	138	28	0	180	42	33	8	0	83	5	123	7	0	135	434
Total	18	81	45	0	144	44	489	118	0	651	147	110	24	1	282	18	440	33	0	491	1568
04:00 PM	10	16	15	0	41	31	101	27	2	161	42	29	2	0	73	5	117	11	0	133	408
04:15 PM	3	17	12	0	32	27	118	30	5	180	62	31	10	0	103	7	112	9	0	128	443
04:30 PM	12	22	13	0	47	11	125	36	0	172	54	30	9	1	94	23	106	16	1	146	459
04:45 PM	2	15	21	0	38	19	126	39	0	184	24	31	12	0	67	4	109	10	0	123	412
Total	27	70	61	0	158	88	470	132	7	697	182	121	33	1	337	39	444	46	1	530	1722
05:00 PM	5	19	12	0	36	6	157	47	0	210	39	31	5	0	75	15	114	9	0	138	459

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
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File Name : Citation-Glendale
Site Code : 00000000
Start Date : 5/18/2022

Groups Printed- Unshifted - Bank 1 - Bank 2

	GREENDALE From North					CITATION From East					GREENDALE From South					CITATION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:15 PM	5	12	8	0	25	15	170	48	0	233	27	28	6	0	61	4	94	8	0	106	425
05:30 PM	2	13	15	0	30	12	166	36	0	214	23	34	3	0	60	8	102	10	0	120	424
05:45 PM	2	15	13	0	30	14	103	28	0	145	28	29	3	0	60	6	76	7	0	89	324
Total	14	59	48	0	121	47	596	159	0	802	117	122	17	0	256	33	386	34	0	453	1632
Grand Total	141	555	429	1	1126	287	2846	830	8	3971	815	532	134	2	1483	153	2721	169	3	3046	9626
Apprch %	12.5	49.3	38.1	0.1		7.2	71.7	20.9	0.2		55	35.9	9	0.1		5	89.3	5.5	0.1		
Total %	1.5	5.8	4.5	0	11.7	3	29.6	8.6	0.1	41.3	8.5	5.5	1.4	0	15.4	1.6	28.3	1.8	0	31.6	
Unshifted	141	551	426	1	1119	286	2803	814	8	3911	795	528	133	2	1458	149	2655	166	2	2972	9460
% Unshifted	100	99.3	99.3	100	99.4	99.7	98.5	98.1	100	98.5	97.5	99.2	99.3	100	98.3	97.4	97.6	98.2	66.7	97.6	98.3
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	4	3	0	7	1	43	16	0	60	20	4	1	0	25	4	66	3	1	74	166
% Bank 2	0	0.7	0.7	0	0.6	0.3	1.5	1.9	0	1.5	2.5	0.8	0.7	0	1.7	2.6	2.4	1.8	33.3	2.4	1.7

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
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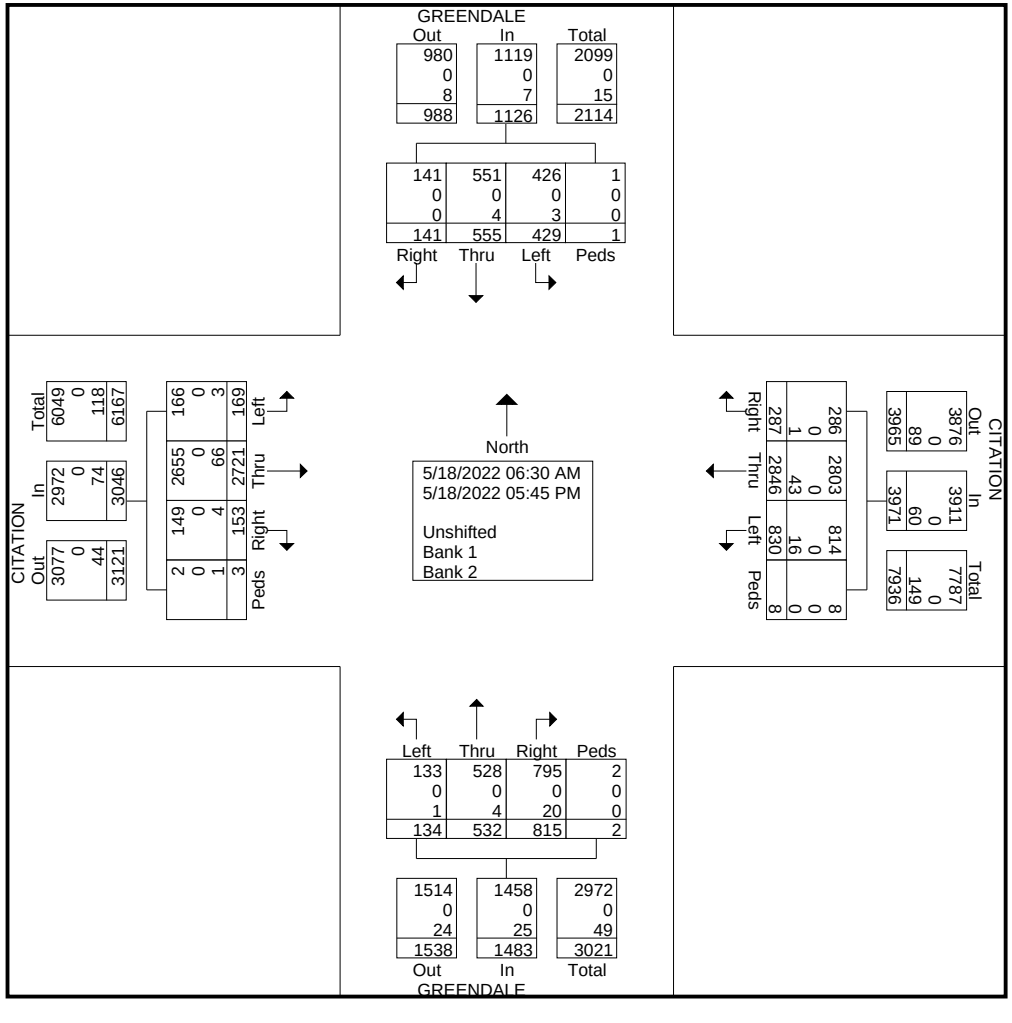
File Name : Citation-Glendale
Site Code : 00000000
Start Date : 5/18/2022
Page No : 3



Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Citation-Glendale
Site Code : 00000000
Start Date : 5/18/2022
Page No : 4

	GREENDALE From North					CITATION From East					GREENDALE From South					CITATION From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	25	20	0	51	5	92	31	0	128	25	7	7	0	39	4	119	1	0	124	342
07:15 AM	9	43	20	0	72	10	115	38	0	163	29	10	7	0	46	16	96	5	0	117	398
07:30 AM	4	55	59	0	118	6	125	47	0	178	43	14	6	0	63	4	144	3	0	151	510
07:45 AM	7	27	22	0	56	1	126	50	0	177	34	19	2	0	55	3	175	5	0	183	471
Total Volume	26	150	121	0	297	22	458	166	0	646	131	50	22	0	203	27	534	14	0	575	1721
% App. Total	8.8	50.5	40.7	0		3.4	70.9	25.7	0		64.5	24.6	10.8	0		4.7	92.9	2.4	0		
PHF	.722	.682	.513	.000	.629	.550	.909	.830	.000	.907	.762	.658	.786	.000	.806	.422	.763	.700	.000	.786	.844
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	3	17	12	0	32	27	118	30	5	180	62	31	10	0	103	7	112	9	0	128	443
04:30 PM	12	22	13	0	47	11	125	36	0	172	54	30	9	1	94	23	106	16	1	146	459
04:45 PM	2	15	21	0	38	19	126	39	0	184	24	31	12	0	67	4	109	10	0	123	412
05:00 PM	5	19	12	0	36	6	157	47	0	210	39	31	5	0	75	15	114	9	0	138	459
Total Volume	22	73	58	0	153	63	526	152	5	746	179	123	36	1	339	49	441	44	1	535	1773
% App. Total	14.4	47.7	37.9	0		8.4	70.5	20.4	0.7		52.8	36.3	10.6	0.3		9.2	82.4	8.2	0.2		
PHF	.458	.830	.690	.000	.814	.583	.838	.809	.250	.888	.722	.992	.750	.250	.823	.533	.967	.688	.250	.916	.966

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

Default Comments
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File Name : Spurr-Georgetown
Site Code : 00000000
Start Date : 5/18/2022
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	GEORGETOWN RD From North					SPURR RD From East					GEORGETOWN RD From South					SPURR RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	14	170	5	0	189	5	1	10	0	16	5	103	16	0	124	8	0	6	0	14	343
06:45 AM	18	189	6	0	213	7	1	16	0	24	21	119	25	0	165	9	8	14	0	31	433
Total	32	359	11	0	402	12	2	26	0	40	26	222	41	0	289	17	8	20	0	45	776
07:00 AM	17	156	8	0	181	5	2	14	0	21	32	100	28	0	160	24	13	17	0	54	416
07:15 AM	18	274	7	0	299	12	17	49	0	78	26	141	25	0	192	73	16	19	0	108	677
07:30 AM	19	274	9	0	302	10	19	39	0	68	49	159	27	0	235	58	25	22	0	105	710
07:45 AM	16	269	5	0	290	9	8	32	0	49	12	162	27	0	201	57	4	28	0	89	629
Total	70	973	29	0	1072	36	46	134	0	216	119	562	107	0	788	212	58	86	0	356	2432
08:00 AM	15	224	0	0	239	5	1	13	0	19	9	145	15	0	169	31	6	20	0	57	484
08:15 AM	7	197	0	0	204	2	0	21	0	23	11	154	15	0	180	24	4	16	0	44	451
08:30 AM	9	193	1	0	203	4	2	22	0	28	14	150	13	0	177	12	2	16	0	30	438
08:45 AM	4	184	1	0	189	2	1	12	0	15	7	162	14	0	183	21	1	11	0	33	420
Total	35	798	2	0	835	13	4	68	0	85	41	611	57	0	709	88	13	63	0	164	1793
*** BREAK ***																					
02:00 PM	11	126	2	0	139	4	0	18	0	22	26	136	20	0	182	15	6	9	0	30	373
02:15 PM	7	134	4	0	145	2	1	7	0	10	34	141	21	0	196	23	13	12	0	48	399
02:30 PM	10	158	3	0	171	4	5	21	0	30	36	166	14	0	216	42	5	19	0	66	483
02:45 PM	12	152	3	0	167	11	18	50	0	79	21	173	23	0	217	37	4	15	0	56	519
Total	40	570	12	0	622	21	24	96	0	141	117	616	78	0	811	117	28	55	0	200	1774
03:00 PM	15	221	1	0	237	6	3	27	0	36	22	191	18	0	231	40	2	21	0	63	567
03:15 PM	18	171	5	0	194	3	1	18	0	22	16	219	25	0	260	17	0	16	0	33	509
03:30 PM	17	229	2	0	248	3	0	18	0	21	20	247	18	0	285	29	3	36	0	68	622
03:45 PM	21	196	2	0	219	4	4	17	0	25	12	255	30	0	297	49	3	21	0	73	614
Total	71	817	10	0	898	16	8	80	0	104	70	912	91	0	1073	135	8	94	0	237	2312
04:00 PM	20	208	5	0	233	4	3	21	0	28	17	253	26	0	296	60	1	33	0	94	651
04:15 PM	17	198	5	0	220	3	2	11	0	16	18	294	17	0	329	23	2	40	0	65	630
04:30 PM	20	183	7	0	210	4	1	13	0	18	16	303	30	0	349	27	2	36	0	65	642
04:45 PM	21	202	5	1	229	4	3	8	0	15	20	263	34	0	317	21	4	24	0	49	610
Total	78	791	22	1	892	15	9	53	0	77	71	1113	107	0	1291	131	9	133	0	273	2533
05:00 PM	19	243	4	0	266	2	3	14	0	19	36	286	20	0	342	18	2	27	0	47	674

