APPENDIX F – TRAFFIC STUDY

Technical Memorandum

Date: August 30, 2024

To: East Kentucky Power Cooperative, Inc.

From: Burns & McDonnell

Subject: EKPC Liberty Rice Traffic Assessment

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Project Description

East Kentucky Power Cooperative, Inc. (EKPC) plans to construct the Liberty RICE Plant approximately four miles north of Liberty, KY. This facility will have a 24-hour staffed control room and on-site maintenance personnel. This traffic study analyzes the construction and permanent traffic generated by the facility and sight distance availability at the intersection of KY-49 and Carr Sasser Rd.

The intersection of KY-49 and Carr Sasser Rd will be impacted by the site traffic and has been modeled and reviewed for capacity. KY-49 is a north-south undivided 2-lane road with no pedestrian facilities and a posted speed limit of 55 miles per hour. Carr Sasser Rd is an east-west 2-lane road with an assumed speed limit of 25 mph. A site map is provided in Appendix A.

Existing Traffic Volumes

Traffic counts were collected utilizing available Kentucky Transportation Cabinet (KYTC) traffic volume data to establish historical daily traffic volumes in the project area. 2022 KYTC traffic counts on KY-49, approximately 1000 feet north of the intersection of Carr Sasser Rd and KY-49, indicate the following volume data that was used to support this assessment. The raw data is provided in Appendix B.

- AADT – 1,018
- K Factor – 12.40
- D Factor – 58.00
- % Peak Trucks – 3.98%

Vehicle Trip Generation

During construction, an estimated 450 vehicles are expected during both AM and PM peak hours. After construction is completed, the permanent traffic during peak hours is anticipated to be approximately 20 vehicles. Using the D Factor above, a 60/40 split is used for existing traffic volume, and this same split is used for vehicles generated by construction. Two different scenarios are analyzed for both AM and PM peak hours during both construction conditions and post-construction conditions to account for directionality being primarily from the south or north. AM scenario 1 has the 60% split traveling from Liberty on KY-49 NB and the 40% split traveling to the site on KY-49 SB. AM scenario 2 has the 40% split traveling from Liberty on KY-49 NB and the 60% split traveling to the site on KY-49 SB. PM scenario 1 has the 60% split turning left onto KY-49 SB from Carr Sasser Rd and the 40% split turning right onto KY-49 NB. PM scenario 2 has 40% split turning left onto KY-49 SB from Carr Sasser Rd and the 60% split

turning right onto KY-49 NB. It is assumed that all traffic volume generated by construction will enter the site in the AM and exit the site in the PM. A volume diagram during construction conditions is provided in Appendix C. Table 1 presents the construction-generated traffic volume for all scenarios.

	Scenario	Direction of Volume	Traffic Volume (veh)
Construction	AM Scenario 1	Enter from KY-49 NB	270
		Enter from KY-49 SB	180
	AM Scenario 2	Enter from KY-49 NB	180
		Enter from KY-49 SB	270
	PM Scenario 1	Exit to KY-49 NB	180
		Exit to KY-49 SB	270
	PM Scenario 2	Exit to KY-49 NB	270
		Exit to KY-49 SB	180
Post-Construction	AM Scenario 1	Enter from KY-49 NB	12
		Enter from KY-49 SB	8
	AM Scenario 2	Enter from KY-49 NB	8
		Enter from KY-49 SB	12
	PM Scenario 1	Exit to KY-49 NB	8
		Exit to KY-49 SB	12
	PM Scenario 2	Exit to KY-49 NB	12
		Exit to KY-49 SB	8

Table 1: Traffic Volume Scenarios

Existing Conditions Analysis

Synchro 12 was used to analyze the level of service, delay, and queue lengths of the critical roadway serving the project site (KY-49). Synchro 12 uses Highway Capacity Manual (HCM) 7th Edition methodology to determine the level of service. For this analysis, it was assumed that the current traffic volume on Carr Sasser Rd is negligible and that no vehicles enter or exit Carr Sasser Rd from KY-49 aside from vehicles generated from the project. Table 2 presents the level of service results during construction conditions, and Table 3 presents the level of service results during construction conditions.

