

July 31, 2025

Traffic Impact Study for the proposed

GAHANNA HOTEL DEVELOPMENT

Gahanna, Ohio

prepared for:

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Westerville, OH 43081



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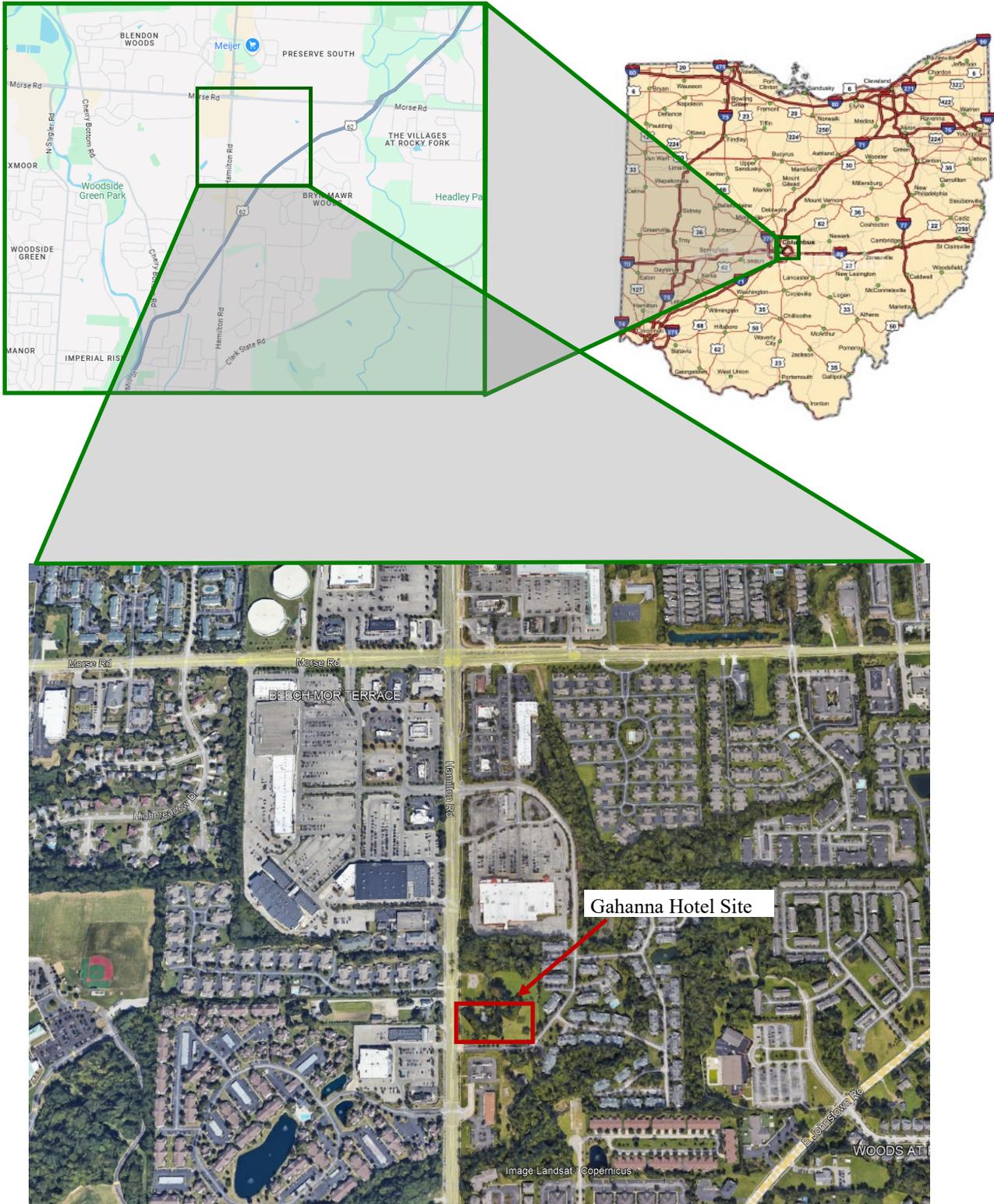
This study was conducted to analyze the impact of a proposed hotel development to be located on the east side of Hamilton Road at Shagbark Drive in Gahanna, Ohio. In the preparation of the study, traffic counts were collected in the study area during peak times and were used to develop projected background traffic volumes. Site-generated trips for the proposed hotel were developed and distributed onto the roadway network. Turn lane warrants and capacity analyses for the projected opening year (2027) and future year (2047) traffic volumes were conducted at the proposed development driveway. This report includes recommendations to accommodate the projected development traffic volumes. A Project Location Map is provided as Figure 1A.

1.1 DEVELOPMENT DESCRIPTION

The project is for a new hotel development at 4530 North Hamilton Road. The development is located in Gahanna Ohio on a 1.65 acre tract of land. The proposed 86 room hotel will have one driveway onto Hamilton Road. A preliminary site plan is included in Appendix A of this report.

1.2 STUDY AREA

The study area was determined through coordination with the City of Gahanna. Based on the number of trips projected for the hotel, only the proposed site access driveway on Hamilton Road was identified for analysis.



Project Location Map

2.1 AREA LAND USE

Development just to the south of the Hotel site consists primarily of single family residential. North to the site, near Morse Road are commercial developments such as New Albany square and Beech-Mor Terrace. A mixture of land uses, including office, multi-family residential, retail, and fast-food restaurants are located just to the north of SR 161. Away from the major arterial routes, land use is predominantly single-family residential.