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

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File Name : Spurr-Georgetown
Site Code : 00000000
Start Date : 5/18/2022

Groups Printed- Unshifted - Bank 1 - Bank 2

	GEORGETOWN RD From North					SPURR RD From East					GEORGETOWN RD From South					SPURR RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:15 PM	13	261	4	0	278	2	0	21	0	23	20	311	37	0	368	13	2	20	0	35	704
05:30 PM	19	204	5	0	228	4	0	15	0	19	19	224	30	0	273	11	1	24	0	36	556
05:45 PM	16	133	2	0	151	4	2	7	0	13	17	184	21	0	222	12	2	11	0	25	411
Total	67	841	15	0	923	12	5	57	0	74	92	1005	108	0	1205	54	7	82	0	143	2345
Grand Total	393	5149	101	1	5644	125	98	514	0	737	536	5041	589	0	6166	754	131	533	0	1418	13965
Apprch %	7	91.2	1.8	0		17	13.3	69.7	0		8.7	81.8	9.6	0		53.2	9.2	37.6	0		
Total %	2.8	36.9	0.7	0	40.4	0.9	0.7	3.7	0	5.3	3.8	36.1	4.2	0	44.2	5.4	0.9	3.8	0	10.2	
Unshifted	384	4972	99	1	5456	116	95	504	0	715	523	4832	555	0	5910	731	127	523	0	1381	13462
% Unshifted	97.7	96.6	98	100	96.7	92.8	96.9	98.1	0	97	97.6	95.9	94.2	0	95.8	96.9	96.9	98.1	0	97.4	96.4
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	9	177	2	0	188	9	3	10	0	22	13	209	34	0	256	23	4	10	0	37	503
% Bank 2	2.3	3.4	2	0	3.3	7.2	3.1	1.9	0	3	2.4	4.1	5.8	0	4.2	3.1	3.1	1.9	0	2.6	3.6

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Site Code : 00000000
Start Date : 5/18/2022

Palmer Engineering

400 Shoppers Drive
Winchester KY, 40392

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Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : Spurr-Georgetown
Site Code : 00000000
Start Date : 5/18/2022
Page No : 4

	GEORGETOWN RD From North					SPURR RD From East					GEORGETOWN RD From South					SPURR RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	18	274	7	0	299	12	17	49	0	78	26	141	25	0	192	73	16	19	0	108	677
07:30 AM	19	274	9	0	302	10	19	39	0	68	49	159	27	0	235	58	25	22	0	105	710
07:45 AM	16	269	5	0	290	9	8	32	0	49	12	162	27	0	201	57	4	28	0	89	629
08:00 AM	15	224	0	0	239	5	1	13	0	19	9	145	15	0	169	31	6	20	0	57	484
Total Volume	68	1041	21	0	1130	36	45	133	0	214	96	607	94	0	797	219	51	89	0	359	2500
% App. Total	6	92.1	1.9	0		16.8	21	62.1	0		12	76.2	11.8	0		61	14.2	24.8	0		
PHF	.895	.950	.583	.000	.935	.750	.592	.679	.000	.686	.490	.937	.870	.000	.848	.750	.510	.795	.000	.831	.880
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	20	183	7	0	210	4	1	13	0	18	16	303	30	0	349	27	2	36	0	65	642
04:45 PM	21	202	5	1	229	4	3	8	0	15	20	263	34	0	317	21	4	24	0	49	610
05:00 PM	19	243	4	0	266	2	3	14	0	19	36	286	20	0	342	18	2	27	0	47	674
05:15 PM	13	261	4	0	278	2	0	21	0	23	20	311	37	0	368	13	2	20	0	35	704
Total Volume	73	889	20	1	983	12	7	56	0	75	92	1163	121	0	1376	79	10	107	0	196	2630
% App. Total	7.4	90.4	2	0.1		16	9.3	74.7	0		6.7	84.5	8.8	0		40.3	5.1	54.6	0		
PHF	.869	.852	.714	.250	.884	.750	.583	.667	.000	.815	.639	.935	.818	.000	.935	.731	.625	.743	.000	.754	.934

Historical Traffic Volume Summary

Station Details:

Sta ID:	034M74
Sta Type:	Full Coverage
Map:	MapIt
District:	7
County:	Fayette
Route:	034-KY-1878 -000
Route Desc:	CITATION BLVD

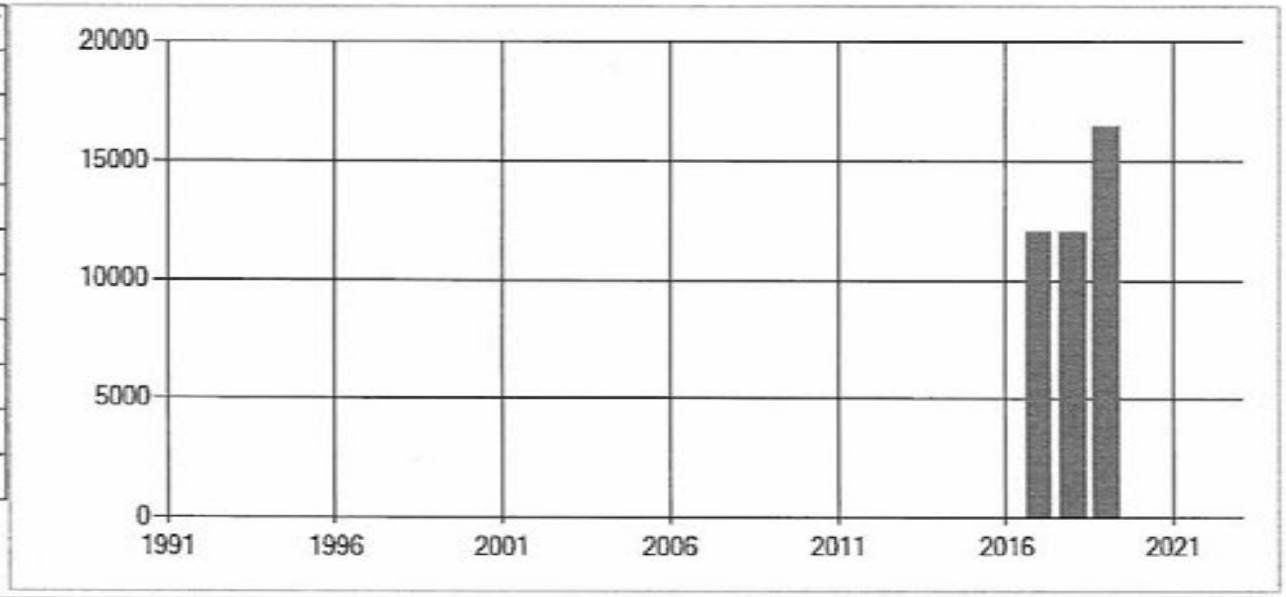
Begin MP:	1.5230
Begin Desc:	US 25 (RICHMOND ROAD)
End Mp:	2.30
End Desc:	KY 1978 (GREENDALE ROAD)
Impact Year:	
Year Added:	2016

Newest Count:

AADT:	16498
Year:	2019
% Single:	
% Combo:	
K Factor:	10.90
D Factor:	52

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

Year	AADT	Year	AADT	Year	AADT
2022		2012		2002	
2021		2011		2001	
2020		2010		2000	
2019	16498	2009		1999	
2018	12072	2008		1998	
2017	12008	2007		1997	
2016		2006		1996	
2015		2005		1995	
2014		2004		1994	
2013		2003		1993	



Historical Traffic Volume Summary

Station Details:

Sta ID:	034E60
Sta Type:	Classification
Map:	MapIt
District:	7
County:	Fayette
Route:	034-KY-1977 -000
Route Desc:	SPURR RD

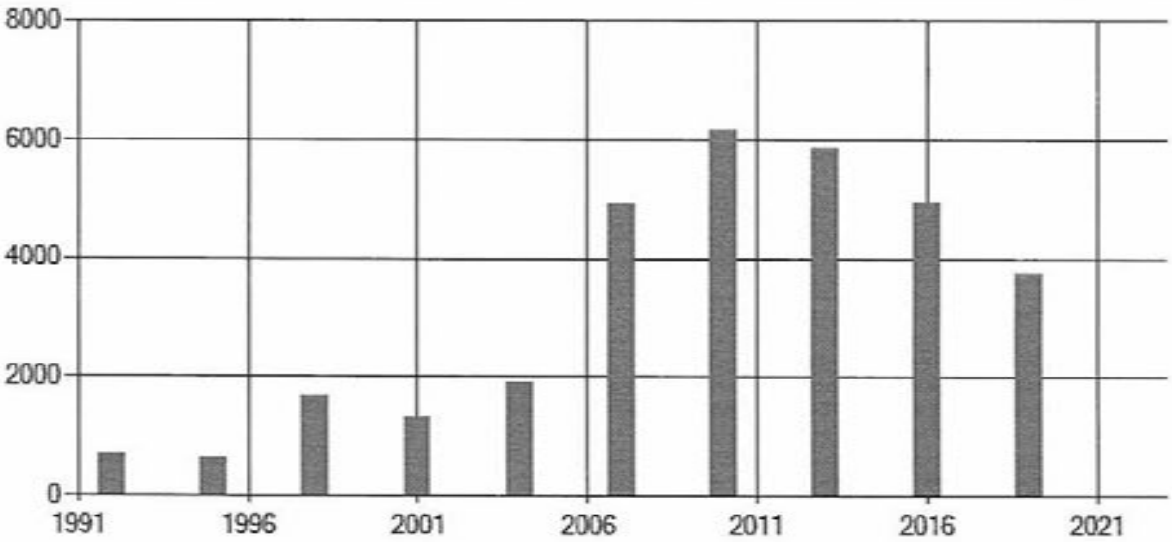
Begin MP:	5.7380
Begin Desc:	KY 1978 (GREENDALE ROAD)
End Mp:	6.2550
End Desc:	US 25 (GEORGETOWN ROAD)
Impact Year:	
Year Added:	

Newest Count:

AADT:	3747
Year:	2019
% Single:	3.6650
% Combo:	1.2390
K Factor:	12.90
D Factor:	58

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

Year	AADT	Year	AADT	Year	AADT
2022		2012		2002	
2021		2011		2001	1330
2020		2010	6180	2000	
2019	3747	2009		1999	
2018		2008		1998	1700
2017		2007	4900	1997	
2016	4956	2006		1996	
2015		2005		1995	637
2014		2004	1910	1994	
2013	5877	2003		1993	



Historical Traffic Volume Summary

Station Details:

Sta ID:	034G25
Sta Type:	Full Coverage
Map:	MapIt
District:	7
County:	Fayette
Route:	034-KY-1977 -000
Route Desc:	SPURR RD