Construction												
	AM Peak Hour						PM Peak Hour					
	Scenario 1			Scenario 2			Scenario 1			Scenario 2		
Metric	NB	SB	WB	NB	SB	WB	NB	SB	WB	NB	SB	WB
LOS	A	A	A	A	A	A	A	A	B	A	A	B
Delay (sec)	0	6.77	0	0	6.68	0	0	0	13.76	0	0	12.95
95th Percentile Q (veh)	0	1	0	0	1	0	0	0	4	0	0	4

Table 2: Construction Conditions Level of Service

Post Construction												
	AM Peak Hour						PM Peak Hour					
	Scenario 1			Scenario 2			Scenario 1			Scenario 2		
Metric	NB	SB	WB	NB	SB	WB	NB	SB	WB	NB	SB	WB
LOS	A	A	A	A	A	A	A	A	A	A	A	A
Delay (sec)	0	1.01	0	0	1.10	0	0	0	9.12	0	0	8.90
95th Percentile Q (veh)	0	0	0	0	1	0	0	0	1	0	0	1

Table 3: Post-Construction Conditions Level of Service

The worst-case morning peak-hour scenario was identified as AM Scenario 2 during construction, while the worst-case afternoon peak-hour scenario was identified as PM Scenario 1 during construction. The Synchro analysis indicates that the intersection of KY-49 Carr Sasser Rd is expected to operate at LOS B or better operations and with minimal 95th percentile queues during both peak hours. LOS D or better operations are typically considered acceptable, and no mitigation is needed. Full Synchro reports are provided in Appendix D.

Sight Distance Evaluation

A sight distance evaluation was performed at the intersection of KY-49 and Carr Sasser Rd to ensure that safe and efficient access will be provided to the project site. The available sight distance was determined based on procedures outlined in *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO). The available sight distance was then compared to the minimum required stopping sight distance (SSD) and intersection sight distance (ISD) for the assumed design speed of 55 mph for KY-49.