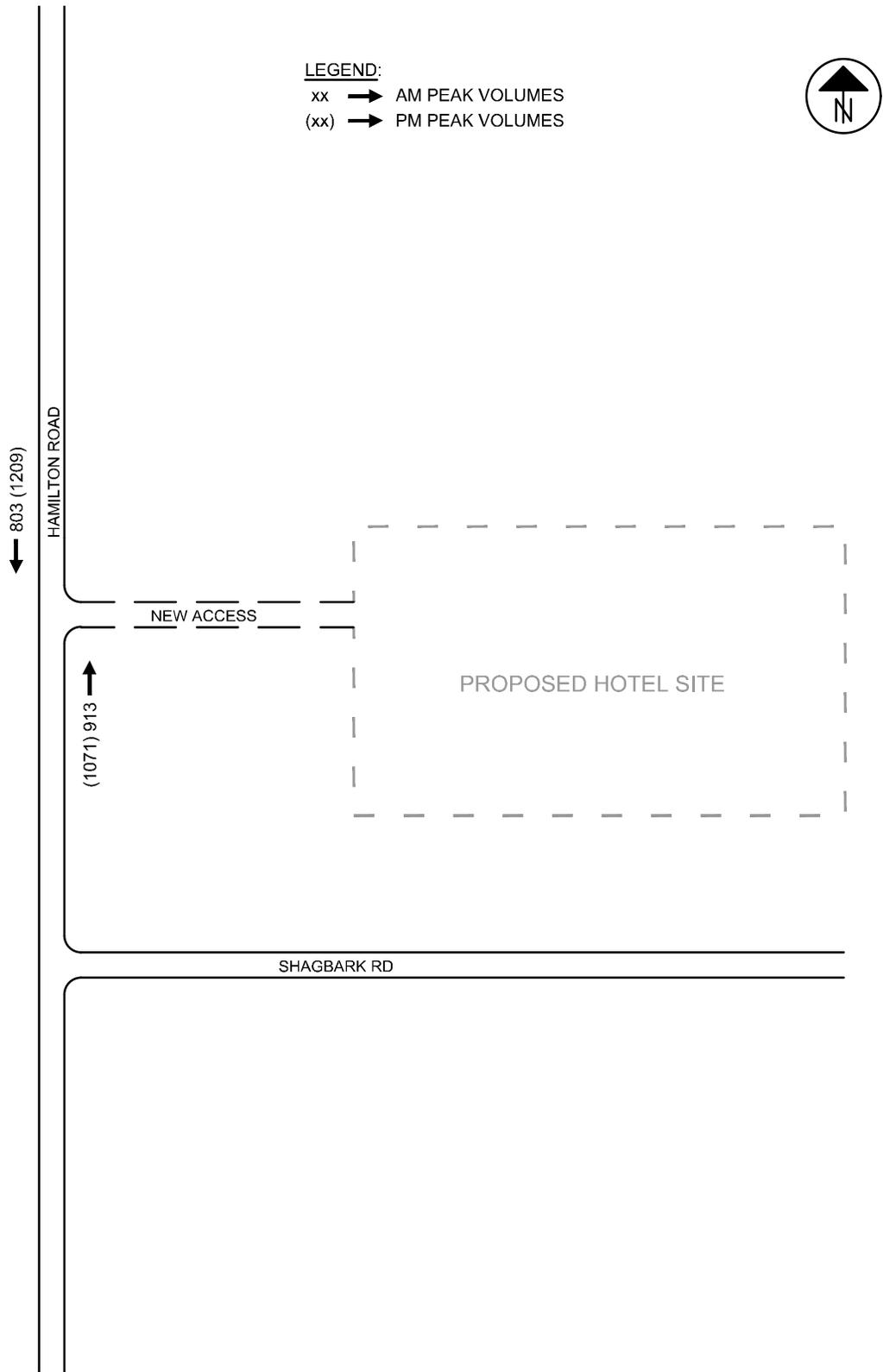
2.2 SITE ACCESSIBILITY

Hamilton Road is a 4-lane major arterial roadway that runs north and south with a posted speed limit of 35 miles per hour. Hamilton Road has median restricted access in the vicinity of the proposed development site.

The proposed access to the site will be restricted to right turn in and right turn out only due to the raised median along Hamilton Road. The location of the driveway is about 160 feet north of Shagbark Road. The driveway location was chosen to align with a median island to result in the right-in and right-out restriction. Typically a 160-foot driveway to intersection separation would not be considered adequate on a 35 mile per hour arterial route. But considering the turn movement restrictions of the proposed driveway and of Shagbark Road (also restricted to right-in and right-out only), the proposed 160-foot driveway separation is acceptable. Because of a vertical sag curve on Hamilton Road to the south of the proposed driveway, intersection sight distance is expected to be adequate for drivers turning right while exiting the development site.

2.3 EXISTING TRAFFIC VOLUMES

Turning movement counts were collected by The Kleingers Group at the two study intersections on Tuesday, February 25, 2025 from 6:30 to 9:30 AM and from 4:45 to 5:45 PM. The traffic count data is included in summary tables in Appendix B of this report. Based on the count data, the peak hours were found to occur from 7:30 to 8:30 AM and from 4:45 to 5:45 PM. The counted traffic volumes for the above listed peak hour times are presented in Figure 2A.



COUNTED TRAFFIC VOLUMES

3.1 PROJECTED BACKGROUND (NON-SITE) TRAFFIC VOLUMES

A 0.40% linear annual growth rate was obtained from MORPC and applied to the counted traffic volumes to estimate the opening year (2027) and future year (2047) background traffic volumes. Correspondence with MORPC regarding the growth rate is included in Appendix B of this report. The projected opening year and future year peak hour background traffic volumes are presented in Figure 3A.

