

TRANSPORTATION IMPACT ASSESSMENT FOR The Willows at Ashcombe Mansion

**Owner:
Stankovic etal.**

**Applicant/Developer:
Ashcombe Mansion Property LLC.
1100 Grantham Road
Mechanicsburg, PA 17055
REP: Deborah Myers Welsh**

**Site Location:
1100 Grantham Road
Upper Allen Township,
Cumberland County, Pennsylvania**

**March 24, 2020
Revised September 28, 2020**

Prepared by:


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FORWARD

This report provides a traffic impact analysis for a proposed wedding venue in Upper Allen Township. The report is organized into 4 sections.

- I. Executive Summary - A brief 4-page summary of the study, results, and recommendations. Also included within the executive summary is a tabular summary of estimated intersection capacity level-of-service, delay, and volume-to-capacity ratios.
- II. Traffic Impact Study – A stand-alone text document describing in more detail elements of analysis.
- III. Appendix A – Supporting documents including; Existing Volume/LOS Figures, Trip Distribution Percentage and Volumes Figures, Opening Year Conditions Figures, Horizon Year Conditions Figures, Site Photos, Existing Data, Traffic Count Data Sheets, Growth Rates and Volume Worksheets, and Trip Generation Data Sheets, Turn Lane Analysis, and Correspondence.
- IV. Appendix B – Crash Analysis.

REVISION NOTES

September 28, 2020 – Revised per PennDOT review comments received September 25, 2020. Text changes regarding tree trimming.

September 2, 2020 – Revised per PennDOT review comments dated August 4, 2020.

June 22, 2020 – Revised per the Final PennDOT Scoping Meeting Application dated June 18, 2020. Initial submission to PennDOT,

May 29, 2020 – Revised per PennDOT Scoping Application review comments and Township TIA review comments dated May 20, 2020.

March 24, 2020 – The initial study as prepared for submission to Upper Allen Township as part of the Land Development Application process.



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Executive Summary

EXECUTIVE SUMMARY

ALPHA Consulting Engineers Inc. has prepared a traffic impact assessment for Ashcombe Mansion Property LLC to estimate traffic impacts related to proposed facilities. As part of the study, this executive summary is provided as a brief, concise project overview.

Ashcombe Mansion Property LLC is proposing to redevelop the existing bed and breakfast located at 1100 Grantham Road, Upper Allen Township, Cumberland County as a wedding venue consisting of two separate venue buildings (5,000 and 6,500 square feet) and 30 lodging units. The proposed development site is bounded by residential developments on the west and north, Grantham Road on the south, and Gettysburg Pike on the east. Vehicular access to the facility is proposed via two full movement driveways along Grantham Road.

Saturday afternoon peak periods were analyzed based on published data that indicates an average of seven out of ten weddings occur on a Saturday with the majority of weddings held between 1:00 and 4:00 PM. While weekday evening weddings have fewer guest attendance as they conflict with school and work schedules, they are conservatively included within the study as a Friday PM event. Weekday PM weddings are typically scheduled from 5:00 to 5:30 PM with guest arrival times (doors open) at 4:30 PM. The noted Friday and Saturday time frames coincide with typical peak hours of the adjacent street. Therefore, the peak hour of the adjacent street is analyzed herein as the timeframe when the greatest traffic impact is anticipated. Published wedding references are included within the study appendix.

The included references indicate that the average number of guests attending a wedding event is approximately 136 guests per wedding, with approximately 2 guests arriving in one vehicle. While wedding parties and vendors typically arrive before the peak hour, those pre peak hour trips are conservatively included in the peak hour volumes. Redevelopment as a wedding venue is estimated to generate approximately 216 new vehicle trips on an average Friday or Saturday. Trip generation estimates includes approximately 88 vehicle trips during Friday PM peak hour of the street and Saturday peak hour of the street. Entering rates for wedding events are estimated at 90 percent of peak hour generation.

Based on the trip generation and trip distribution estimates, site driveway 1 is classified as a Low Volume Driveway with an estimated ADT of 90 vehicle trips per day, and site driveway 2 is also classified as a Low Volume Driveway with an estimated ADT of 126 vehicle trips per day.

Traffic analysis was conducted for traffic conditions occurring during the baseline 2019 year along with future scenarios under the 2021 opening year at the following intersections:

- Grantham Road SR 2026 – Gettysburg Pike,
- Site Driveway 1 – Grantham Road SR 2026 (Build scenarios only),
- Site Driveway 2 – Grantham Road SR 2026 (Build scenarios only),

Analysis indicates that proposed site driveway intersections will operate at acceptable levels of service as described under Township criteria for all build scenarios. Acceptable levels for urban areas are considered a level of service (LOS) 'D' or better. Site driveway intersections are estimated to operate at LOS 'A' under the 2021 opening year. Average intersection delay

for all study intersections is estimated to increase by less than 2 seconds for the peak hours with the addition of the site generated traffic.