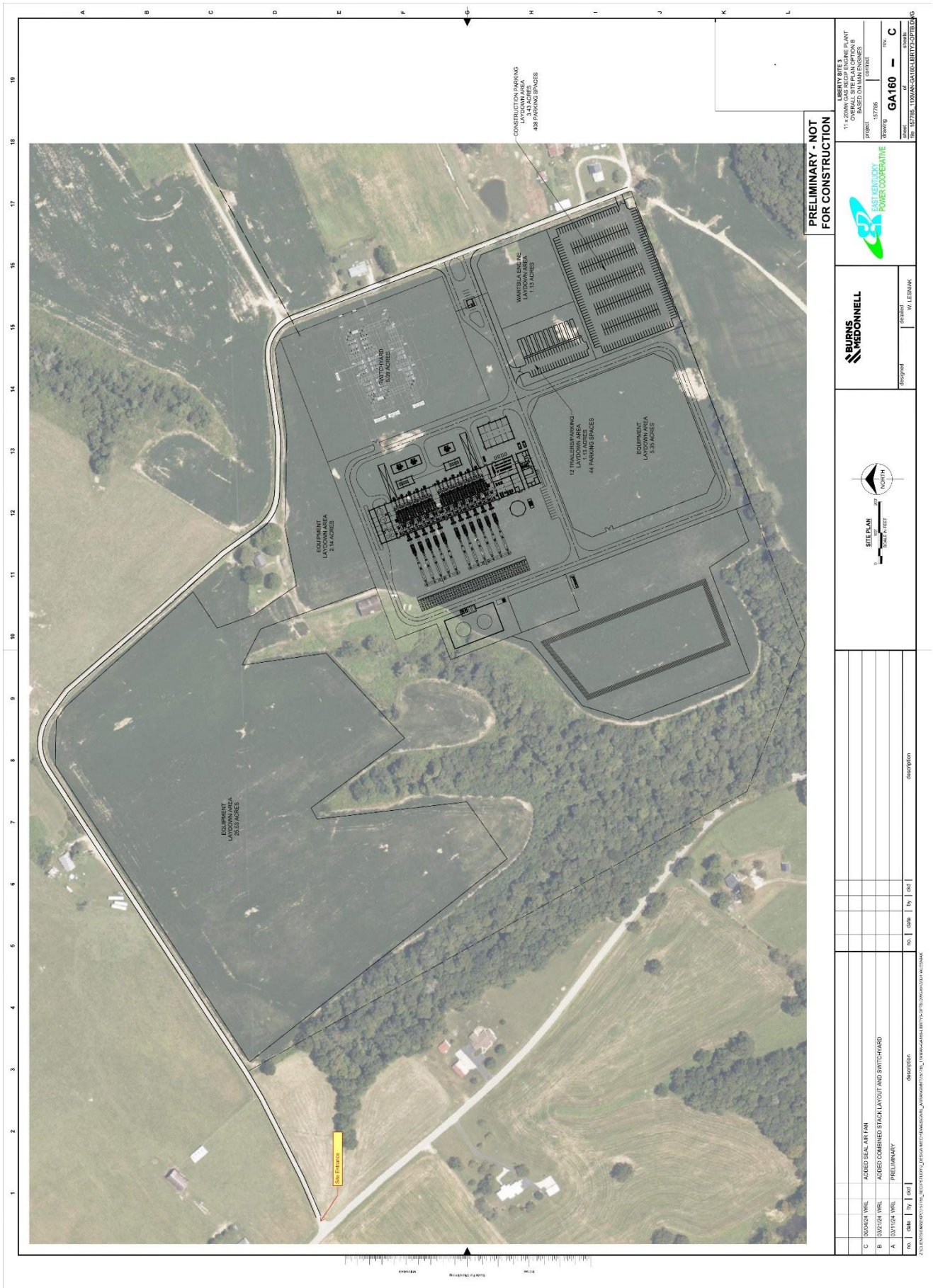
Based on a review of the roadway geometry and obstructions, it is determined that there is sufficient SSD and sufficient ISD at the KY-49 and Carr Sasser Rd intersection. The full evaluation is provided in Appendix E.