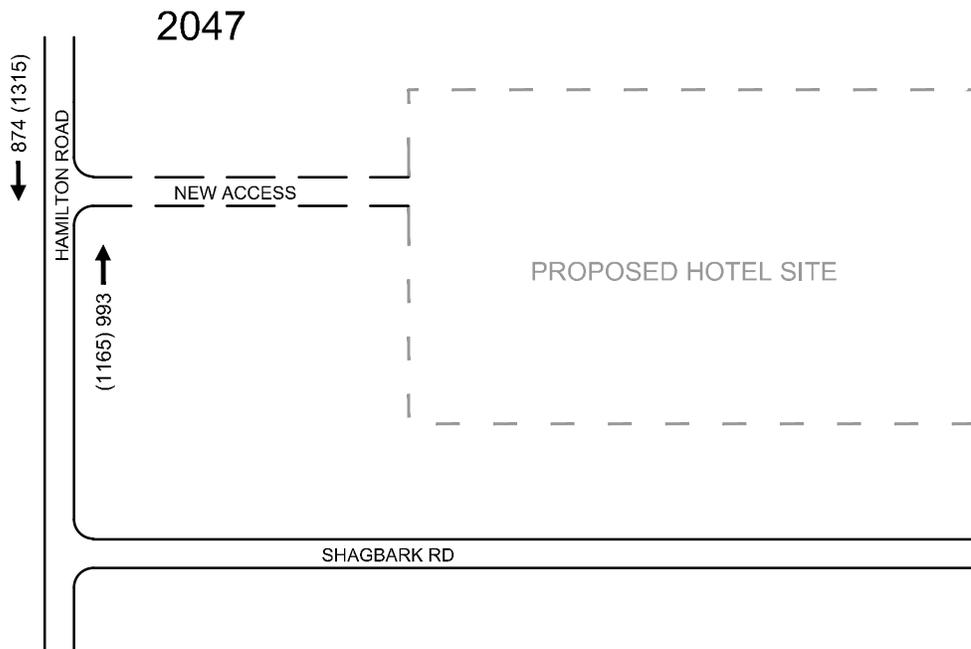
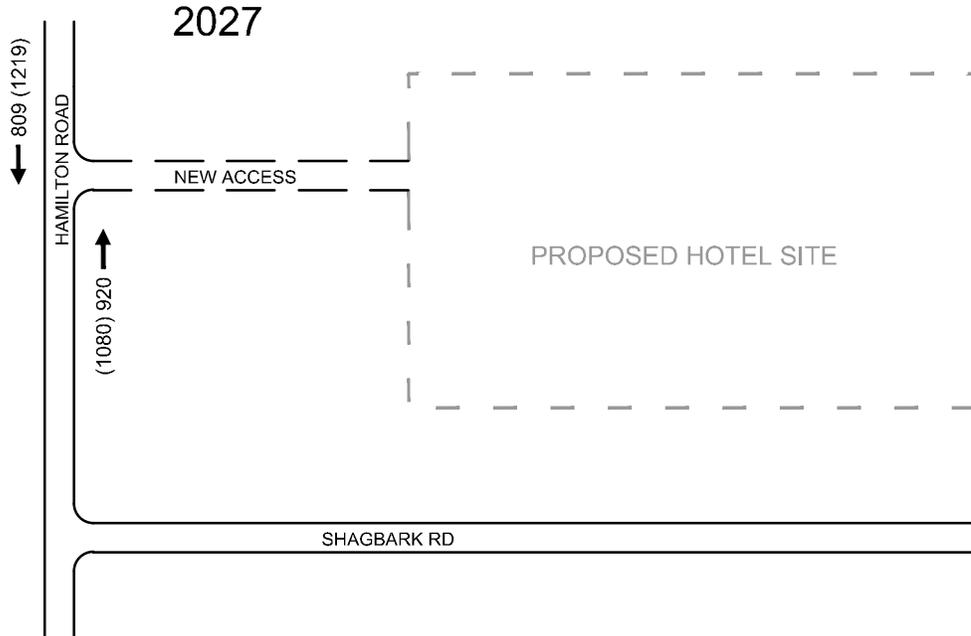
3.2 ESTIMATED SITE-GENERATED TRAFFIC VOLUMES

Site-generated trips for the proposed development were estimated using the Institute of Transportation Engineers *Trip Generation Manual*. ITE trip generation charts for the proposed 86 room hotel are included in Appendix B of this report. According to the charts, 36 total trips (20 entering, 16 exiting) in the AM peak, and 36 total (18 entering, 18 exiting) in the PM peak are estimated for the hotel. Trips were assigned to the two movements entering and exiting the site driveway and are presented in Figure 3B.