During the Friday PM peak hour, the intersection of Grantham Road and Gettysburg Pike currently operates at an acceptable LOS 'A' and is estimated to continue to operate at LOS 'A' under the 2021 opening year without the development. With the addition of the development generated traffic, intersection delay is estimated to increase by approximately 1 second and the intersection is estimated to operate at a LOS 'B' under the 2021 opening year scenario.

During the Saturday peak hour, the intersection of Grantham Road and Gettysburg Pike currently operates at an acceptable LOS 'A' and is estimated to continue to operate at LOS 'A' under the 2021 opening year both without and with the development.

Queue lengths (95th percentile) along Grantham Road and Gettysburg Pike are estimated to continue to be less than the distance to the proposed full movement driveway. Average queue lengths will not impact normal turning movements at the site driveway.

Offsite improvements are not recommended as the additional traffic generated by the proposed development will not impact the adjacent study intersection at levels that would normally require mitigation.

Right and left turn lane warrant analysis were conducted for the proposed site driveway intersections with Grantham Road. Neither right nor left turn lanes are warranted at the entrances of this development.

Sight distance analysis indicates that for both site driveway 1 and site driveway 2 the desirable (safe sight distance) will be met for all design scenarios with the removal of trees and vegetation along the opposite side of the roadway (located on Township property).

Site access is recommended to be constructed as follows:

- Site driveway 1 - Construct full movement driveway onto Grantham Road, 24 feet in width per Township and PennDOT specifications. A 'stop' sign shall be provided for the exiting movement.
- Site driveway 2 - Construct full movement driveway onto Grantham Road, 24 feet in width per Township and PennDOT specifications. A 'stop' sign shall be provided for the exiting movement.
- Remove trees and vegetation located on Township property along the opposite side of Grantham Road to achieve a minimum design site distance of 460 feet to the east of site driveway 1. Ensure the desirable sight distance of 440 feet will be met.

The recommended improvements are preliminarily estimated to cost approximately 22,000 dollars and shall be constructed prior to the opening of the development. The recommended improvements are anticipated to be constructed at the same time as the site work construction, approximately Spring of 2021. The Highway Occupancy Permittee shall fund and have the improvements constructed. The Pennsylvania Department of Transportation requires the

statement that *‘all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department.’* In summary, the proposed development and improvements will have minimal traffic impact on the study intersections which will continue to operate at existing levels of service, capacity, and safety.

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TABLE 1
LEVELS OF SERVICE [DELAY] SUMMARY
SIGNALIZED AND UN-SIGNALIZED INTERSECTIONS

Intersection	Move ment	Friday PM PEAK HOUR STREET						
		2019 Baseline	2021 Opening Year			Horizon Year		
			Base No-Build	Projected Build	Mitigation Build	Base No-Build	Projected Build	Mitigation Build
Site Driveway 1 (Full Movement) - Grantham Road UN-SIGNALIZED	ILOS			A [1]				
Site Driveway 2 (Full Movement) - Grantham Road UN-SIGNALIZED	ILOS	A [0]	A [0]	A [1]				
Grantham Road - Gettysburg Pike UN-SIGNALIZED	ILOS	A [10]	A [10]	B [11]				

Intersection	Move ment	Saturday PEAK HOUR STREET						
		2019 Baseline	2021 Opening Year			Horizon Year		
			Base No-Build	Projected Build	Mitigation Build	Base No-Build	Projected Build	Mitigation Build
Site Driveway 1 (Full Movement) - Grantham Road UN-SIGNALIZED	ILOS			A [1]				
Site Driveway 2 (Full Movement) - Grantham Road UN-SIGNALIZED	ILOS	A [0]	A [0]	A [1]				
Grantham Road - Gettysburg Pike UN-SIGNALIZED		A [8]	A [8]	A [8]				

Base = No-Build (without proposed development) scenario for design year conditions

Projected = Build (with proposed development) scenario for design year conditions

ILOS = Overall Intersection Level of Service  = Mitigation not required.