Conclusions

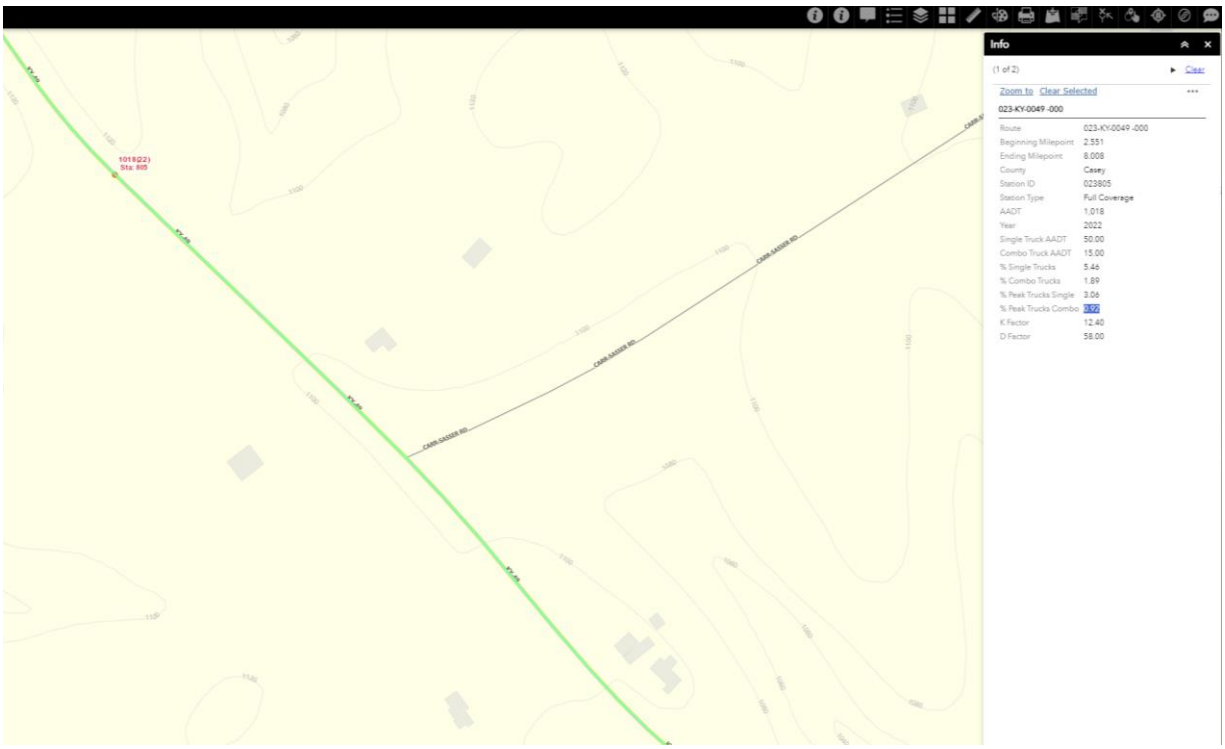
The peak construction workforce levels for the proposed power facility are expected to generate 450 vehicles during both AM and PM peak hours and reduce to 20 for peak hours post-construction. A capacity analysis of the intersection of Carr Sasser Rd and KY-49 indicates the roadway capacity is more than sufficient for this increase in traffic volume during both construction and post-construction conditions. Additionally, a sight distance assessment analyzing both stopping sight distance and intersection sight distance concludes that there is sight distance greater than required at the intersection.