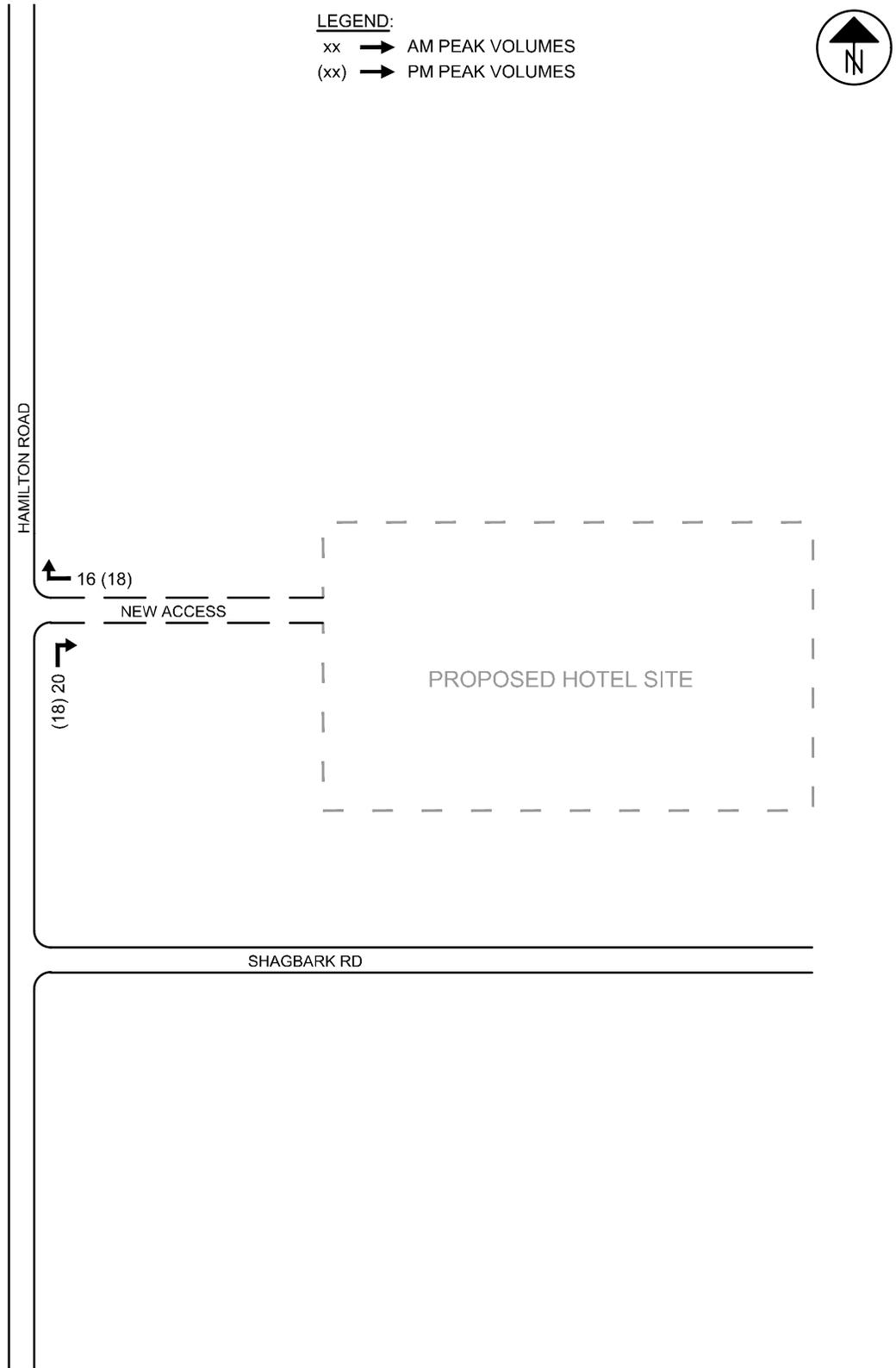
3.3 PROJECTED TOTAL TRAFFIC VOLUMES

The projected 2027 and 2047 background volumes were combined with the distributed site-generated traffic volumes to derive the projected 2027 and 2047 total traffic volumes. These volumes are presented in Figure 3C.

LEGEND:
xx → AM PEAK VOLUMES
(xx) → PM PEAK VOLUMES

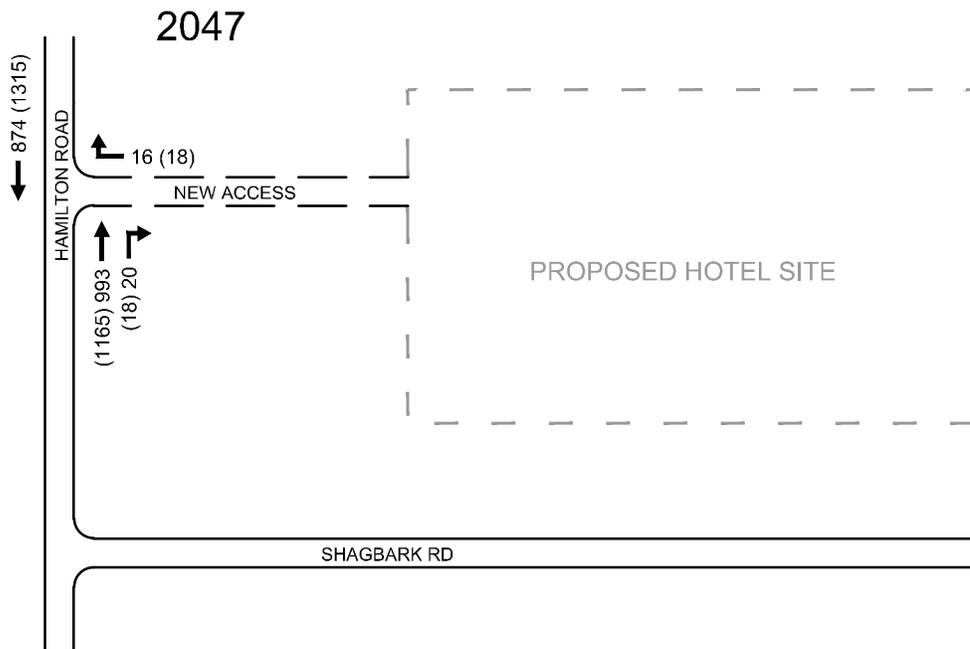
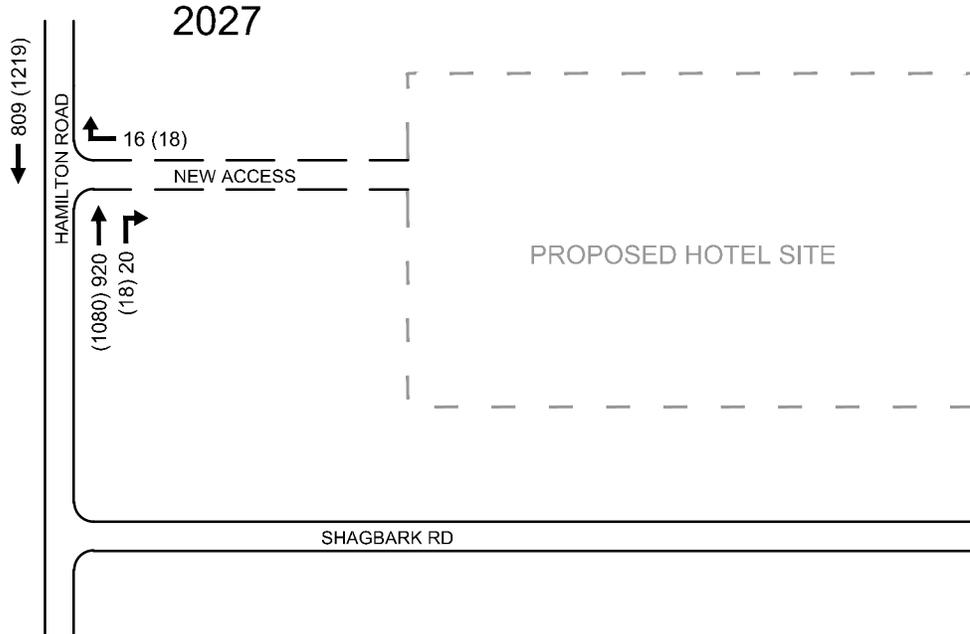


2027 & 2047 BACKGROUND TRAFFIC VOLUMES



SITE GENERATED TRIPS

LEGEND:
 xx → AM PEAK VOLUMES
 (xx) → PM PEAK VOLUMES



2037 & 2047 TOTAL TRAFFIC VOLUMES

Projected 2027 and 2047 total traffic volumes were analyzed at the study area intersections to determine the impacts of the proposed development in the area. A turn lane warrant analysis was performed for vehicles turning into the development site driveway. Capacity analysis was performed for vehicles exiting the development site driveway onto Hamilton Road. Recommended improvements are based upon the results of the above described analyses.