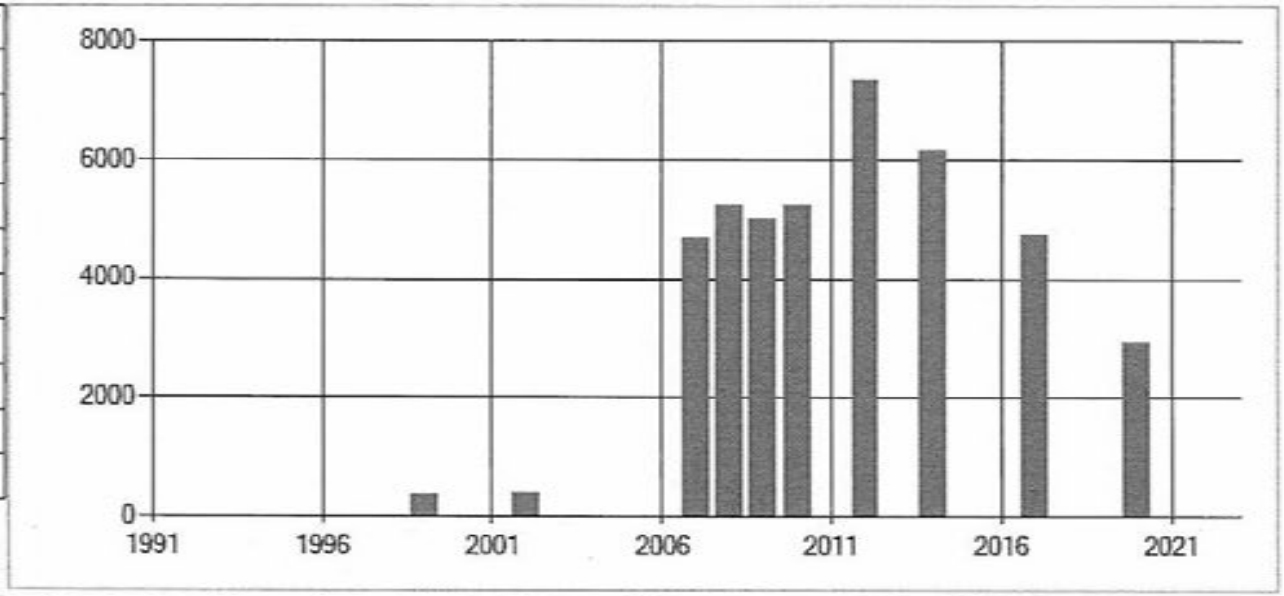
Begin MP:	5.06
Begin Desc:	SANDERSVILLE ROAD
End Mp:	5.7380
End Desc:	KY 1978 (GREENDALE ROAD)
Impact Year:	
Year Added:	2007

Newest Count:

AADT:	2934
Year:	2020
% Single:	
% Combo:	
K Factor:	11.10
D Factor:	56

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

Year	AADT	Year	AADT	Year	AADT
2022		2012	7367	2002	392
2021		2011		2001	
2020	2934	2010	5240	2000	
2019		2009	5020	1999	372
2018		2008	5230	1998	
2017	4761	2007	4680	1997	
2016		2006		1996	
2015		2005		1995	
2014	6171	2004		1994	
2013		2003		1993	



Historical Traffic Volume Summary

Station Details:

Sta ID:	034E61
Sta Type:	Full Coverage
Map:	MapIt
District:	7
County:	Fayette
Route:	034-US-0025 -000
Route Desc:	GEORGETOWN RD

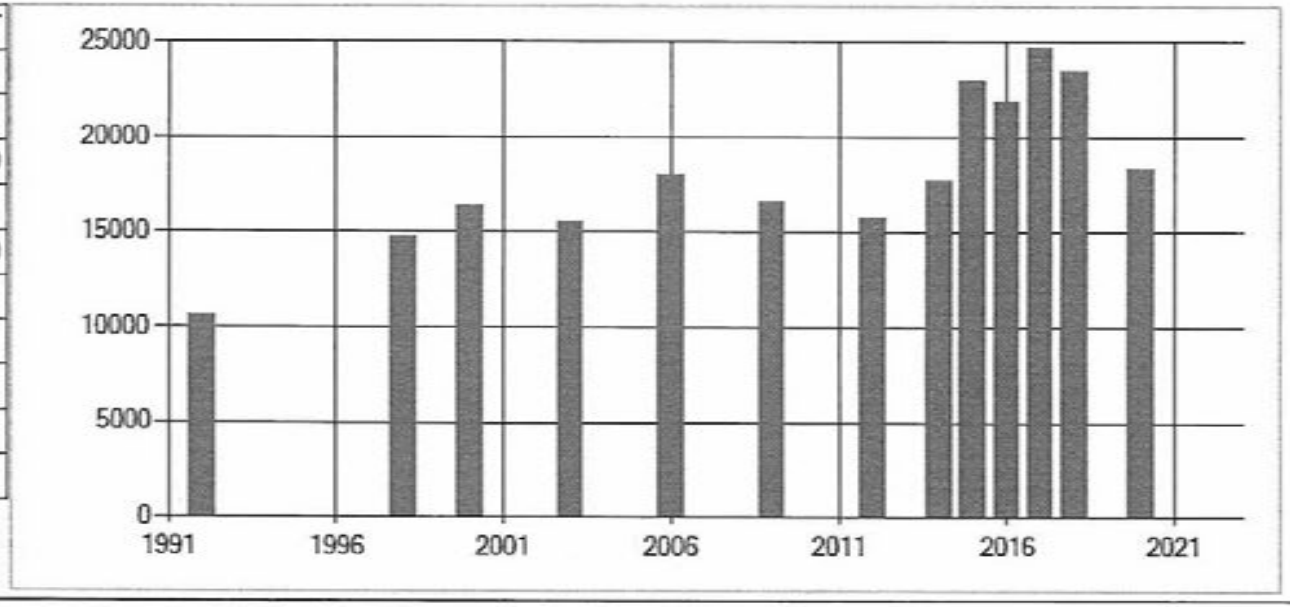
Begin MP:	17.7080
Begin Desc:	KY 1878 (CITATION BLVD)
End Mp:	21.6740
End Desc:	KY 1973
Impact Year:	
Year Added:	

Newest Count:

AADT:	18341
Year:	2020
% Single:	6.2950
% Combo:	2.5360
K Factor:	10.40
D Factor:	57

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

Year	AADT	Year	AADT	Year	AADT
2022		2012	15742	2002	
2021		2011		2001	
2020	18341	2010		2000	16400
2019		2009	16600	1999	
2018	23523	2008		1998	14700
2017	24704	2007		1997	
2016	21873	2006	18000	1996	
2015	23029	2005		1995	
2014	17688	2004		1994	
2013		2003	15600	1993	



Left Turn Lane Warrants

Greendale Entrance 2022/2032 AM Build

Input Fields

Left Turn Volume (vph)	17	Speed Limit (mph)	45
Advancing Volume (vph)	92	No. of through lanes	1
Opposing Volume (vph)	94	Percent Heavy Vehicles (decimal percent)	0.036

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.

Left Turn Lane Warrants

Greendale Entrance 2022/2032 PM Build

Input Fields

Left Turn Volume (vph)	36	Speed Limit (mph)	45
Advancing Volume (vph)	84	No. of through lanes	1
Opposing Volume (vph)	83	Percent Heavy Vehicles (decimal percent)	0.036

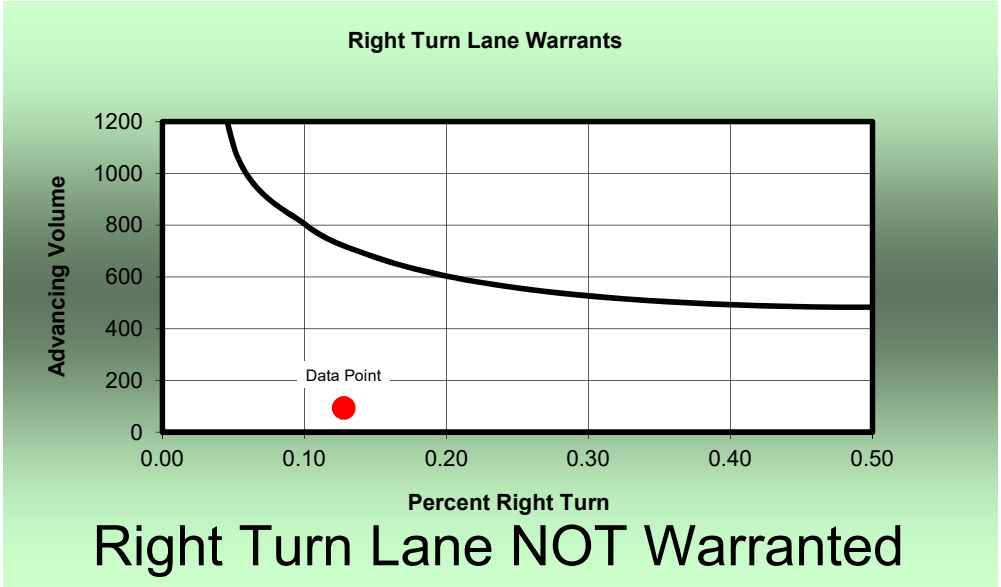
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Greendale Entrance 2022/2032 AM Build

Input Fields

Right Turn Volume (vph)	12	Speed Limit (mph)	45
Advancing Volume (vph)	94		



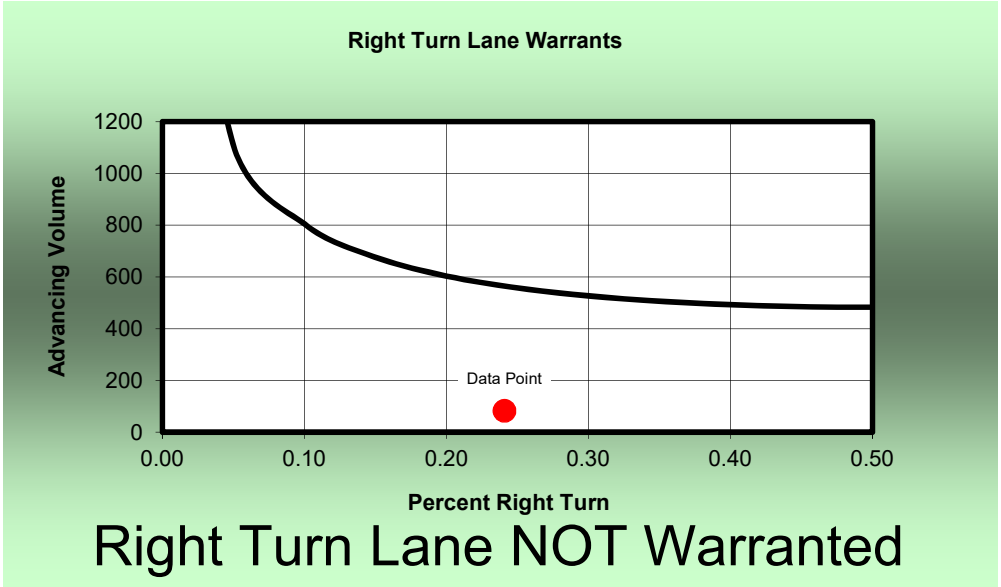
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Greendale Entrance 2022/2032 PM Build

Input Fields

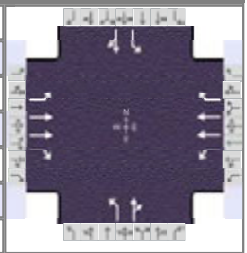
Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	83		



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.