Appendix

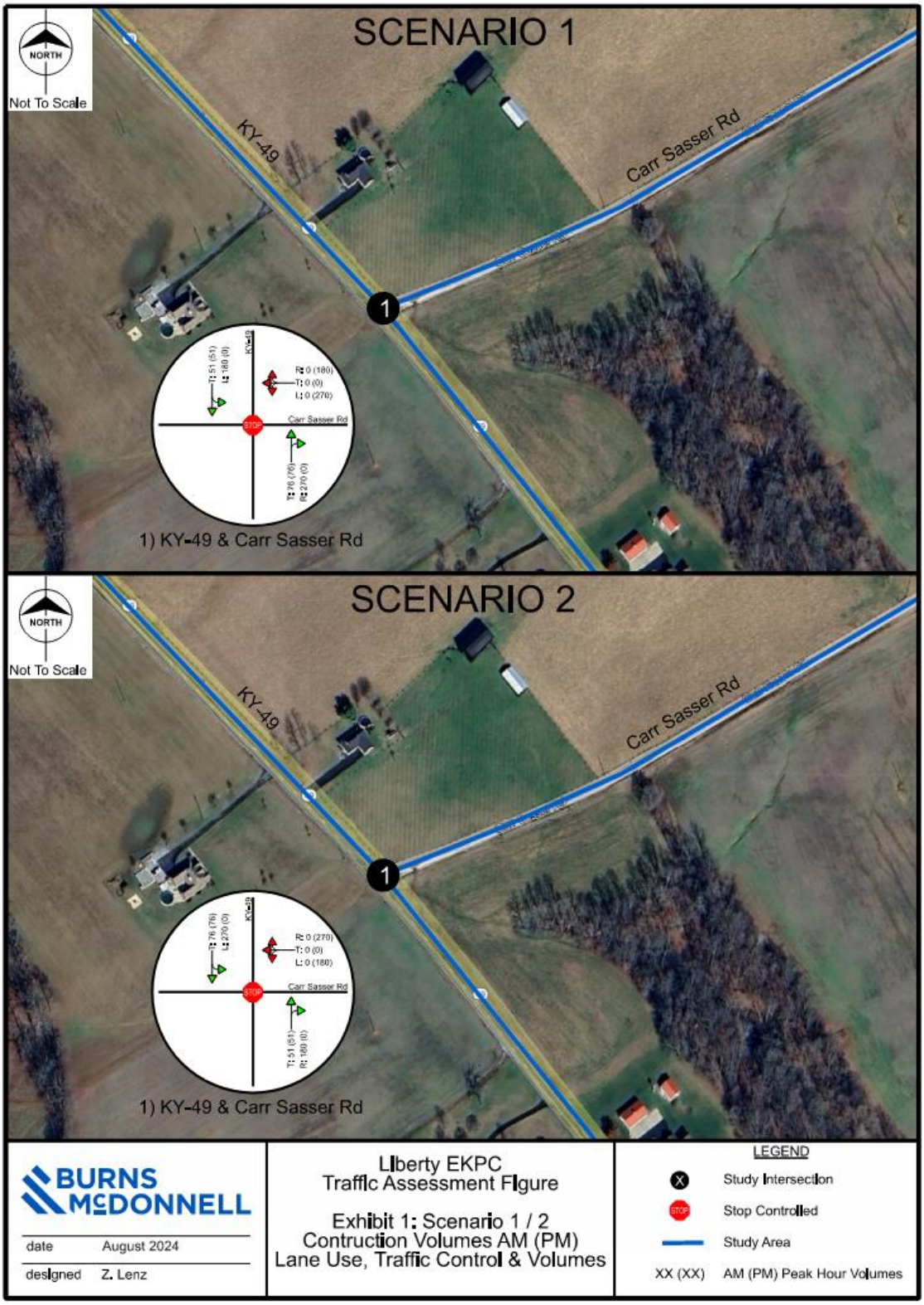
Appendix A: Site Map


PRELIMINARY - NOT FOR CONSTRUCTION
CONSTRUCTION PARKING LAYDOWN AREA 4.4 ACRES 408 PARKING SPACES
WARTSILA ENGINE LAYDOWN AREA 1.13 ACRES
SWITCHYARD 8.59 ACRES
12 TRAILER/STAFF PARKING LAYDOWN AREA 1.13 ACRES 44 PARKING SPACES
EQUIPMENT LAYDOWN AREA 5.35 ACRES
EQUIPMENT LAYDOWN AREA 2.14 ACRES
EQUIPMENT LAYDOWN AREA 25.59 ACRES
Site Entrance
SITE PLAN
NORTH
BURNS MCDONNELL
EAST KENTUCKY POWER COOPERATIVE
LIBERTY SITE A
11 x 20MW GAS RECIP ENGINE PLANT
OVERALL SITE PLAN OPTION B
BASED ON MAN ENGINES
GA160 – C
C 06/04/24 WRL ADDED SEAL AIR FAN
B 03/21/24 WRL ADDED COMBINED STACK LAYOUT AND SWITCHYARD
A 03/11/24 WRL PRELIMINARY

Appendix B: KYTC Traffic Volume Data



Appendix C: Volume Figure



Appendix D: Synchro Reports

HCM 7th TWSC
4: 08/26/2024

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	0	0	180	51	76	270
Future Vol, veh/h	0	0	180	51	76	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	0	196	55	83	293

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	676	229	376	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	416	805	1171	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	344	805	1171	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	640	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	0	6.77	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWRWBLn1	SEL	SET
Capacity (veh/h)	-	- -	1135	-
HCM Lane V/C Ratio	-	- -	0.167	-
HCM Control Delay (s/veh)	-	- 0	8.7	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- -	0.6	-