Traffic Impact Study

INTRODUCTION

This report provides a traffic impact analysis for a proposed wedding venue consisting of two separate venue buildings (5,000 and 6,500 square feet) and 30 lodging units located in Upper Allen Township, Cumberland County, Pennsylvania. The analysis presented follows standard traffic engineering practice as defined for travel impacts associated with proposed land use developments, and follows the guidelines presented in the Institute of Transportation Engineers (ITE) publication 'Transportation Impact Analyses for Site Development'. General formatting is based on Pennsylvania Department of Transportation's (PennDOT) publication 'Policies and Procedures for Transportation Impact Studies' dated January 28, 2009 and last revised November 25, 2013.

Requirement: Transportation Impact Studies (TIS), also referred to as traffic impact studies or reports, are required for land developments by the Township when certain quantitative criteria or thresholds as defined under §220-11.F [SALDO] are met. The proposed land development meets the quantitative criteria under this section of the Township's ordinance and therefore a TIS is required by the Township. PennDOT may require Transportation Impact Studies as part of any application for Highway Occupancy Permits (HOP). HOP's as administered by PennDOT under Section 420 of the Act of June 1, 1945 (P.L. 1242, No. 428), known as the "State Highway Law" are required for access to and occupancy of state highways. Since site access is proposed via two full movement driveways connecting to SR 2026, the HOP will be required. To determine whether a TIS is needed, PennDOT has established quantitative criteria or thresholds to initiate this requirement. In this case, the quantitative criteria, as currently set by PennDOT in requiring transportation impact studies, is not met. PennDOT has indicated that they will require a Traffic Impact Assessment (TIA) to evaluate opening year traffic impacts associated with the proposed site driveway and the adjacent intersection. Further discussion on PennDOT's criteria is located on page 26.

Scope: Per discussion with PennDOT and Township representatives, the scope of this report includes an analysis of the following area intersections as shown on **Figure 1**:

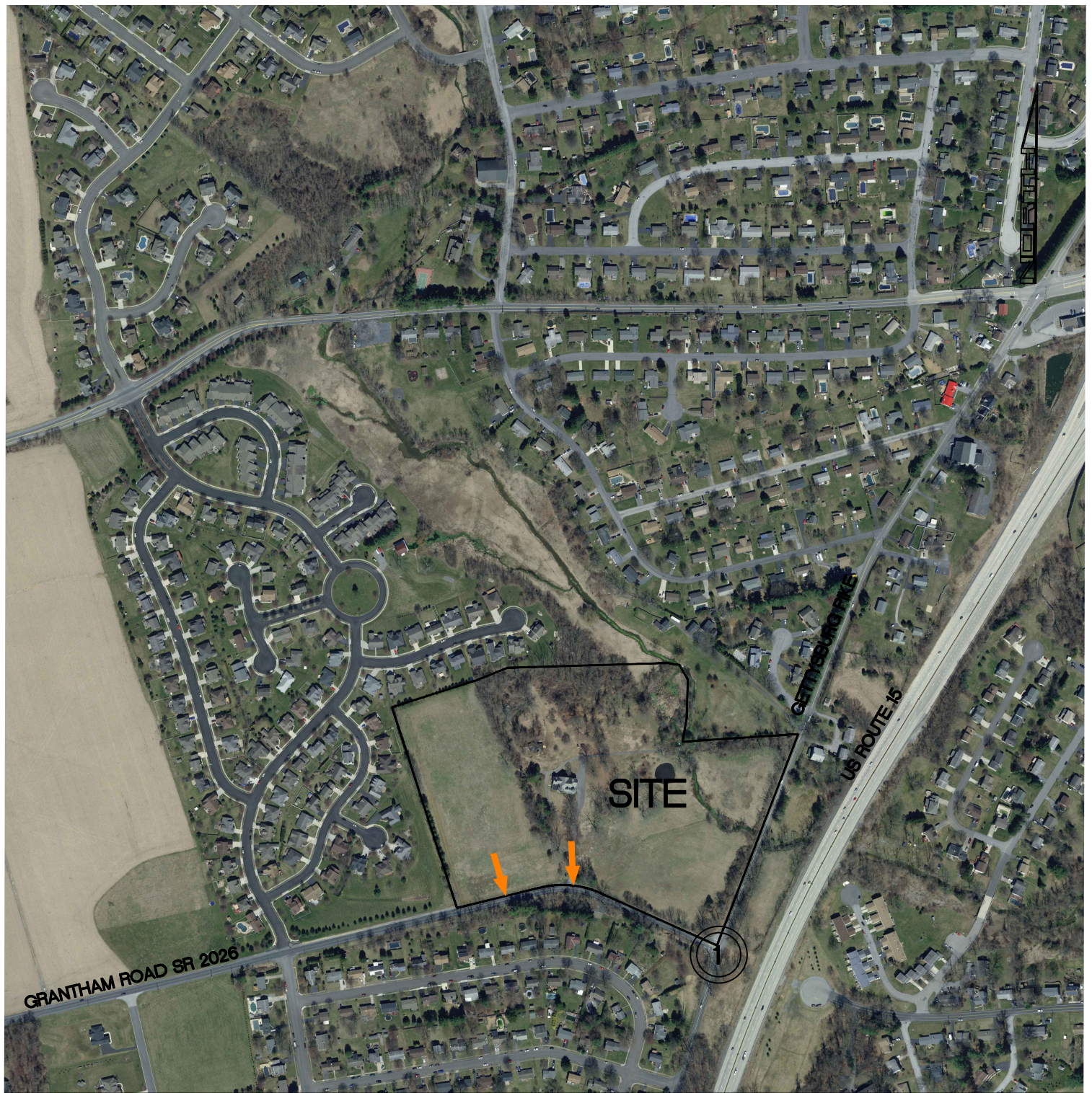
- Grantham Road SR 2026 – Gettysburg Pike,
- Site Driveway 1 – Grantham Road SR 2026 (Build scenarios only),
- Site Driveway 2 – Grantham Road SR 2026 (Build scenarios only),