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.84
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2022 no build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	14	534	27	166	458	22	22	50	131	121	150	26

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	5.8	63.6	28.3	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

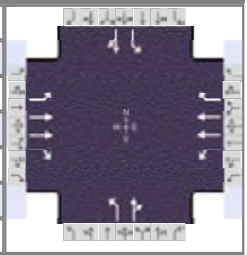
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	8.6	70.6	14.4	76.4		35.0		35.0
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	2.5		7.9			15.9		28.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.0		0.0
Phase Call Probability	0.43		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.01		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	17	636	29	198	545	24	26	200		144	206	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1185	1674		1192	1841	
Queue Service Time (g_s), s	0.5	12.3	1.0	5.9	9.2	0.8	2.3	12.4		14.3	11.5	
Cycle Queue Clearance Time (g_c), s	0.5	12.3	1.0	5.9	9.2	0.8	13.9	12.4		26.8	11.5	
Green Ratio (*g/C*)	0.55	0.53	0.53	0.61	0.58	0.58	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	509	1887	833	516	2059	931	225	395		217	434	
Volume-to-Capacity Ratio (*X*)	0.033	0.337	0.034	0.383	0.265	0.026	0.116	0.507		0.662	0.474	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.3	8.3	0.7	3.8	6.1	0.5	1.2	8.6		8.0	8.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.02	0.00	0.04	0.25	0.00	0.03	0.13	0.00		0.95	0.00	
Uniform Delay (d_1), s/veh	12.5	16.1	13.5	11.5	12.6	10.8	45.4	39.8		51.4	39.5	
Incremental Delay (d_2), s/veh	0.0	0.5	0.1	0.2	0.3	0.1	0.1	0.4		5.9	0.3	
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	
Control Delay (*d*), s/veh	12.5	16.6	13.6	11.6	12.9	10.9	45.5	40.2		57.3	39.7	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	16.4	B		12.5	B		40.8	D		47.0	D	
Intersection Delay, s/veh / LOS	23.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.05	A	1.12	A	0.86	A	1.07	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.97
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2022 no build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	44	441	49	152	526	63	36	123	179	58	73	22

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.9	2.9	65.1	27.9	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

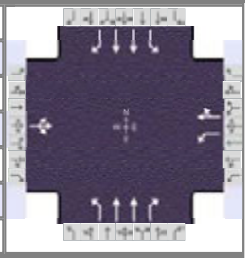
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	10.4	72.1	13.3	75.0		34.6		34.6
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	3.3		6.6			21.0		27.4
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.8		0.6
Phase Call Probability	0.78		0.99			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.18

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	45	455	45	157	542	59	37	293		60	96	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1310	1711		1095	1815	
Queue Service Time (g_s), s	1.3	8.0	1.6	4.6	9.3	2.0	2.8	19.0		6.4	5.1	
Cycle Queue Clearance Time (g_c), s	1.3	8.0	1.6	4.6	9.3	2.0	7.9	19.0		25.4	5.1	
Green Ratio (*g/C*)	0.58	0.54	0.54	0.60	0.57	0.57	0.23	0.23		0.23	0.23	
Capacity (*c*), veh/h	525	1933	854	606	2019	913	309	397		141	421	
Volume-to-Capacity Ratio (*X*)	0.086	0.235	0.053	0.259	0.269	0.064	0.120	0.737		0.423	0.228	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.9	5.5	1.0	3.0	6.3	1.2	1.6	12.8		3.1	4.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06	0.00	0.07	0.20	0.00	0.08	0.18	0.00		0.38	0.00	
Uniform Delay (d_1), s/veh	11.4	14.4	12.9	10.9	13.3	11.7	40.5	42.7		54.4	37.3	
Incremental Delay (d_2), s/veh	0.0	0.3	0.1	0.1	0.3	0.1	0.1	3.6		0.7	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		0.0	0.0	
Control Delay (*d*), s/veh	11.4	14.7	13.0	11.0	13.6	11.8	40.6	46.3		55.1	37.4	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	14.3	B		12.9	B		45.7	D		44.2	D	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	0.94	A	1.11	A	1.03	A	0.74	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.88
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2022 no build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	89	51	219	133	45	36	94	607	96	21	1041	68

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	2.8	67.6	39.2	0.0	0.0	
Yellow	3.6	0.0	5.0	3.6	0.0	0.0	
Red	1.8	0.0	1.3	2.2	0.0	0.0	

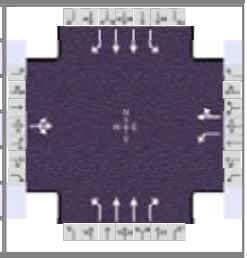
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		45.0		45.0	11.1	76.7	8.3	73.9
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.2		3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		33.6		41.2	5.7		2.8	
Green Extension Time (g_e), s		0.8		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.98		0.58	
Max Out Probability		0.31		1.00	0.00		0.00	

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		383		151	88		107	690	98	24	1183	77
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1490		1097	1726		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		26.8		7.6	4.8		3.7	14.6	3.9	0.8	31.4	3.2
Cycle Queue Clearance Time (g_c), s		31.6		39.2	4.8		3.7	14.6	3.9	0.8	31.4	3.2
Green Ratio (*g/C*)		0.30		0.30	0.30		0.56	0.54	0.54	0.54	0.52	0.52
Capacity (*c*), veh/h		484		119	521		259	1898	859	407	1837	824
Volume-to-Capacity Ratio (*X*)		0.791		1.268	0.168		0.413	0.363	0.114	0.059	0.644	0.094
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		17.7		16.3	3.5		2.4	9.4	2.5	0.5	18.0	2.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		1.84	0.00		0.00	0.00	0.21	0.00	0.00	0.38
Uniform Delay (d_1), s/veh		43.0		63.0	33.4		18.1	17.0	14.6	14.6	22.5	15.7
Incremental Delay (d_2), s/veh		8.0		171.1	0.1		0.4	0.5	0.3	0.0	1.8	0.2
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
Control Delay (*d*), s/veh		51.0		234.1	33.5		18.5	17.5	14.8	14.6	24.3	16.0
Level of Service (LOS)		D		F	C		B	B	B	B	C	B
Approach Delay, s/veh / LOS	51.0	D		160.5	F		17.4	B		23.6	C	
Intersection Delay, s/veh / LOS	37.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.45	B	1.91	B	1.71	B
Bicycle LOS Score / LOS	1.12	A	0.88	A	1.23	A	1.55	B

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.93
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2022 no build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	10	79	56	7	12	121	1163	92	20	889	73

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	2.9	82.1	24.8	0.0	0.0
Yellow	3.6	0.0	5.0	3.6	0.0	0.0
Red	1.8	0.0	1.3	2.2	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		30.6		30.6	11.0	91.3	8.1	88.4
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		18.5		24.0	5.5		2.6	
Green Extension Time (g_e), s		0.4		0.4	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		0.54	
Max Out Probability		0.00		0.00	0.00		0.00	

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		202		60	19		130	1251	89	22	956	71
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1480		1310	1672		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		15.4		5.8	1.2		3.5	25.2	2.7	0.6	17.9	2.3
Cycle Queue Clearance Time (g_c), s		16.5		22.0	1.2		3.5	25.2	2.7	0.6	17.9	2.3
Green Ratio (*g/C*)		0.19		0.19	0.19		0.67	0.65	0.65	0.65	0.63	0.63
Capacity (*c*), veh/h		330		146	323		406	2282	1032	286	2220	996
Volume-to-Capacity Ratio (*X*)		0.613		0.412	0.060		0.320	0.548	0.086	0.075	0.431	0.071
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		9.9		3.4	0.9		2.0	13.5	1.5	0.3	10.5	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		0.38	0.00		0.00	0.00	0.13	0.00	0.00	0.25
Uniform Delay (d_1), s/veh		48.9		59.0	42.8		9.3	12.3	8.4	10.6	12.3	9.4
Incremental Delay (d_2), s/veh		0.7		0.7	0.0		0.2	1.0	0.2	0.0	0.6	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	0.0
Control Delay (*d*), s/veh		49.5		59.7	42.8		9.5	13.3	8.5	10.7	12.9	9.5
Level of Service (LOS)		D		E	D		A	B	A	B	B	A
Approach Delay, s/veh / LOS	49.5	D		55.6	E		12.6	B		12.6	B	
Intersection Delay, s/veh / LOS	16.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.88	B	1.67	B
Bicycle LOS Score / LOS	0.82	A	0.62	A	1.70	B	1.35	A

HCS Two-Way Stop-Control Report

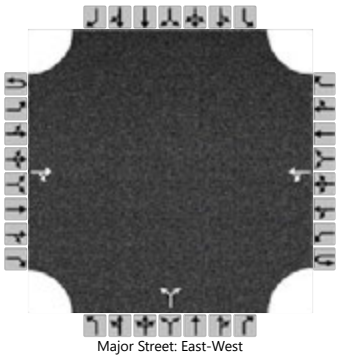
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 no build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	Spurr rd
North/South Street	Greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			228	22		53	153			9		73				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

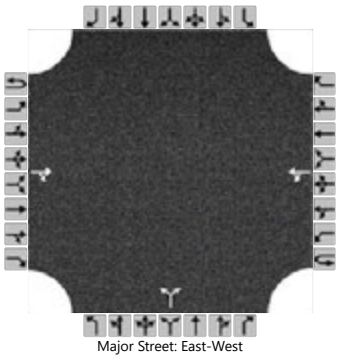
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						62					96					
Capacity, c (veh/h)						1267					700					
v/c Ratio						0.05					0.14					
95% Queue Length, Q_{95} (veh)						0.2					0.5					
Control Delay (s/veh)						8.0	0.4				11.0					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.4				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	gb	Intersection	greendale at spurr
Agency/Co.	pec	Jurisdiction	
Date Performed	5/27/2022	East/West Street	spurr
Analysis Year	2022	North/South Street	greendale
Time Analyzed	2022 no build pm	Peak Hour Factor	0.87
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	prop multifamily		

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			183	12		36	164			14		49				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						41					72					
Capacity, c (veh/h)						1345					722					
v/c Ratio						0.03					0.10					
95% Queue Length, Q_{95} (veh)						0.1					0.3					
Control Delay (s/veh)						7.8	0.3				10.5					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					1.6				10.5							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

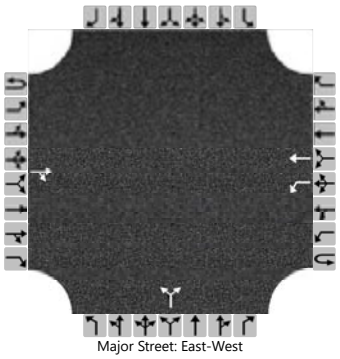
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 no build am
Intersection Orientation	East-West
Project Description	prop greendale

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			270	27		22	204			1		7				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

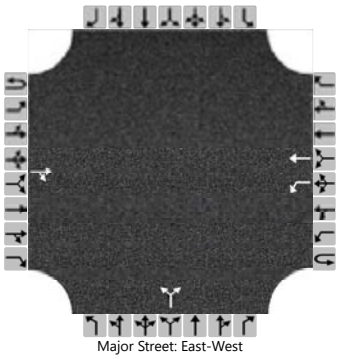
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					10					
Capacity, c (veh/h)						1093					648					
v/c Ratio						0.02					0.01					
95% Queue Length, Q_{95} (veh)						0.1					0.0					
Control Delay (s/veh)						8.4					10.6					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.8				10.6						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	gb	Intersection	innovation at spurr
Agency/Co.	pec	Jurisdiction	
Date Performed	5/27/2022	East/West Street	spurr
Analysis Year	2022	North/South Street	innovation
Time Analyzed	2022 no build pm	Peak Hour Factor	0.83
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	prop multifamily		

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			231	5		4	167			15		37				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5					63					
Capacity, c (veh/h)						1162					672					
v/c Ratio						0.00					0.09					
95% Queue Length, Q_{95} (veh)						0.0					0.3					
Control Delay (s/veh)						8.1					10.9					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.2				10.9						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

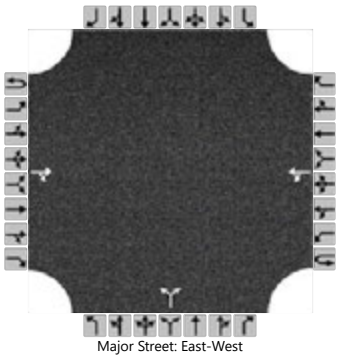
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 no build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	spurr at ky eagle inc
Jurisdiction	
East/West Street	spurr
North/South Street	Ky eagle inc entrance
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			302	4		1	207			0		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					0					
Capacity, c (veh/h)						1214					0					
v/c Ratio						0.00										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						8.0	0.0									
Level of Service (LOS)						A	A									
Approach Delay (s/veh)					0.0											
Approach LOS					A											