HCM 7th TWSC
4: 08/26/2024

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	0	0	270	76	51	180
Future Vol, veh/h	0	0	270	76	51	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	0	293	83	55	196

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	823	153	251	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	341	888	1303	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	260	888	1303	-	-	-
Mov Cap-2 Maneuver	260	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	505	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	0	6.68	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	-	1243	-
HCM Lane V/C Ratio	-	-	-	0.225	-
HCM Control Delay (s/veh)	-	-	0	8.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0.9	-

HCM 7th TWSC
4: 08/26/2024

Intersection	
Int Delay, s/veh	10.7

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	270	180	0	51	76	0
Future Vol, veh/h	270	180	0	51	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	293	196	0	55	83	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	138	83	83	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	850	971	1502	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	850	971	1502	-	-	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	13.76	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	895	1502	-
HCM Lane V/C Ratio	-	-	0.546	-	-
HCM Control Delay (s/veh)	-	-	13.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	3.4	0	-

HCM 7th TWSC
4: 08/26/2024

Intersection	
Int Delay, s/veh	10.1

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	180	270	0	76	51	0
Future Vol, veh/h	180	270	0	76	51	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	196	293	0	83	55	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	138	55	55	0	-	0
Stage 1	55	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	850	1006	1537	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	850	1006	1537	-	-	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	12.95	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	937	1537	-
HCM Lane V/C Ratio	-	-	0.522	-	-
HCM Control Delay (s/veh)	-	-	13	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	3.1	0	-

HCM 7th TWSC
4: 08/29/2024

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	0	0	8	51	76	12
Future Vol, veh/h	0	0	8	51	76	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	0	9	55	83	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	162	89	96	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	824	963	1486	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	819	963	1486	-	-	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	0	1.01	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	-	244	-
HCM Lane V/C Ratio	-	-	-	0.006	-
HCM Control Delay (s/veh)	-	-	0	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 7th TWSC
4: 08/29/2024

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	0	0	12	76	51	18
Future Vol, veh/h	0	0	12	76	51	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	0	13	83	55	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	174	65	75	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	811	993	1512	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	804	993	1512	-	-	-
Mov Cap-2 Maneuver	804	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	911	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	0	1.01	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	-	245	-
HCM Lane V/C Ratio	-	-	-	0.009	-
HCM Control Delay (s/veh)	-	-	0	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 7th TWSC
4: 08/29/2024

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	12	8	0	51	76	0
Future Vol, veh/h	12	8	0	51	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	13	9	0	55	83	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	138	83	83	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	850	971	1502	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	850	971	1502	-	-	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	962	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	9.12	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	895	1502	-
HCM Lane V/C Ratio	-	-	0.024	-	-
HCM Control Delay (s/veh)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

HCM 7th TWSC
4: 08/29/2024

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	8	12	0	76	51	0
Future Vol, veh/h	8	12	0	76	51	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	9	13	0	83	55	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	138	55	55	0	-	0
Stage 1	55	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-	-
Pot Cap-1 Maneuver	850	1006	1537	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	850	1006	1537	-	-	-
Mov Cap-2 Maneuver	850	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s/v	8.93	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	937	1537	-
HCM Lane V/C Ratio	-	-	0.023	-	-
HCM Control Delay (s/veh)	-	-	8.9	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Appendix E: Sight Distance Evaluation

Stopping Sight Distance

V = Speed (mph)	V = 55 mph
G = Grade (%)	G = 0 %
t = Brake Reaction Time (s)	t = 2.5 s
a = Deceleration Rate (ft/s^2)	a = 11.2 ft/s^2

Brake Reaction Distance = 1.47Vt = 1.47(55)(2.5)
Brake Reaction Distance = 205 ft

Braking Distance = $V^2/(30((a/32.2)+(G/100)))$ = $55^2/(30((11.2/32.2)+(0/100)))$
Braking Distance = 290 ft

Stopping Sight Distance = Brake Reaction Distance + Braking Distance
Stopping Sight Distance = 495 ft

Source: A Policy on Geometric Design of Highways and Streets, 2018, 7th Edition, prepared by AASHTO, p. 3-4, 3-4.