Elements of the report were agreed to be the following: Data collection shall be performed during a Friday evening (3:30 to 6:30 PM), and a mid-day Saturday (11:00 AM to 2:00 PM); Turn movement data shall be collected at the adjacent intersection; No turn movement data is collected at the site driveways as the proposed western site driveway does not exist and the existing site driveway is used minimally (2 trips/hour); The Williams Grove Speedway schedule shall be evaluated for any coincidence with peak hours; Trip generation shall be based on published information for wedding events. Data available within the manual, *Trip Generation*, Tenth Edition, 2017, an Institute of Transportation Engineers (ITE) Informational Report is included for trip generation comparison in the event the facility is converted to the underlying uses i.e. restaurant, motel; Distribution and assignment of trips are to be based on existing data collected at the adjoining intersections (i.e. directional percentage), local retail shall be evaluated to account for trips pulled from outside the area; The opening year shall be 2021; Growth

rates shall 0.74% based on published data from PennDOT; queue analysis shall be included for the Grantham Road intersection with Gettysburg Pike and any other study intersection that will require mitigation; Sight distance and turn lane warrants analysis shall be conducted for the proposed site driveway.

The final scoping meeting application as approved by PennDOT and the Township is included in the correspondence section of this document.

Location: The subject site is a 22-acre tract of land located along the west side of Gettysburg Pike approximately 2,660 feet south of W Lisburn Road in Upper Allen Township, Cumberland County, Pennsylvania as shown on **Figure 1a**. The site is currently developed as shown on **Figure 1b**. The analysis herein only applies to the facility as shown on **Figure 2**.



PROPOSED TRAFFIC COUNT:

PROPOSED STUDY INTERSECTIONS:



GRANTHAM ROAD (SR2026) - GETTYSBURG PIKE



SITE DRIVEWAYS

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TRANSPORTATION IMPACT STUDY

STUDY AREA - FIGURE 1

THE WILLOWS AT ASHCOMBE MANSION

UPPER ALLEN TOWNSHIP, CUMBERLAND COUNTY, PENNSYLVANIA

PROJECT NO.
318032

DATE : 03-02-2020

REV : 08-20-2020

DRAWN : MEA

SCALE : 1" = 500'