HCS Two-Way Stop-Control Report

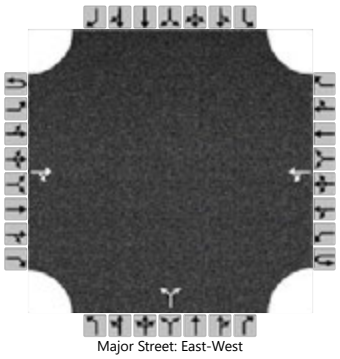
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 no build pm
Intersection Orientation	East-West
Project Description	prop mutifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			233	1		0	196			0		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

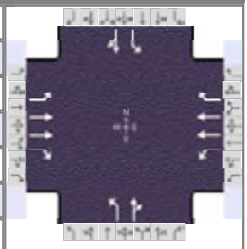
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					4					
Capacity, c (veh/h)						1299					769					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.8	0.0				9.7					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)					0.0				9.7							
Approach LOS					A				A							

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.84
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2022 build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	534	27	166	458	28	22	50	131	134	150	39

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	5.2	63.5	28.3	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

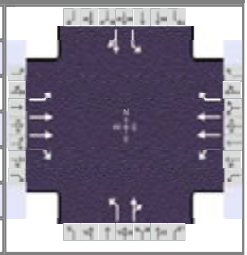
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	9.2	70.5	14.5	75.8		35.0		35.0
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	2.7		8.0			17.0		30.3
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.0		0.0
Phase Call Probability	0.55		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.01		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	24	636	29	198	545	30	26	200		160	220	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1170	1674		1192	1823	
Queue Service Time (g_s), s	0.7	12.3	1.0	6.0	9.3	1.0	2.4	12.4		15.9	12.6	
Cycle Queue Clearance Time (g_c), s	0.7	12.3	1.0	6.0	9.3	1.0	15.0	12.4		28.3	12.6	
Green Ratio (*g/C*)	0.55	0.53	0.53	0.60	0.57	0.57	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	513	1885	833	517	2041	923	213	395		217	430	
Volume-to-Capacity Ratio (*X*)	0.046	0.337	0.034	0.383	0.267	0.032	0.123	0.507		0.734	0.512	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	8.3	0.7	3.8	6.2	0.6	1.2	8.6		9.0	9.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.00	0.04	0.26	0.00	0.04	0.13	0.00		1.09	0.00	
Uniform Delay (d_1), s/veh	12.3	16.2	13.5	11.6	12.9	11.1	46.4	39.8		52.2	39.9	
Incremental Delay (d_2), s/veh	0.0	0.5	0.1	0.2	0.3	0.1	0.1	0.4		10.7	0.5	
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	
Control Delay (*d*), s/veh	12.4	16.7	13.6	11.8	13.2	11.2	46.5	40.2		62.8	40.3	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	16.4	B		12.8	B		40.9	D		49.8	D	
Intersection Delay, s/veh / LOS	23.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.06	A	1.13	A	0.86	A	1.11	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.97
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2022 build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	441	49	152	526	71	36	123	179	64	73	31

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.2	2.6	64.5	28.4	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

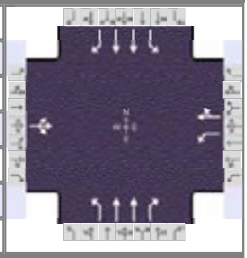
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	10.7	71.5	13.3	74.1		35.1		35.1
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	3.7		6.7			20.9		27.9
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.8		0.6
Phase Call Probability	0.85		0.99			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.26

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	57	455	45	157	542	66	37	293		66	104	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1300	1711		1095	1796	
Queue Service Time (g_s), s	1.7	8.1	1.6	4.7	9.5	2.3	2.9	18.9		7.1	5.6	
Cycle Queue Clearance Time (g_c), s	1.7	8.1	1.6	4.7	9.5	2.3	8.4	18.9		25.9	5.6	
Green Ratio (*g/C*)	0.57	0.54	0.54	0.59	0.56	0.56	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	523	1916	846	601	1993	901	307	405		147	425	
Volume-to-Capacity Ratio (*X*)	0.108	0.237	0.054	0.261	0.272	0.073	0.121	0.723		0.448	0.245	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	5.6	1.0	3.0	6.4	1.4	1.6	12.7		3.5	4.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.00	0.07	0.20	0.00	0.10	0.18	0.00		0.41	0.00	
Uniform Delay (d_1), s/veh	11.6	14.7	13.2	11.1	13.7	12.1	40.5	42.2		54.1	37.1	
Incremental Delay (d_2), s/veh	0.0	0.3	0.1	0.1	0.3	0.2	0.1	3.3		0.8	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		0.0	0.0	
Control Delay (*d*), s/veh	11.7	15.0	13.3	11.2	14.1	12.3	40.6	45.5		54.9	37.2	
Level of Service (LOS)	B	B	B	B	B	B	D	D		D	D	
Approach Delay, s/veh / LOS	14.5	B		13.3	B		44.9	D		44.1	D	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	0.95	A	1.12	A	1.03	A	0.77	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.88
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2022 build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	101	51	239	133	45	36	103	607	96	21	1041	74

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	3.2	67.2	39.2	0.0	0.0	
Yellow	3.6	0.0	5.0	3.6	0.0	0.0	
Red	1.8	0.0	1.3	2.2	0.0	0.0	

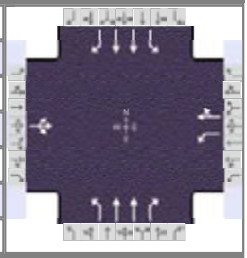
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		45.0		45.0	11.5	76.7	8.3	73.5
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.2		3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		38.9		41.2	6.1		2.8	
Green Extension Time (g_e), s		0.1		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		0.58	
Max Out Probability		1.00		1.00	0.01		0.00	

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		417		151	88		117	690	98	24	1183	76
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1449		1077	1726		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		32.0		2.3	4.8		4.1	14.6	3.9	0.8	31.6	3.2
Cycle Queue Clearance Time (g_c), s		36.9		39.2	4.8		4.1	14.6	3.9	0.8	31.6	3.2
Green Ratio (*g/C*)		0.30		0.30	0.30		0.56	0.54	0.54	0.54	0.52	0.52
Capacity (*c*), veh/h		472		75	521		262	1898	859	407	1826	819
Volume-to-Capacity Ratio (*X*)		0.883		2.023	0.168		0.447	0.363	0.114	0.059	0.648	0.093
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		21.0		23.1	3.5		2.7	9.4	2.5	0.6	18.2	2.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		2.61	0.00		0.00	0.00	0.21	0.00	0.00	0.38
Uniform Delay (d_1), s/veh		45.3		64.7	33.4		18.4	17.0	14.6	14.7	22.8	15.9
Incremental Delay (d_2), s/veh		17.1		503.7	0.1		0.4	0.5	0.3	0.0	1.8	0.2
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
Control Delay (*d*), s/veh		62.4		568.4	33.5		18.9	17.5	14.8	14.7	24.6	16.2
Level of Service (LOS)		E		F	C		B	B	B	B	C	B
Approach Delay, s/veh / LOS	62.4	E		372.3	F		17.4	B		23.9	C	
Intersection Delay, s/veh / LOS	56.7						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.91	B	1.72	B
Bicycle LOS Score / LOS	1.18	A	0.88	A	1.23	A	1.55	B

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.93
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2022 build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	10	93	56	7	12	137	1163	92	20	889	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	3.7	78.9	27.2	0.0	0.0
Yellow	3.6	0.0	5.0	3.6	0.0	0.0
Red	1.8	0.0	1.3	2.2	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		33.0		33.0	11.8	88.9	8.1	85.2
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		20.8		26.4	6.2		2.6	
Green Extension Time (g_e), s		0.5		0.4	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.54	
Max Out Probability		0.00		0.00	0.00		0.00	

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		230		60	19		147	1251	89	22	956	87
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1478		1294	1672		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		18.0		5.9	1.2		4.2	26.5	2.9	0.6	19.1	3.0
Cycle Queue Clearance Time (g_c), s		18.8		24.4	1.2		4.2	26.5	2.9	0.6	19.1	3.0
Green Ratio (*g/C*)		0.21		0.21	0.21		0.66	0.64	0.64	0.62	0.61	0.61
Capacity (*c*), veh/h		357		147	355		397	2216	1002	273	2132	957
Volume-to-Capacity Ratio (*X*)		0.644		0.411	0.055		0.371	0.564	0.089	0.079	0.448	0.091
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		11.0		3.4	0.9		2.5	14.3	1.7	0.4	11.3	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		0.38	0.00		0.00	0.00	0.14	0.00	0.00	0.34
Uniform Delay (d_1), s/veh		47.7		58.9	40.8		10.6	13.7	9.3	12.0	14.0	10.8
Incremental Delay (d_2), s/veh		0.7		0.7	0.0		0.2	1.0	0.2	0.0	0.7	0.2
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
Control Delay (*d*), s/veh		48.4		59.6	40.8		10.8	14.7	9.5	12.0	14.7	11.0
Level of Service (LOS)		D		E	D		B	B	A	B	B	B
Approach Delay, s/veh / LOS	48.4	D		55.0	E		14.0	B		14.3	B	
Intersection Delay, s/veh / LOS	18.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.89	B	1.68	B
Bicycle LOS Score / LOS	0.87	A	0.62	A	1.71	B	1.37	A

HCS Two-Way Stop-Control Report

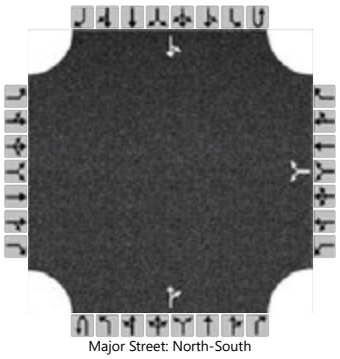
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build am
Intersection Orientation	North-South
Project Description	prop multifamily

Site Information

Intersection	greendale at new entrance
Jurisdiction	
East/West Street	Greendale
North/South Street	New entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						26		38			82	12		17	75	
Percent Heavy Vehicles (%)						2		0						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.20						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.30						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							75							20		
Capacity, c (veh/h)							858							1486		
v/c Ratio							0.09							0.01		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							9.6							7.5	0.1	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.6								1.5		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

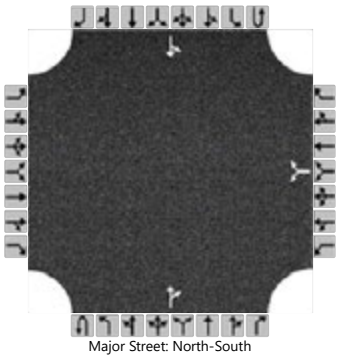
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build pm
Intersection Orientation	North-South
Project Description	prop multifamily

Site Information

Intersection	greendale at new entrance
Jurisdiction	
East/West Street	Greendale
North/South Street	New entrance
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						15		29			63	20		36	48	
Percent Heavy Vehicles (%)						2		0						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.20						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.30						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							45							37		
Capacity, c (veh/h)							903							1517		
v/c Ratio							0.05							0.02		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							9.2							7.4	0.2	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.2								3.3		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

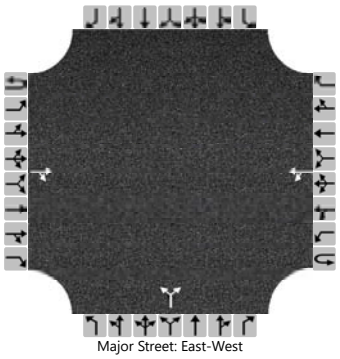
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			228	24		68	153			15		105				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						80					141					
Capacity, c (veh/h)						1265					683					
v/c Ratio						0.06					0.21					
95% Queue Length, Q_{95} (veh)						0.2					0.8					
Control Delay (s/veh)						8.0	0.6				11.6					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.9				11.6							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