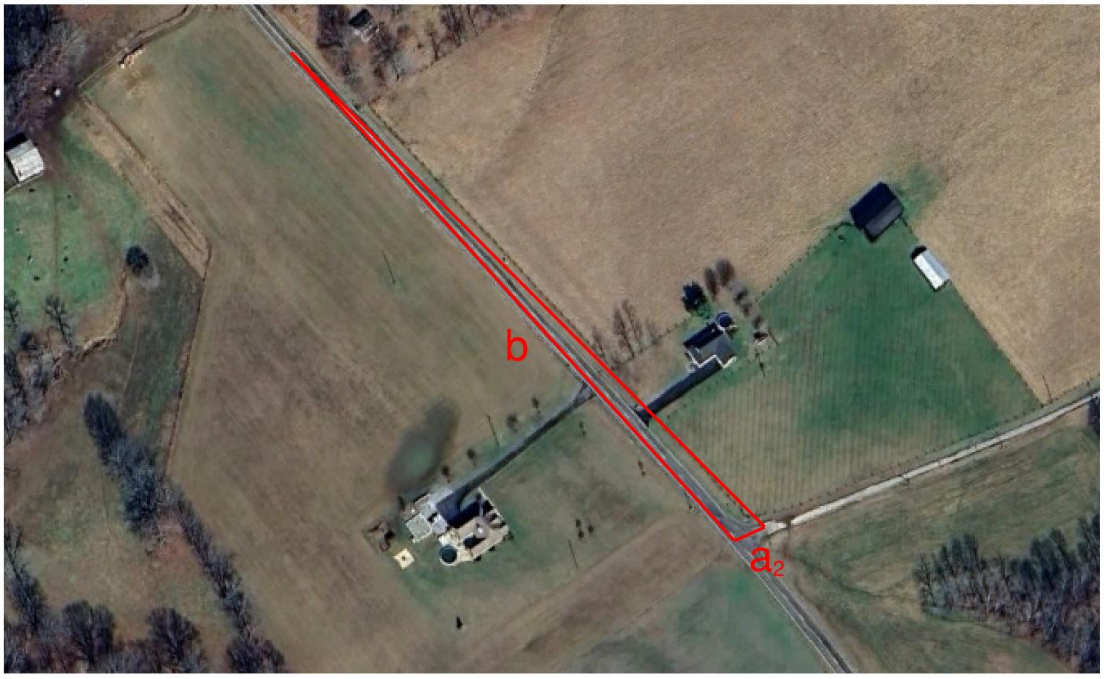
Intersection Sight Distance

V = Speed (mph)	V = 55 mph
t_g = Time Gap (s)	t_g = 7.5 s Passenger Car Left Turn
	t_g = 9.5 s Single-Unit Truck Left Turn
	t_g = 11.5 s Combination Truck Left Turn
	t_g = 6.5 s Passenger Car Right Turn
	t_g = 8.5 s Single-Unit Truck Right Turn
	t_g = 10.5 s Combination Truck Right Turn

Intersection Sight Distance = 1.47Vt = 1.47(55)(11.5)
Intersection Sight Distance = 930 ft (Combination Truck Left Turn)

Intersection Sight Distance = 1.47Vt = 1.47(55)(10.5)
Intersection Sight Distance = 850 ft (Combination Truck Right Turn)

Source: A Policy on Geometric Design of Highways and Streets, 2018, 7th Edition, prepared by AASHTO, p. 9-44, 9-45.



b = 930 ft
a_2 = 36 ft

b = 850 ft
a_1 = 24 ft