4.1 TURN LANE WARRANT ANALYSIS

A turn lane warrant analysis was performed for total traffic volumes projected turning right into the access driveway on Hamilton Road. Warrants were performed per the charts in the ODOT Location and Design Manual, Volume 1. The four-lane less than 40 mph warrant chart was used and is included in Appendix C of this report. According to the analysis, a northbound right turn lane is not warranted at the development site driveway

4.2 CAPACITY ANALYSIS

HCS capacity analysis software was used to determine the Level of Service (LOS) of each of the study area intersections. The LOS represents an intersection’s measure of effectiveness and is used to determine the impacts on the intersection from the proposed development. LOS values range from “A” (best) to “F” (failing). Reports for each analysis are included in Appendix D of this report. Table 5A summarizes the results of the capacity analyses.

Hamilton Rd. @ New Access Dr.			Eastbound			Westbound			Northbound			Southbound			INT.
			LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	LT	THRU	RT	
Hamilton Rd. @ New Access Dr. 2027 Build	AM	Delay LOS V/C						12.5 B 0.04							
	PM	Delay LOS V/C						13.7 B 0.05							
Hamilton Rd. @ New Access Dr. 2047 Build	AM	Delay LOS V/C						13.0 B 0.04							
	PM	Delay LOS V/C						14.3 B 0.04							

Table 5A: Capacity Analyses Summary

According to the analysis results, the projected delays are acceptable with a LOS B anticipated for drivers turning right onto Hamilton Road at the hotel driveway.

5.1 FINDINGS

The following findings were made during the traffic impact study process:

1. An 86-room hotel development is proposed on Hamilton Road just north of Shagbark Road in the City of Gahanna, Ohio.
2. The hotel will have one right-in and right-out only restricted driveway on Hamilton Road as its only access point. The driveway is located such that the existing median restricts left turns into and out of the driveway.
3. Turn lane warrants are not met due to projected traffic volumes on Hamilton Road and for the proposed hotel.
4. Capacity analysis indicate that the proposed site driveway will operate effectively with a LOS B for drivers turning right out of the site onto Hamilton Road.

5.2 RECOMMENDATIONS

It is recommended that the proposed hotel driveway be approved as shown on the preliminary site plan.

Preliminary Site Plan

Traffic Volumes

Turning Movement Counts Summary Table

Location: Hamilton Road

Date of Counts: February 25, 2025



The Kleingers Group

6219 Centre Park Drive, West Chester, OH 45069

513-779-7851

Performed By: TKG Staff

AM	EB				WB				NB Hamilton Rd				SB Hamilton Rd			
	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED
6:30 to 6:45 am										98				56		
6:45 to 7:00 am										98				74		
7:00 to 7:15 am										121				110		
7:15 to 7:30 am										189				115		
7:30 to 7:45 am										258				155		
7:45 to 8:00 am										257				208		
8:00 to 8:15 am										188				245		
8:15 to 8:30 am										210				195		
8:30 to 8:45 am										172				198		
8:45 to 9:00 am										218				193		
9:00 to 9:15 am										185				181		
9:15 to 9:30 am										172				166		
AM Peak Hr Vol.	0	0	0	0	0	0	0	0	0	913	0	0	0	803	0	0
Peak Hr Factor										0.88				0.82		

PM	EB				WB				NB Hamilton Rd				SB Hamilton Rd			
	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED	LEFT	THRU	RIGHT	PED
3:30 to 3:45 pm										245				271		
3:45 to 4:00 pm										218				311		
4:00 to 4:15 pm										235				298		
4:15 to 4:30 pm										272				293		
4:30 to 4:45 pm										241				294		
4:45 to 5:00 pm										257				297		
5:00 to 5:15 pm										259				287		
5:15 to 5:30 pm										293				315		
5:30 to 5:45 pm										262				310		
5:45 to 6:00 pm										303				269		
6:00 to 6:15 pm										265				279		
6:15 to 6:30 pm										246				221		
PM Peak Hr Vol.	0	0	0	0	0	0	0	0	0	1071	0	0	0	1209	0	0
Peak Hr Factor										0.91				0.96		

Peak Hour Times: AM 7:45 to 8:45 PM 4:30 to 5:30

Heavy Vehicle Volumes

HV - AM	EB			WB			NB Hamilton Rd			SB Hamilton Rd		
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
7:30 to 7:45 am								4			7	
7:45 to 8:00 am								2			3	
8:00 to 8:15 am								5			2	
8:15 to 8:30 am								4			5	
AM Peak HV	0	0	0	0	0	0	0	9	0	0	7	0
% Peak HV								1%			1%	
HV - PM	EB			WB			NB Hamilton Rd			SB Hamilton Rd		
	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
4:45 to 5:00 pm								1			1	
5:00 to 5:15 pm								2			1	
5:15 to 5:30 pm								1			2	
5:30 to 5:45 pm								3			1	
AM Peak HV	0	0	0	0	0	0	0	4	0	0	3	0
% Peak HV								0%			0%	

Dave Meyer

From: Hwashik Jang <hjang@morpc.org>
Sent: Tuesday, April 1, 2025 12:27 PM
To: Dave Meyer
Cc: Raj Roy
Subject: Re: Gahanna Hotel - MORPC Growth Rate Request

*** External ***

Dave,

We have completed processing growth rates for your traffic study segment.

Please use linear annual growth rates as summarized below.

Location	Linear Annual Growth Rate
Hamilton Rd s/o Shagbark Rd	0.40%

Note: The above rate was derived based on planning level analysis by using MORPC's regional travel demand model.

If you have any questions, please let me know.