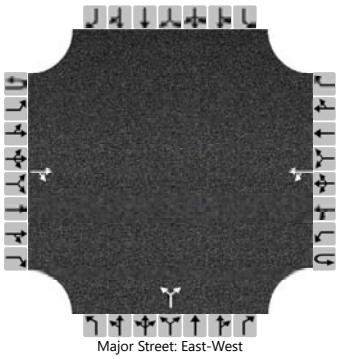
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			183	15		69	164			16		76				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						81					108					
Capacity, c (veh/h)						1335					706					
v/c Ratio						0.06					0.15					
95% Queue Length, Q_{95} (veh)						0.2					0.5					
Control Delay (s/veh)						7.9	0.5				11.0					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.7				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

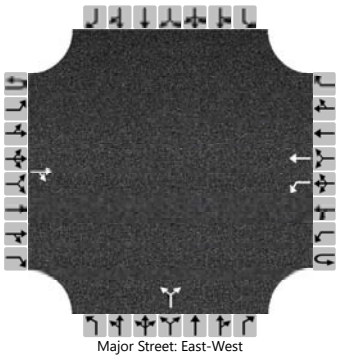
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			302	27		22	219			1		7				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					10					
Capacity, c (veh/h)						1057					613					
v/c Ratio						0.02					0.02					
95% Queue Length, Q_{95} (veh)						0.1					0.0					
Control Delay (s/veh)						8.5					11.0					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.8				11.0						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

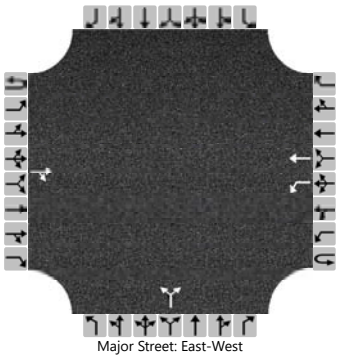
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			258	5		4	200			15		37				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5					63					
Capacity, c (veh/h)						1129					632					
v/c Ratio						0.00					0.10					
95% Queue Length, Q_{95} (veh)						0.0					0.3					
Control Delay (s/veh)						8.2					11.3					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.2				11.3						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

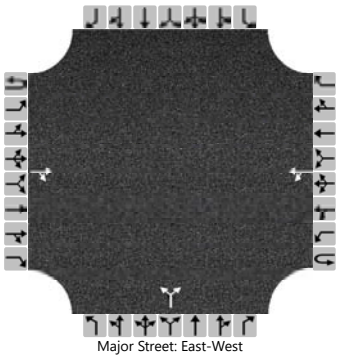
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			334	4		1	222			0		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					0					
Capacity, c (veh/h)						1177					0					
v/c Ratio						0.00										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						8.1	0.0									
Level of Service (LOS)						A	A									
Approach Delay (s/veh)						0.0										
Approach LOS						A										

HCS Two-Way Stop-Control Report

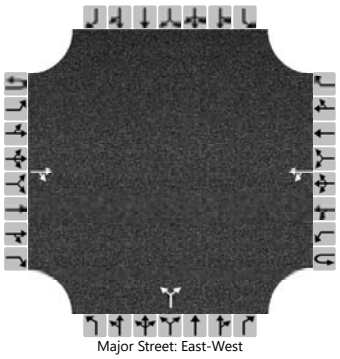
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2022 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			260	1		0	229			0		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

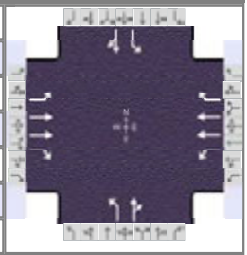
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					4					
Capacity, c (veh/h)						1265					738					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.8	0.0				9.9					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)					0.0				9.9							
Approach LOS					A				A							

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.84
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2032 no build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	14	684	27	166	586	22	22	50	131	121	150	26

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	5.8	63.6	28.3	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

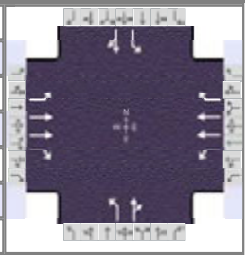
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	8.6	70.6	14.4	76.4		35.0		35.0
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	2.5		7.9			15.9		28.8
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.0		0.0
Phase Call Probability	0.43		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.01		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	17	814	29	198	698	24	26	200		144	206	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1185	1674		1192	1841	
Queue Service Time (g_s), s	0.5	16.7	1.0	5.9	12.3	0.8	2.3	12.4		14.3	11.5	
Cycle Queue Clearance Time (g_c), s	0.5	16.7	1.0	5.9	12.3	0.8	13.9	12.4		26.8	11.5	
Green Ratio (*g/C*)	0.55	0.53	0.53	0.61	0.58	0.58	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	435	1887	833	439	2059	931	225	395		217	434	
Volume-to-Capacity Ratio (*X*)	0.038	0.431	0.034	0.450	0.339	0.026	0.116	0.507		0.662	0.474	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.3	10.7	0.7	3.8	8.1	0.5	1.2	8.6		8.0	8.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.02	0.00	0.04	0.25	0.00	0.03	0.13	0.00		0.95	0.00	
Uniform Delay (d_1), s/veh	12.7	17.2	13.5	12.4	13.3	10.8	45.4	39.8		51.4	39.5	
Incremental Delay (d_2), s/veh	0.0	0.7	0.1	0.3	0.4	0.1	0.1	0.4		5.9	0.3	
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	
Control Delay (*d*), s/veh	12.7	17.9	13.6	12.6	13.7	10.9	45.5	40.2		57.3	39.7	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	17.7	B		13.4	B		40.8	D		47.0	D	
Intersection Delay, s/veh / LOS	22.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.20	A	1.25	A	0.86	A	1.07	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.97
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2032 no build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	44	565	49	152	673	63	36	123	179	58	73	22

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.9	2.9	65.1	27.9	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

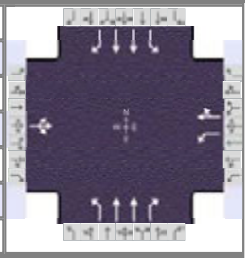
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	10.4	72.1	13.3	75.0		34.6		34.6
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	3.3		6.6			21.0		27.4
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.8		0.6
Phase Call Probability	0.78		0.99			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.18

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	45	582	45	157	694	59	37	293		60	96	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1310	1711		1095	1815	
Queue Service Time (g_s), s	1.3	10.7	1.6	4.6	12.6	2.0	2.8	19.0		6.4	5.1	
Cycle Queue Clearance Time (g_c), s	1.3	10.7	1.6	4.6	12.6	2.0	7.9	19.0		25.4	5.1	
Green Ratio (*g/C*)	0.58	0.54	0.54	0.60	0.57	0.57	0.23	0.23		0.23	0.23	
Capacity (*c*), veh/h	452	1933	854	538	2019	913	309	397		141	421	
Volume-to-Capacity Ratio (*X*)	0.100	0.301	0.053	0.292	0.344	0.064	0.120	0.737		0.423	0.228	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.9	7.4	1.0	3.0	8.3	1.2	1.6	12.8		3.1	4.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06	0.00	0.07	0.20	0.00	0.08	0.18	0.00		0.38	0.00	
Uniform Delay (d_1), s/veh	11.7	15.0	12.9	11.2	14.0	11.7	40.5	42.7		54.4	37.3	
Incremental Delay (d_2), s/veh	0.0	0.4	0.1	0.1	0.5	0.1	0.1	3.6		0.7	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		0.0	0.0	
Control Delay (*d*), s/veh	11.8	15.4	13.0	11.3	14.4	11.8	40.6	46.3		55.1	37.4	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	15.0	B		13.7	B		45.7	D		44.2	D	
Intersection Delay, s/veh / LOS	21.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.04	A	1.24	A	1.03	A	0.74	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.88
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2032 no build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	89	51	219	133	45	36	94	777	96	21	1333	68

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	2.8	67.6	39.2	0.0	0.0	
Yellow	3.6	0.0	5.0	3.6	0.0	0.0	
Red	1.8	0.0	1.3	2.2	0.0	0.0	

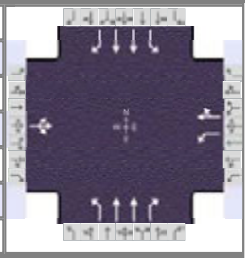
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		45.0		45.0	11.1	76.7	8.3	73.9
Change Period, (*Y+R c*), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.2		3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (*g s*), s		33.6		41.2	5.7		2.8	
Green Extension Time (*g e*), s		0.8		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.98		0.58	
Max Out Probability		0.31		1.00	0.00		0.00	

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		383		151	88		107	883	98	24	1515	69
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1490		1097	1726		1725	1752	1585	1781	1766	1585
Queue Service Time (*g s*), s		26.8		7.6	4.8		3.7	20.1	3.9	0.8	46.8	2.9
Cycle Queue Clearance Time (*g c*), s		31.6		39.2	4.8		3.7	20.1	3.9	0.8	46.8	2.9
Green Ratio (*g/C*)		0.30		0.30	0.30		0.56	0.54	0.54	0.54	0.52	0.52
Capacity (*c*), veh/h		484		119	521		184	1898	859	329	1837	824
Volume-to-Capacity Ratio (*X*)		0.791		1.268	0.168		0.580	0.465	0.114	0.073	0.824	0.084
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		17.7		16.3	3.5		2.6	12.1	2.5	0.5	25.9	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		1.84	0.00		0.00	0.00	0.21	0.00	0.00	0.34
Uniform Delay (*d 1*), s/veh		43.0		63.0	33.4		25.6	18.3	14.6	15.3	26.2	15.7
Incremental Delay (*d 2*), s/veh		8.0		171.1	0.1		1.1	0.8	0.3	0.0	4.4	0.2
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
Control Delay (*d*), s/veh		51.0		234.1	33.5		26.6	19.1	14.8	15.3	30.6	15.9
Level of Service (LOS)		D		F	C		C	B	B	B	C	B
Approach Delay, s/veh / LOS	51.0	D		160.5	F		19.4	B		29.7	C	
Intersection Delay, s/veh / LOS	38.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.91	B	1.71	B
Bicycle LOS Score / LOS	1.12	A	0.88	A	1.38	A	1.81	B

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.93
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2032 no build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	10	79	56	7	12	121	1489	92	20	1138	73

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	2.9	82.1	24.8	0.0	0.0
Yellow	3.6	0.0	5.0	3.6	0.0	0.0
Red	1.8	0.0	1.3	2.2	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		30.6		30.6	11.0	91.3	8.1	88.4
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		18.5		24.0	5.5		2.6	
Green Extension Time (g_e), s		0.4		0.4	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		0.54	
Max Out Probability		0.00		0.00	0.00		0.00	

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		202		60	19		130	1601	89	22	1224	71
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1480		1310	1672		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		15.4		5.8	1.2		3.5	38.1	2.7	0.6	25.6	2.3
Cycle Queue Clearance Time (g_c), s		16.5		22.0	1.2		3.5	38.1	2.7	0.6	25.6	2.3
Green Ratio (*g/C*)		0.19		0.19	0.19		0.67	0.65	0.65	0.65	0.63	0.63
Capacity (*c*), veh/h		330		146	323		318	2282	1032	198	2220	996
Volume-to-Capacity Ratio (*X*)		0.613		0.412	0.060		0.409	0.702	0.086	0.108	0.551	0.071
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		9.9		3.4	0.9		2.0	19.2	1.5	0.3	14.1	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		0.38	0.00		0.00	0.00	0.13	0.00	0.00	0.25
Uniform Delay (d_1), s/veh		48.9		59.0	42.8		11.4	14.6	8.4	14.1	13.7	9.4
Incremental Delay (d_2), s/veh		0.7		0.7	0.0		0.3	1.8	0.2	0.1	1.0	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	0.0
Control Delay (*d*), s/veh		49.5		59.7	42.8		11.7	16.4	8.5	14.2	14.7	9.5
Level of Service (LOS)		D		E	D		B	B	A	B	B	A
Approach Delay, s/veh / LOS	49.5	D		55.6	E		15.7	B		14.4	B	
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.88	B	1.67	B
Bicycle LOS Score / LOS	0.82	A	0.62	A	1.99	B	1.57	B