SHEET

7

NORTH



SITE

DESIGN :	MEA
DRAWN :	MEA
CHECKED :	X.X.
DATE :	03-02-2020



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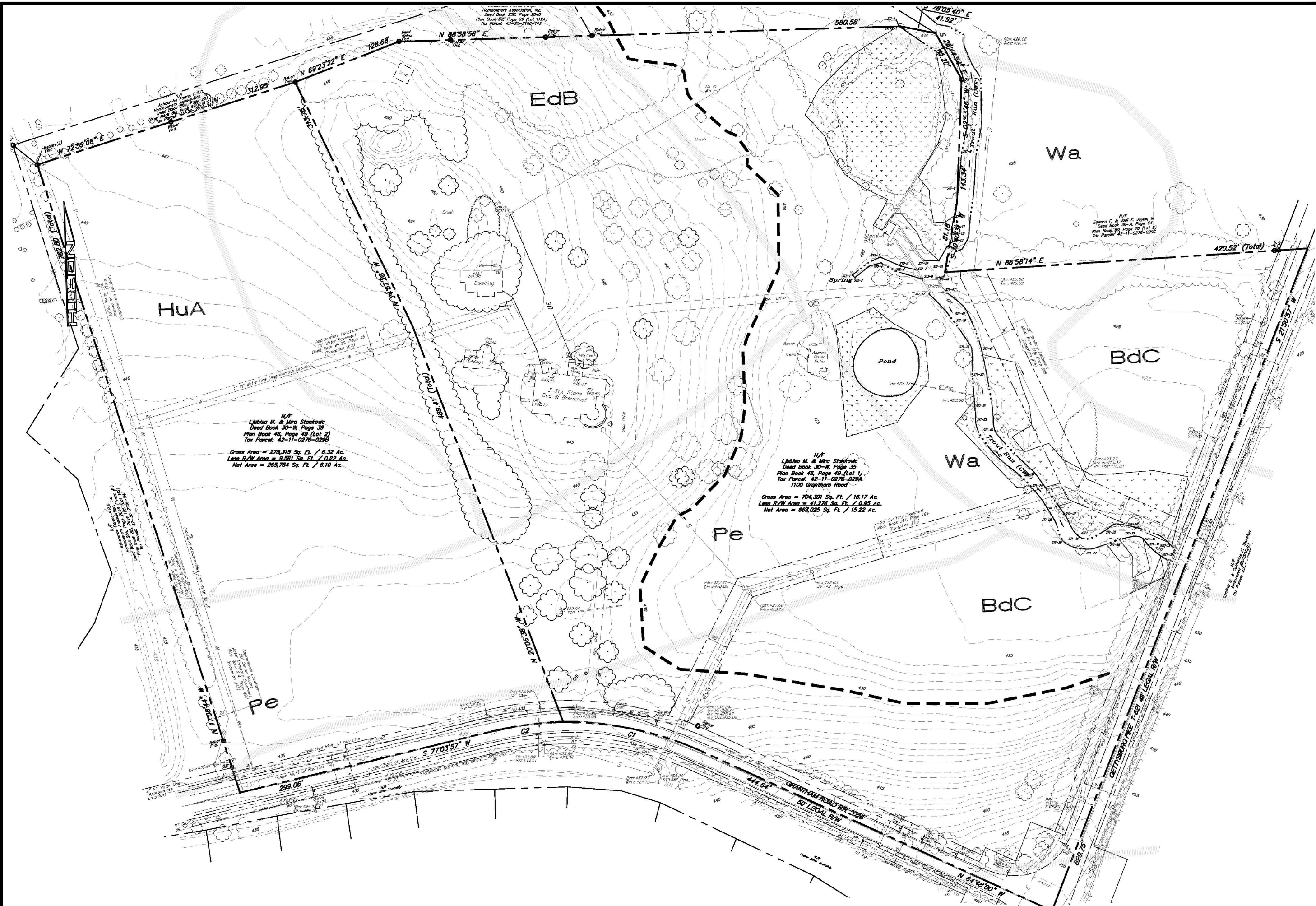
TRANSPORTATION IMPACT STUDY

AERIAL — FIGURE 1a

THE WILLOWS AT ASHCOMBE MANSION

UPPER ALLEN TOWNSHIP, CUMBERLAND COUNTY, PENNSYLVANIA

PROJECT NO.	318032
SURVEY BOOK :	Z:\Surveyor\Year\Project\318032
SCALE :	1" = 200'
DWG FILE :	116\318032.dwg
FILE :	00_116_116.dwg
SHEET	8