Thanks,

HWASHIK JANG

Senior Planner, Data & Mapping | Mid-Ohio Regional Planning Commission

T: 614.233.4145

111 Liberty Street, Suite 100 | Columbus, OH 43215



From: Dave Meyer <dave.meyer@kleingers.com>
Sent: Thursday, March 6, 2025 11:06 AM
To: Traffic <traffic@morpc.org>
Subject: Gahanna Hotel - MORPC Growth Rate Request

You don't often get email from dave.meyer@kleingers.com. [Learn why this is important](#)

Caution: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. When in doubt, contact the IT team

Good morning,

The City of Gahanna has requested that we obtain a growth rate for Hamilton Road near Shagbark Road. A new hotel is planned for the northeast corner of that intersection. 24-hour traffic count data is attached for Hamilton Road at that location.

Opening year = 2027, Horizon Year = 2037

No planned changes to the roadway. Site access will be a right-in/right-out only driveway on Hamilton Road. No development access to Shagbark Road.

Robert Settles at the City of Gahanna is managing the traffic study review.

robert.settles@gahanna.gov

Thanks!

Dave



David Meyer, PE
Transportation Project Manager

6219 Centre Park Drive
West Chester, Ohio 45069
P: 513.779.7851

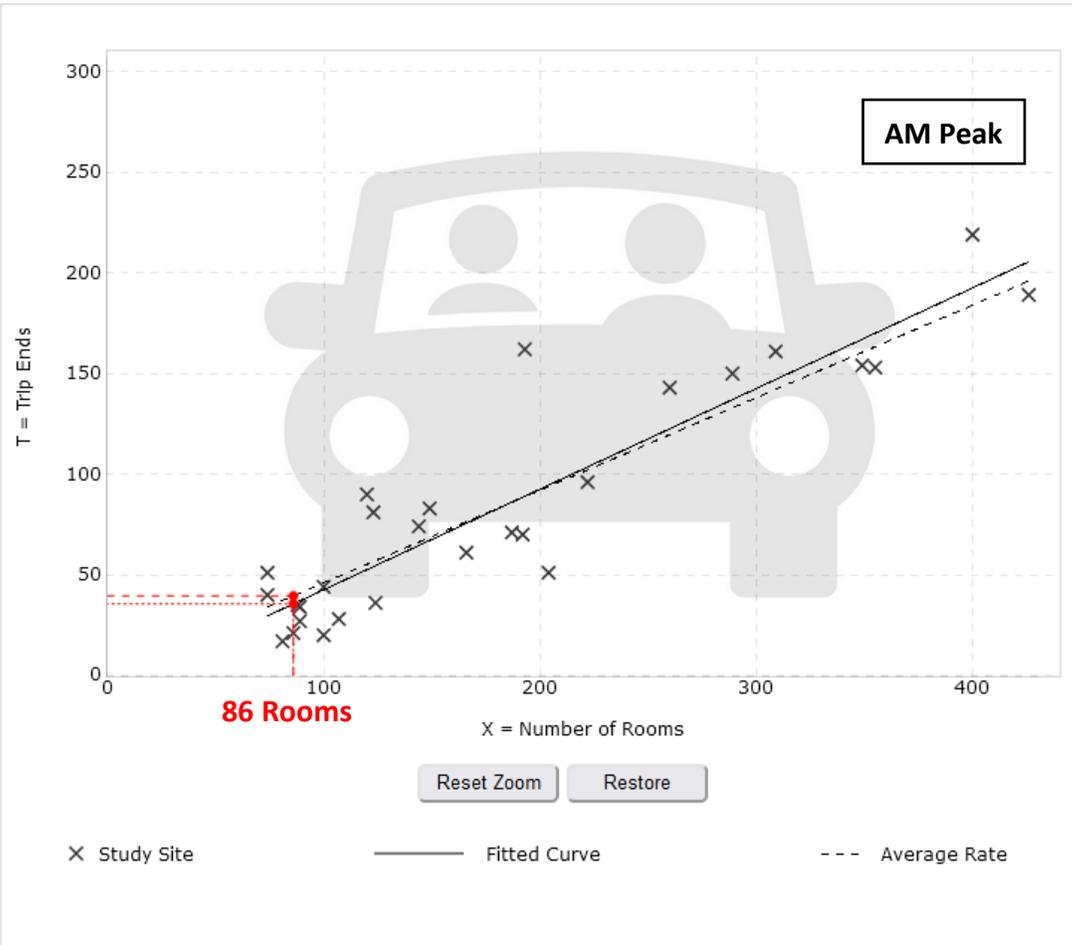


Divisions of Kleingers:



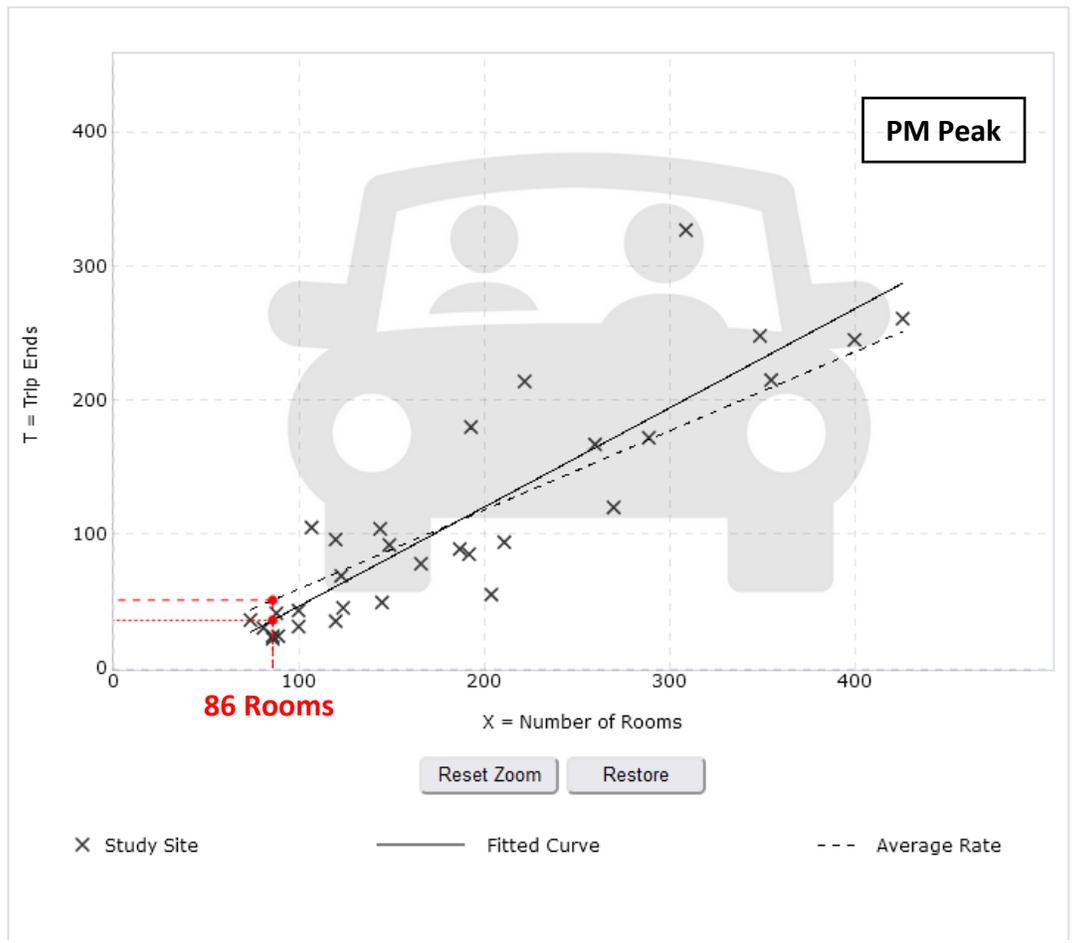
Data Plot and Equation

ITE Trip Generation



DATA STATISTICS	
Land Use:	Hotel (310) Click for Description and Data Plots
Independent Variable:	Rooms
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	28
Avg. Num. of Rooms:	182
Average Rate:	0.46
Range of Rates:	0.20 - 0.84
Standard Deviation:	0.14
Fitted Curve Equation:	$T = 0.50(X) - 7.45$
R²:	0.84
Directional Distribution:	56% entering, 44% exiting
Calculated Trip Ends:	Average Rate: 40 (Total), 22 (Entry), 18 (Exit) Fitted Curve: 36 (Total), 20 (Entry), 16 (Exit)

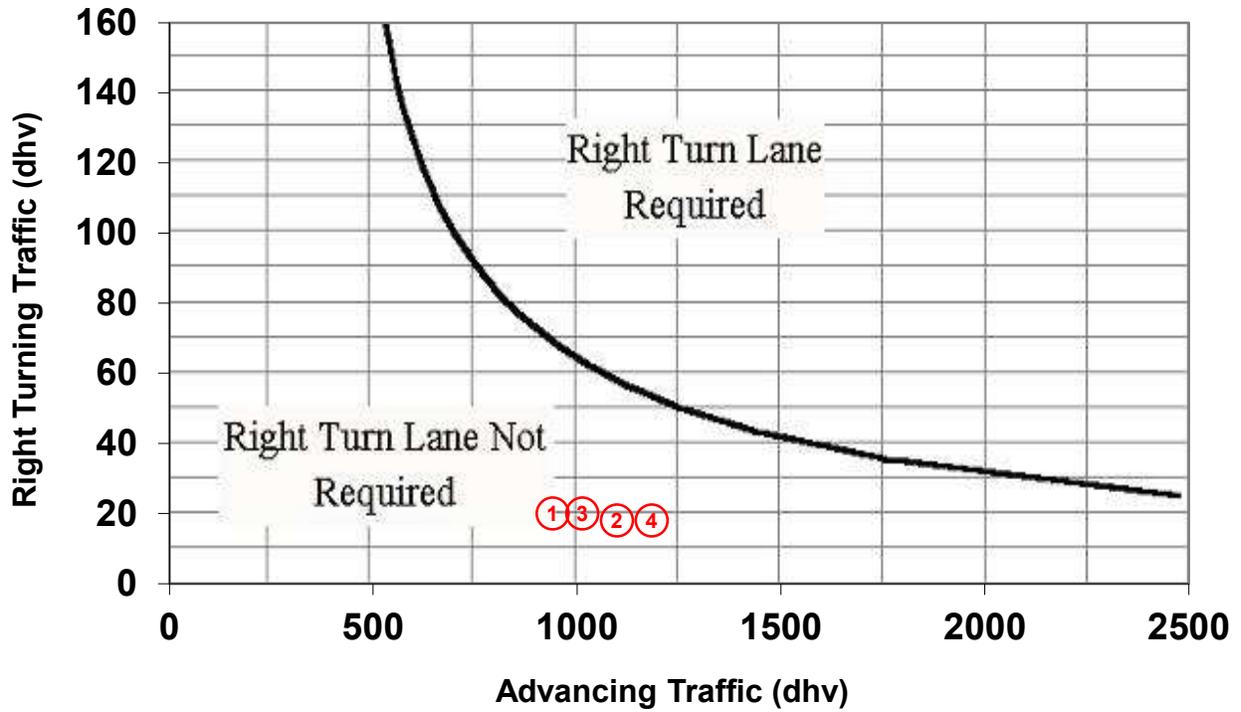
Data Plot and Equation



DATA STATISTICS	
Land Use:	Hotel (310) Click for Description and Data Plots
Independent Variable:	Rooms
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	31
Avg. Num. of Rooms:	186
Average Rate:	0.59
Range of Rates:	0.26 - 1.06
Standard Deviation:	0.22
Fitted Curve Equation:	$T = 0.74(X) - 27.89$
R²:	0.78
Directional Distribution:	51% entering, 49% exiting
Calculated Trip Ends:	Average Rate: 51 (Total), 26 (Entry), 25 (Exit) Fitted Curve: 36 (Total), 18 (Entry), 18 (Exit)