HCS Two-Way Stop-Control Report

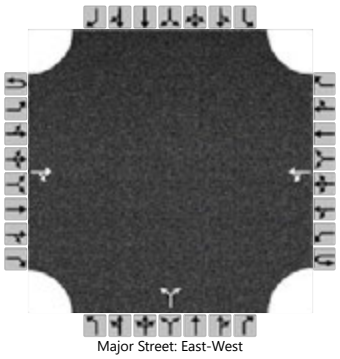
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	Spurr rd
North/South Street	Greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			228	22		53	153			9		73				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						62					96					
Capacity, c (veh/h)						1267					700					
v/c Ratio						0.05					0.14					
95% Queue Length, Q_{95} (veh)						0.2					0.5					
Control Delay (s/veh)						8.0	0.4				11.0					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.4				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

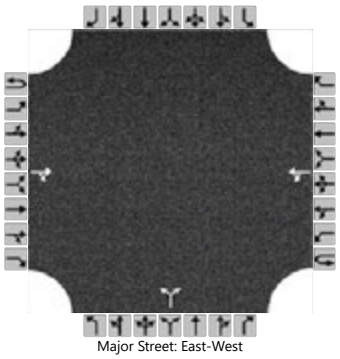
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	greendale
Peak Hour Factor	0.87
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			183	12		36	164			14		49				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						41					72					
Capacity, c (veh/h)						1345					722					
v/c Ratio						0.03					0.10					
95% Queue Length, Q_{95} (veh)						0.1					0.3					
Control Delay (s/veh)						7.8	0.3				10.5					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					1.6				10.5							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

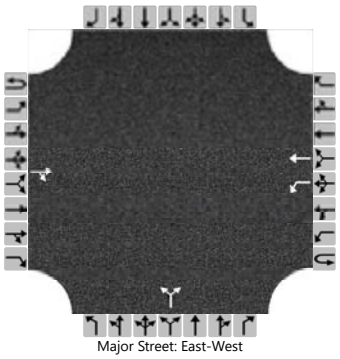
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build am
Intersection Orientation	East-West
Project Description	prop greendale

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			270	27		22	204			1		7				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					10					
Capacity, c (veh/h)						1093					648					
v/c Ratio						0.02					0.01					
95% Queue Length, Q_{95} (veh)						0.1					0.0					
Control Delay (s/veh)						8.4					10.6					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.8				10.6						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

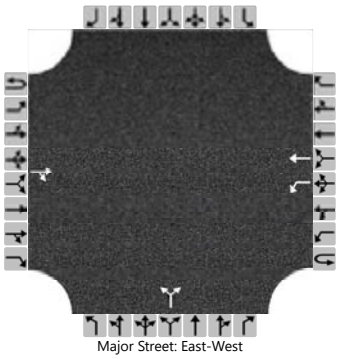
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			231	5		4	167			15		37				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5					63					
Capacity, c (veh/h)						1162					672					
v/c Ratio						0.00					0.09					
95% Queue Length, Q_{95} (veh)						0.0					0.3					
Control Delay (s/veh)						8.1					10.9					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.2				10.9							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

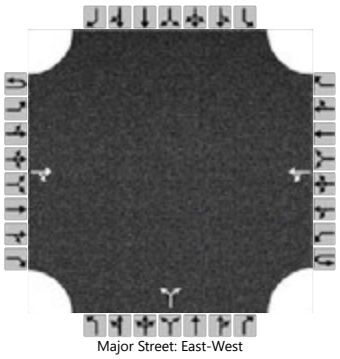
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	spurr at ky eagle inc
Jurisdiction	
East/West Street	spurr
North/South Street	Ky eagle inc entrance
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			302	4		1	207			0		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					0					
Capacity, c (veh/h)						1214					0					
v/c Ratio						0.00										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						8.0	0.0									
Level of Service (LOS)						A	A									
Approach Delay (s/veh)					0.0											
Approach LOS					A											

HCS Two-Way Stop-Control Report

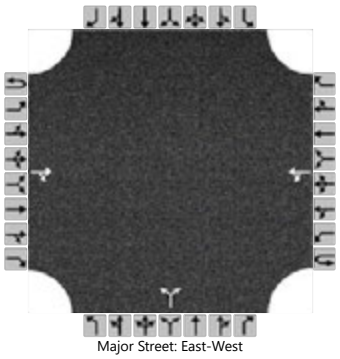
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 no build pm
Intersection Orientation	East-West
Project Description	prop mutifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			233	1		0	196			0		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

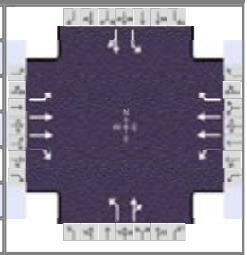
Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					4					
Capacity, c (veh/h)						1299					769					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.8	0.0				9.7					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)						0.0				9.7						
Approach LOS						A				A						

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.84
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2032 build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	684	27	166	586	28	22	50	131	134	150	39

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	5.2	63.5	28.3	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

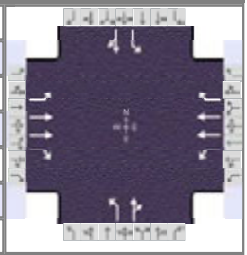
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	9.2	70.5	14.5	75.8		35.0		35.0
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	2.7		8.0			17.0		30.3
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		1.0		0.0
Phase Call Probability	0.55		1.00			1.00		1.00
Max Out Probability	0.00		1.00			0.01		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	24	814	29	198	698	30	26	200		160	220	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1170	1674		1192	1823	
Queue Service Time (g_s), s	0.7	16.7	1.0	6.0	12.5	1.0	2.4	12.4		15.9	12.6	
Cycle Queue Clearance Time (g_c), s	0.7	16.7	1.0	6.0	12.5	1.0	15.0	12.4		28.3	12.6	
Green Ratio (*g/C*)	0.55	0.53	0.53	0.60	0.57	0.57	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	439	1885	833	440	2041	923	213	395		217	430	
Volume-to-Capacity Ratio (*X*)	0.054	0.432	0.034	0.449	0.342	0.032	0.123	0.507		0.734	0.512	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	10.7	0.7	3.8	8.2	0.6	1.2	8.6		9.0	9.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.00	0.04	0.26	0.00	0.04	0.13	0.00		1.09	0.00	
Uniform Delay (d_1), s/veh	12.6	17.2	13.5	12.5	13.6	11.1	46.4	39.8		52.2	39.9	
Incremental Delay (d_2), s/veh	0.0	0.7	0.1	0.3	0.5	0.1	0.1	0.4		10.7	0.5	
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	
Control Delay (*d*), s/veh	12.6	17.9	13.6	12.8	14.1	11.2	46.5	40.2		62.8	40.3	
Level of Service (LOS)	B	B	B	B	B	B	D	D		E	D	
Approach Delay, s/veh / LOS	17.7	B		13.7	B		40.9	D		49.8	D	
Intersection Delay, s/veh / LOS	23.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.20	A	1.25	A	0.86	A	1.11	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	6/2/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.97
Urban Street	Citation	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Greendale	File Name	citation at greendale.xus		
Project Description	2032 build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	55	565	49	152	673	72	36	123	179	64	73	31

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.2	2.6	64.5	28.4	0.0	0.0
Yellow	3.9	0.0	5.0	4.3	0.0	0.0
Red	2.6	0.0	2.0	2.4	0.0	0.0

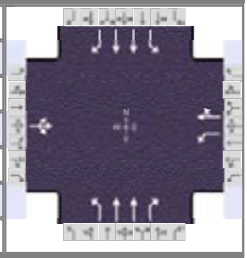
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	3.0	1.1	3.0		6.0		6.0
Phase Duration, s	10.7	71.5	13.3	74.1		35.1		35.1
Change Period, ($Y+R_c$), s	6.5	7.0	6.5	7.0		6.7		6.7
Max Allow Headway (*MAH*), s	3.0	0.0	3.0	0.0		3.1		3.1
Queue Clearance Time (g_s), s	3.7		6.7			20.9		27.9
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.8		0.6
Phase Call Probability	0.85		0.99			1.00		1.00
Max Out Probability	0.00		0.00			0.00		0.26

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	57	582	45	157	694	67	37	293		66	104	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1781	1572	1781	1781	1610	1300	1711		1095	1796	
Queue Service Time (g_s), s	1.7	10.8	1.6	4.7	12.8	2.3	2.9	18.9		7.1	5.6	
Cycle Queue Clearance Time (g_c), s	1.7	10.8	1.6	4.7	12.8	2.3	8.4	18.9		25.9	5.6	
Green Ratio (*g/C*)	0.57	0.54	0.54	0.59	0.56	0.56	0.24	0.24		0.24	0.24	
Capacity (*c*), veh/h	450	1916	846	533	1993	901	307	405		147	425	
Volume-to-Capacity Ratio (*X*)	0.126	0.304	0.054	0.294	0.348	0.074	0.121	0.723		0.448	0.245	
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	7.5	1.0	3.0	8.4	1.4	1.6	12.7		3.5	4.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.00	0.07	0.20	0.00	0.10	0.18	0.00		0.41	0.00	
Uniform Delay (d_1), s/veh	12.0	15.3	13.2	11.4	14.5	12.1	40.5	42.2		54.1	37.1	
Incremental Delay (d_2), s/veh	0.0	0.4	0.1	0.1	0.5	0.2	0.1	3.3		0.8	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		0.0	0.0	
Control Delay (*d*), s/veh	12.0	15.7	13.3	11.5	14.9	12.3	40.6	45.5		54.9	37.2	
Level of Service (LOS)	B	B	B	B	B	B	D	D		D	D	
Approach Delay, s/veh / LOS	15.3	B		14.2	B		44.9	D		44.1	D	
Intersection Delay, s/veh / LOS	21.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.90	B	2.46	B	2.46	B
Bicycle LOS Score / LOS	1.05	A	1.24	A	1.03	A	0.77	A

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	am	PHF	0.88
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2032 build am				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	101	51	239	133	45	36	103	777	96	21	1333	74

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	3.2	67.2	39.2	0.0	0.0
Yellow	3.6	0.0	5.0	3.6	0.0	0.0
Red	1.8	0.0	1.3	2.2	0.0	0.0

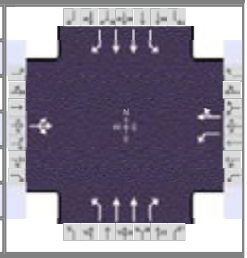
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		45.0		45.0	11.5	76.7	8.3	73.5
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.2		3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		39.0		41.2	6.1		2.8	
Green Extension Time (g_e), s		0.0		0.0	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		0.58	
Max Out Probability		1.00		1.00	0.01		0.00	

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		418		151	88		117	883	98	24	1515	76
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1449		1076	1726		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		32.1		2.2	4.8		4.1	20.1	3.9	0.8	47.1	3.2
Cycle Queue Clearance Time (g_c), s		37.0		39.2	4.8		4.1	20.1	3.9	0.8	47.1	3.2
Green Ratio (*g/C*)		0.30		0.30	0.30		0.56	0.54	0.54	0.54	0.52	0.52
Capacity (*c*), veh/h		472		74	521		188	1898	859	329	1826	819
Volume-to-Capacity Ratio (*X*)		0.886		2.052	0.168		0.623	0.465	0.114	0.073	0.830	0.093
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		21.1		23.3	3.5		3.1	12.1	2.5	0.6	26.2	2.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		2.63	0.00		0.00	0.00	0.21	0.00	0.00	0.38
Uniform Delay (d_1), s/veh		45.3		64.7	33.4		26.2	18.3	14.6	15.4	26.6	15.9
Incremental Delay (d_2), s/veh		17.4		517.2	0.1		1.3	0.8	0.3	0.0	4.5	0.2
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
Control Delay (*d*), s/veh		62.8		582.0	33.5		27.5	19.1	14.8	15.5	31.1	16.2
Level of Service (LOS)		E		F	C		C	B	B	B	C	B
Approach Delay, s/veh / LOS	62.8	E		380.8	F		19.6	B		30.2	C	
Intersection Delay, s/veh / LOS	55.6						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	1.91	B	1.71	B
Bicycle LOS Score / LOS	1.18	A	0.88	A	1.39	A	1.82	B