DESIGN :	MEA
DRAWN :	MEA
CHECKED :	X.X.
DATE :	03-02-2020
REV :	09-02-2020

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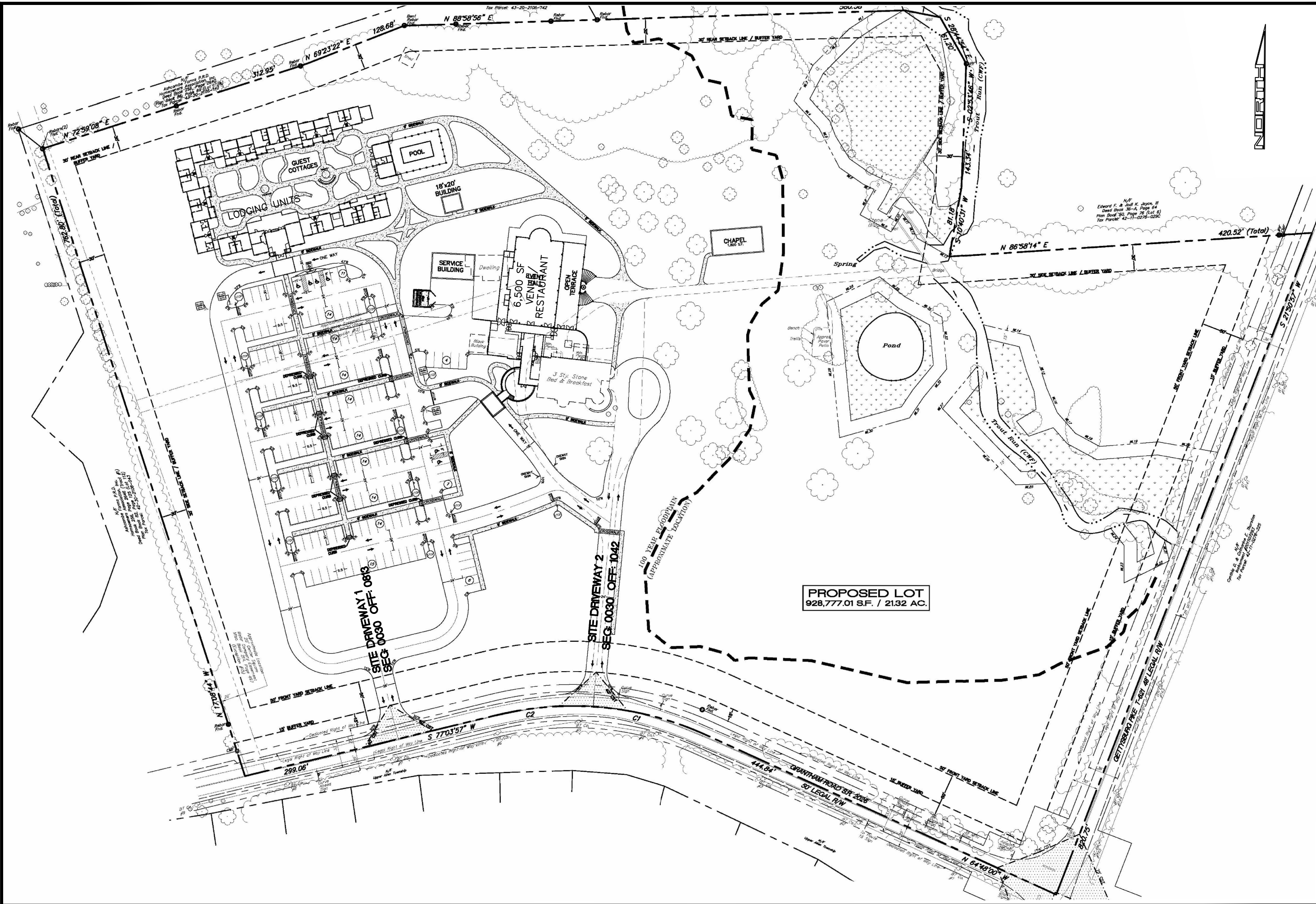
TRANSPORTATION IMPACT STUDY

EXISTING FEATURES PLAN - FIGURE 1b

THE WILLOWS AT ASHCOMBE MANSION

UPPER ALLEN TOWNSHIP, CUMBERLAND COUNTY, PENNSYLVANIA

PROJECT NO.	318032
SURVEY BOOK :	Z:\Surveyor\Year\Project\
SCALE:	1" = 100'
DWG FILE	H:\16\318032\plan\318032.dwg
FILE	Dwg\Plans\HOP\TIS\00-TIS-LSC.dwg
SHEET	9



DESIGN :	MEA
DRAWN :	MEA
CHECKED :	X.X.
DATE :	03-02-2020
REV :	09-02-2020



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TRANSPORTATION IMPACT STUDY

SITE PLAN - FIGURE 2

THE WILLOWS AT ASHCOMBE MANSION

UPPER ALLEN TOWNSHIP, CUMBERLAND COUNTY, PENNSYLVANIA

PROJECT NO.	318032
SURVEY BOOK :	Z:\Surveyor\Year\Project.txt
SCALE:	1" = 100'
DWG FILE	F:\16\318032.dwg
FILE	09-115-100.dwg
SHEET	10

LAND USE CONTEXT

Guidance for the development of non-limited access roads as context sensitive is provided in PennDOT Publication 13M. To achieve the objectives within the publication, land use context is determined to provide appropriate roadway design. Land use context for the proposed development and the immediate surrounding area is predominately 'Suburban Neighborhood'. The area is characterized predominantly by single-family residential homes lying to the north, west, and south along the Gettysburg Pike corridor. This context coincides with Upper Allen Township's current zoning of the site being 'Residential and Neighborhood Commercial'. The land use context may be referred to throughout this report in the comparison and selection of appropriate design criteria.