Turn Lane Warrant Chart

4 Lane Highway Right Turn Lane Warrant
 (= < 40 mph or 70 kph Posted Speed)



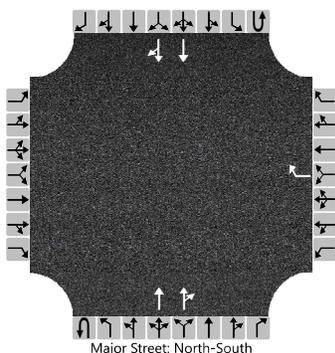
REQ	Intersection	Advancing Traffic Volume	Right Turning Traffic	Result
1	Northbound - Hamilton Road, AM 2027	940	20	NO
2	Northbound - Hamilton Road, PM 2027	1098	18	NO
3	Northbound - Hamilton Road, AM 2047	1013	20	NO
4	Northbound - Hamilton Road, PM 2047	1183	18	NO
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Capacity Analysis Reports

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Alyssa Barone	Intersection	Hamilton Road at New Access				
Agency/Co.	The Kleingers Group	Jurisdiction	Franklin County				
Date Performed	4/22/2025	East/West Street	New Access				
Analysis Year	2027	North/South Street	Hamilton Road				
Time Analyzed	2027 AM -Total	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	Gahanna Hotel Development						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1		0	2	0		0	2	0
Configuration								R			T	TR			T	TR
Volume (veh/h)								16			920	20			809	0
Percent Heavy Vehicles (%)								3								
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)									6.9								
Critical Headway (sec)									6.96								
Base Follow-Up Headway (sec)									3.3								
Follow-Up Headway (sec)									3.33								

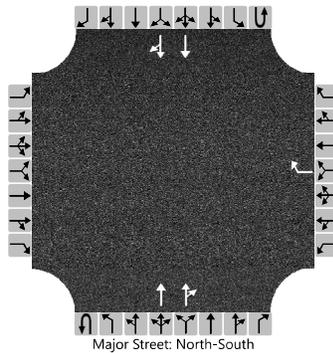
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)									18								
Capacity, c (veh/h)									497								
v/c Ratio									0.04								
95% Queue Length, Q ₉₅ (veh)									0.1								
95% Queue Length, Q ₉₅ (ft)									2.6								
Control Delay (s/veh)									12.5								
Level of Service (LOS)									B								
Approach Delay (s/veh)					12.5												
Approach LOS					B												

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Alyssa Barone	Intersection	Hamilton Road at New Access				
Agency/Co.	The Kleingers Group	Jurisdiction	Franklin County				
Date Performed	4/22/2025	East/West Street	New Access				
Analysis Year	2027	North/South Street	Hamilton Road				
Time Analyzed	2027 PM -Total	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	Gahanna Hotel Development						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1		0	2	0		0	2	0
Configuration								R			T	TR			T	TR
Volume (veh/h)								18			1080	18			1219	0
Percent Heavy Vehicles (%)								3								
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)									6.9								
Critical Headway (sec)									6.96								
Base Follow-Up Headway (sec)									3.3								
Follow-Up Headway (sec)									3.33								

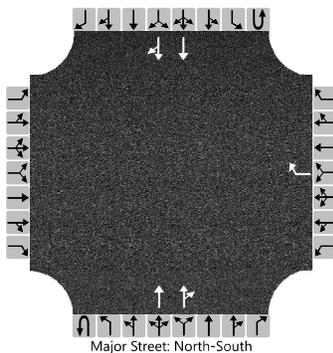
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)									20								
Capacity, c (veh/h)									435								
v/c Ratio									0.05								
95% Queue Length, Q ₉₅ (veh)									0.1								
95% Queue Length, Q ₉₅ (ft)									2.6								
Control Delay (s/veh)									13.7								
Level of Service (LOS)									B								
Approach Delay (s/veh)					13.7												
Approach LOS					B												

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Alyssa Barone	Intersection	Hamilton Road at New Access
Agency/Co.	The Kleingers Group	Jurisdiction	Franklin County
Date Performed	4/22/2025	East/West Street	New Access
Analysis Year	2047	North/South Street	Hamilton Road
Time Analyzed	2047 AM -Total	Peak Hour Factor	0.90
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Gahanna Hotel Development		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0	
Configuration								R			T	TR			T	TR	
Volume (veh/h)								16			993	20			874	0	
Percent Heavy Vehicles (%)								3									
Proportion Time Blocked																	
Percent Grade (%)								0									
Right Turn Channelized								No									
Median Type Storage								Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9									
Critical Headway (sec)								6.96									
Base Follow-Up Headway (sec)								3.3									
Follow-Up Headway (sec)								3.33									

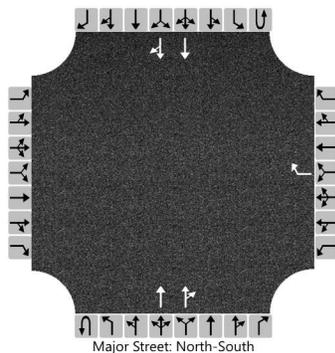
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18									
Capacity, c (veh/h)								467									
v/c Ratio								0.04									
95% Queue Length, Q ₉₅ (veh)								0.1									
95% Queue Length, Q ₉₅ (ft)								2.6									
Control Delay (s/veh)								13.0									
Level of Service (LOS)								B									
Approach Delay (s/veh)								13.0									
Approach LOS								B									

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Alyssa Barone	Intersection	Hamilton Road at New Access				
Agency/Co.	The Kleingers Group	Jurisdiction	Franklin County				
Date Performed	4/22/2025	East/West Street	New Access				
Analysis Year	2047	North/South Street	Hamilton Road				
Time Analyzed	2047 PM-Total	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	Gahanna Hotel Development						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1		0	2	0		0	2	0
Configuration								R			T	TR			T	TR
Volume (veh/h)								16			1165	18			1315	0
Percent Heavy Vehicles (%)								3								
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized					No											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)									6.9								
Critical Headway (sec)									6.96								
Base Follow-Up Headway (sec)									3.3								
Follow-Up Headway (sec)									3.33								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)									18								
Capacity, c (veh/h)									405								
v/c Ratio									0.04								
95% Queue Length, Q ₉₅ (veh)									0.1								
95% Queue Length, Q ₉₅ (ft)									2.6								
Control Delay (s/veh)									14.3								
Level of Service (LOS)									B								
Approach Delay (s/veh)					14.3												
Approach LOS					B												