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	pec			Duration, h	0.250
Analyst	gb	Analysis Date	5/31/2022	Area Type	Other
Jurisdiction		Time Period	pm	PHF	0.93
Urban Street	georgetown	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	spurr	File Name	georgetown at spurr.xus		
Project Description	2032 build pm				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	10	93	56	7	12	137	1489	92	20	1138	90

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.7	3.7	78.9	27.2	0.0	0.0
Yellow	3.6	0.0	5.0	3.6	0.0	0.0
Red	1.8	0.0	1.3	2.2	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		6.0	1.1	3.0	1.1	3.0
Phase Duration, s		33.0		33.0	11.8	88.9	8.1	85.2
Change Period, ($Y+R_c$), s		5.8		5.8	5.4	6.3	5.4	6.3
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		20.8		26.4	6.2		2.6	
Green Extension Time (g_e), s		0.5		0.4	0.2	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		0.54	
Max Out Probability		0.00		0.00	0.00		0.00	

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		230		60	19		147	1601	89	22	1224	88
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1478		1294	1672		1725	1752	1585	1781	1766	1585
Queue Service Time (g_s), s		18.0		5.9	1.2		4.2	40.2	2.9	0.6	27.3	3.0
Cycle Queue Clearance Time (g_c), s		18.8		24.4	1.2		4.2	40.2	2.9	0.6	27.3	3.0
Green Ratio (*g/C*)		0.21		0.21	0.21		0.66	0.64	0.64	0.62	0.61	0.61
Capacity (*c*), veh/h		357		147	355		311	2216	1002	187	2132	957
Volume-to-Capacity Ratio (*X*)		0.644		0.411	0.055		0.473	0.723	0.089	0.115	0.574	0.092
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)		11.0		3.4	0.9		2.5	20.5	1.7	0.4	15.2	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00		0.38	0.00		0.00	0.00	0.14	0.00	0.00	0.34
Uniform Delay (d_1), s/veh		47.7		58.9	40.8		13.1	16.2	9.3	15.8	15.6	10.8
Incremental Delay (d_2), s/veh		0.7		0.7	0.0		0.4	2.1	0.2	0.1	1.1	0.2
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
Control Delay (*d*), s/veh		48.4		59.6	40.8		13.6	18.3	9.5	15.9	16.8	11.0
Level of Service (LOS)		D		E	D		B	B	A	B	B	B
Approach Delay, s/veh / LOS	48.4	D		55.0	E		17.5	B		16.4	B	
Intersection Delay, s/veh / LOS	19.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.89	B	1.68	B
Bicycle LOS Score / LOS	0.87	A	0.62	A	2.00	B	1.59	B

HCS Two-Way Stop-Control Report

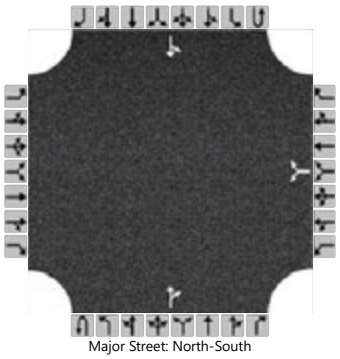
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build am
Intersection Orientation	North-South
Project Description	prop multifamily

Site Information

Intersection	greendale at new entrance
Jurisdiction	
East/West Street	Greendale
North/South Street	New entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						26		38			82	12		17	75	
Percent Heavy Vehicles (%)						2		0						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.20						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.30						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							75							20		
Capacity, c (veh/h)							858							1486		
v/c Ratio							0.09							0.01		
95% Queue Length, Q_{95} (veh)							0.3							0.0		
Control Delay (s/veh)							9.6							7.5	0.1	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)					9.6								1.5			
Approach LOS					A								A			

HCS Two-Way Stop-Control Report

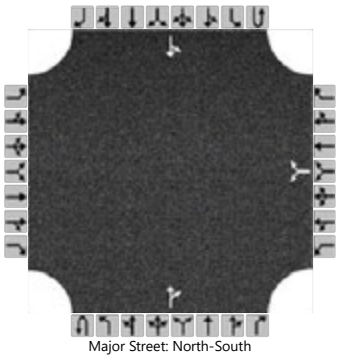
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build pm
Intersection Orientation	North-South
Project Description	prop multifamily

Site Information

Intersection	greendale at new entrance
Jurisdiction	
East/West Street	Greendale
North/South Street	New entrance
Peak Hour Factor	0.97
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						15		29			63	20		36	48	
Percent Heavy Vehicles (%)						2		0						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.42		6.20						4.11		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.30						2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							45							37		
Capacity, c (veh/h)							903							1517		
v/c Ratio							0.05							0.02		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							9.2							7.4	0.2	
Level of Service (LOS)							A							A	A	
Approach Delay (s/veh)						9.2								3.3		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

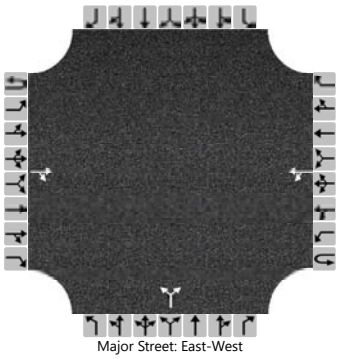
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			228	24		68	153			15		105				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						80					141					
Capacity, c (veh/h)						1265					683					
v/c Ratio						0.06					0.21					
95% Queue Length, Q_{95} (veh)						0.2					0.8					
Control Delay (s/veh)						8.0	0.6				11.6					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.9				11.6							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

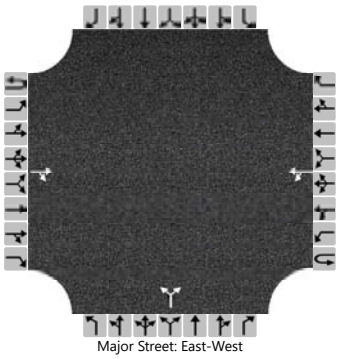
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	greendale at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	greendale
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			183	15		69	164			16		76				
Percent Heavy Vehicles (%)						2				11		2				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.12				6.51		6.22				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.22				3.60		3.32				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						81					108					
Capacity, c (veh/h)						1335					706					
v/c Ratio						0.06					0.15					
95% Queue Length, Q_{95} (veh)						0.2					0.5					
Control Delay (s/veh)						7.9	0.5				11.0					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					2.7				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

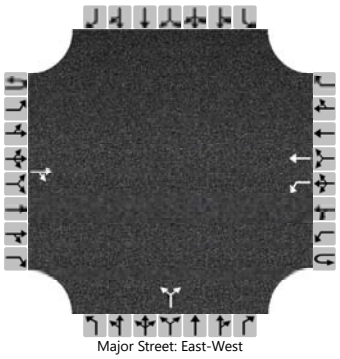
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.84
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			302	27		22	219			1		7				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					10					
Capacity, c (veh/h)						1057					613					
v/c Ratio						0.02					0.02					
95% Queue Length, Q_{95} (veh)						0.1					0.0					
Control Delay (s/veh)						8.5					11.0					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.8				11.0							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

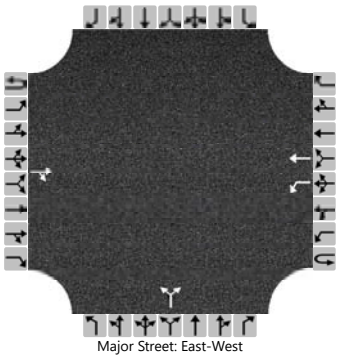
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	innovation at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	innovation
Peak Hour Factor	0.83
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

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	1	1	0		0	1	0		0	0	0
Configuration				TR		L	T				LR					
Volume (veh/h)			258	5		4	200			15		37				
Percent Heavy Vehicles (%)						24				0		6				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.34				6.40		6.26				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.42				3.50		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						5					63					
Capacity, c (veh/h)						1129					632					
v/c Ratio						0.00					0.10					
95% Queue Length, Q_{95} (veh)						0.0					0.3					
Control Delay (s/veh)						8.2					11.3					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.2				11.3							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

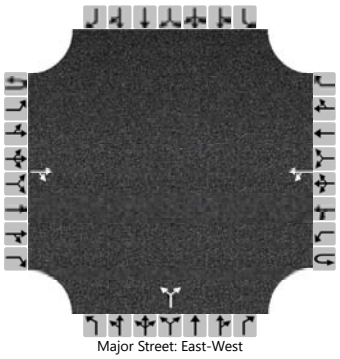
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build am
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.86
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

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		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			334	4		1	222			0		0				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						1					0					
Capacity, c (veh/h)						1177					0					
v/c Ratio						0.00										
95% Queue Length, Q_{95} (veh)						0.0										
Control Delay (s/veh)						8.1	0.0									
Level of Service (LOS)						A	A									
Approach Delay (s/veh)					0.0											
Approach LOS					A											

HCS Two-Way Stop-Control Report

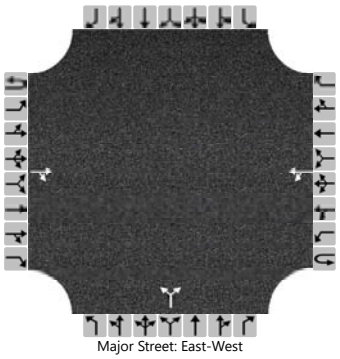
General Information

Analyst	gb
Agency/Co.	pec
Date Performed	5/27/2022
Analysis Year	2022
Time Analyzed	2032 build pm
Intersection Orientation	East-West
Project Description	prop multifamily

Site Information

Intersection	ky eagle inc enter at spurr
Jurisdiction	
East/West Street	spurr
North/South Street	ky eagle inc entrance
Peak Hour Factor	0.85
Analysis Time Period (hrs)	0.25

Lanes



Major Street: East-West

Vehicle Volumes and Adjustments

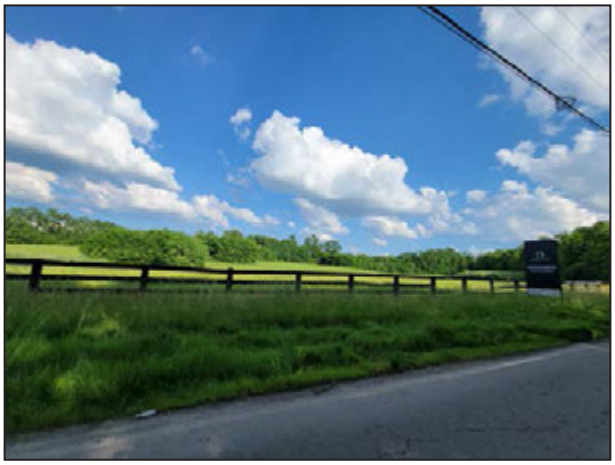
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			260	1		0	229			0		3				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						0					4					
Capacity, c (veh/h)						1265					738					
v/c Ratio						0.00					0.00					
95% Queue Length, Q_{95} (veh)						0.0					0.0					
Control Delay (s/veh)						7.8	0.0				9.9					
Level of Service (LOS)						A	A				A					
Approach Delay (s/veh)						0.0				9.9						
Approach LOS						A				A						



Palmer
ENGINEERING

400 Shoppers Drive
P.O. Box 747
Winchester, KY 40392
859-744-1218
www.palmernet.com