EXISTING ROADWAY NETWORK

The existing roadway network affected by the proposed development, as agreed upon with Upper Allen Township and PennDOT, consists of the Gettysburg Pike and Grantham Road corridors immediately adjacent to the site and the previously noted study intersections. While the area is predominately rural, the Grantham Road corridor falls within PennDOT's designated urbanized area boundary. Existing lane configurations and intersection controls are illustrated in **Figure 3**. Photographs of the intersection and approaches are provided in the appendix / tabbed section of the study.

- Corridors

Gettysburg Pike

Gettysburg Pike is classified as an 'Urban Collector', and falls under Traffic Pattern Group 5 (TPG-5) as designated by PennDOT. Upper Allen Township has classified Gettysburg Pike as a 'Community Arterial' north of the intersection with South Market Street and as a "Community Collector" for sections of the roadway located south of the intersection with South Market Street. Traffic flows in a north/south direction for the section of the roadway adjacent to the site with an Annual Average Daily Traffic approaching 4,900 vehicles. The speed limit is posted at 35mph for sections of the road located north and south of the intersection with Grantham Road. The noted speed limit is within the range recommended for the land use context. The alignment approaching the site from the north is straight, having grades that vary from approximately 8 to 1 percent. The alignment approaching the site from the south is straight, having grades that vary from 5 to 1 percent. The wearing surface is bituminous and is in good shape. Lane widths are approximately 11 feet over the length of the roadway. Shoulders are not provided. Uses along the adjacent Gettysburg Pike corridor consist of primarily residential uses with some agricultural uses.

Grantham Road SR 2026

Grantham Road is classified as an 'Urban Collector', and falls under Traffic Pattern Group 5 (TPG-5) as designated by PennDOT. Traffic flows in an east/west direction for the section of the roadway adjacent to the site with an Annual Average Daily Traffic approaching 2,100 vehicles. The speed limit is posted at 35mph for sections of the road located west of the intersection with Grantham Road. The noted speed limit is within the range recommended for the land use context. The alignment approaching the site from the west is straight, having grades that vary from 3 to 1 percent. The wearing surface is

bituminous and is in good shape. Lane widths are approximately 10 feet over the length of the roadway. Shoulders are not provided. Uses along the adjacent Gettysburg Pike corridor consist of primarily residential and agricultural uses.

- Intersections

Grantham Road – Gettysburg Pike, un-signalized intersection:

This is an all-way stop-controlled 3-leg intersection. The eastbound approach consists of a single lane approximately 10 feet in width providing for all movements. The southbound approach consists of a single lane approximately 11 feet in width providing for through movements along with a channelized right turn lane approximately 11 feet in width. The northbound approach consists of a single lane approximately 11 feet in width providing for all movements. Speed limits are posted at 35mph for Grantham Road as well as for the Gettysburg Pike approaches. Curbing is not provided along either of the three approach lanes. Sidewalks are not located at the intersection. Intersection capacity currently operates at a LOS 'A' for all peak hours.

- Multimodal Transportation

Capital Area Transit (CAT) does not currently operate any transit routes along Grantham Road or Gettysburg Pike in front of the proposed development site. The nearest transit route is the Winding Hill Express (bus route 120). This route connects the Winding Hills Road Park-and-Ride to the Capitol Complex in Harrisburg. This route also has direct connection to the Harrisburg Transit Center which houses the Amtrak Station, Capitol Trailways and Greyhound Bus terminals. Connecting routes provide access to Harrisburg International Airport. For bicyclists, bike racks are provided on CAT's busses and bike racks are provided at some of the Park-and-Rides. The nearest Park-and-Ride site is located at the intersection of East Winding Hill Road and Orchard Boulevard (1 mile from site). Connecting routes, Park-and-Ride sites, and time tables for route 120 are included within the 'Existing Conditions' tabbed section of the appendix.

Rabbittransit operates a route between Gettysburg and Harrisburg along the adjacent US 15 corridor. The only direct connection for Rabbittransit is located at the Harrisburg Transit Center.

Shuttle service through an outside vendor can be arranged for transport from the Harrisburg Transit Center to the facility.

Williams Grove Road (SR 2011) located approximately one (1) mile to the west is designated as PA Bike Route J. Bike traffic along the bike route will not be impacted by the development as minimal traffic generated by the development is estimated to be directed toward Williams Grove Road and the shoulder width along Williams Grove Road is being maintained at the existing width. Access to the facility by bicycle can occur over any of the existing roadways connecting to Grantham Road.

Internally, the site provides a network of access drives, sidewalks, and trails interconnecting parking lots, lodging, event venues, and chapel. This network will accommodate the end user at the facility.

EXISTING TRAFFIC VOLUMES AND ANALYSIS

Manual traffic counts were conducted on September 6, 2019 during the Friday (3:30 to 6:30 PM) evening period and Saturday (11:00 AM to 2:00 PM) mid-day period to obtain peak hour data. Additional data was collected on Friday February 21, 2020 and Saturday February 22, 2020 to measure entering and exiting vehicles at the two retail sites along Grantham Road (Ashcombe Farms and TJ Rockwell's). Data was collected using 'Jamar Technologies, Inc' model TDC-12 handheld recorders. Peak hours and volumes for the individual intersections are illustrated in **Table 2**. Turn movement vehicle volume data is included in the appendix. Existing conditions traffic volumes for the Friday PM peak hour and Saturday peak hour are illustrated and included in the appendix as part of **Figure 3**. **Table 1** as included within the executive summary details the average LOS and control delay for each intersection. Each LOS is illustrated and included in the appendix as part of **Figure 3**.

TABLE 2
Peak Hour and Volume

Intersection	Peak Hour			
	AM (Volume)	PM (Volume)	Friday PM (Volume)	Saturday (Volume)
Grantham Road (SR2026)- Gettysburg Pike	NA	NA	4:30 – 5:30 (602)	11:45 – 12:45 (383)

SEASONAL ADJUSTMENT AND GROWTH FACTORS

PennDOT publishes forward-looking growth projections for a one-year period in a one-page document entitled "Growth Factors for August 2019 to July 2020". For purposes of this analysis, the published value is 0.74% for urban non-interstate highways in Cumberland County. While the land use context is 'Suburban', the study area falls within PennDOT's urban boundary. This factor was applied to arrive at the 2021 base volumes for the design opening year. Traffic volume worksheets are included in a separate tabbed section of the appendix detailing future volumes anticipated per movement, per intersection.

NO-BUILD FUTURE TRAFFIC VOLUMES

Baseline year is 2019 to coincide with the previously noted data collection. Opening year is assumed to be 2021 based on the anticipated development schedule. Opening year - base condition (no-build) traffic volumes for the study peak hours are illustrated and included in the appendix as part of **Figure 5a**. Opening year - base condition (no-build) LOS for the study peak hours are illustrated and included in the appendix as part of **Figure 5e**. **Table 1** details the LOS for each intersection within the study area.

PROJECT DESCRIPTION

Ashcombe Mansion Property LLC is proposing to construct a wedding venue on approximately 22 acres of land located along Grantham Road and Gettysburg Pike in Upper Allen Township. The site is currently developed as a single-family mansion, previously used as a 'bed and breakfast' as shown on **Figures 1a and 1b**. The mansion will be incorporated into the wedding venue, used for offices and suites. Proposed facilities will include two restaurants, chapel, lodging, associated driveways and parking areas, stormwater facilities, lawns, etc. A conceptual sketch plan is attached as **Figure 2**. The proposed development is consistent with the zoning by conditional use. Construction is anticipated to start in 2020 and be completed in the following year to achieve a use in 2021.

PROPOSED SITE ACCESS

Vehicular access to the facility is proposed via reconstructing the existing entrance along Grantham Road and constructing a second full movement entrance along Grantham Road near the south-western limits of the property. These access points will be located approximately 550 feet and 770 feet from the intersection with Gettysburg Pike. Site driveways are classified as low-volume driveways. Proposed access is shown on **Figure 2**.

TRIP GENERATION

Per the scoping application, it was noted that the proposed wedding venue is unique to the area and trip generation data is not published by the Institute of Transportation Engineers for the land use. Therefore, other published information shall be used to determine average usage. Available nationally published sources for average wedding attendance state that average attendance is approximately 136 guests per wedding, average wedding party size is 10, and average number of guests per vehicle is 2. Resulting trip generation equations are illustrated in **Table 3a**. Published source list and referenced material is included in the appendix.

TABLE 3a
National Published Wedding Data

Average wedding party size	Average number of wedding guest	Number of vehicles per guest	Average vendor size	Average number of trips		Entering %	Exiting %
10	136	0.5	10	$10+136(0.5)+10$	= 88	90	10
Pre/Post Wedding event Staff			20	$20+136+20+40$	= 216	50	50

Peak hour wedding trip estimation conservatively includes the wedding party and outside vendors, though realistically, these users will arrive before the facility peak hour. See the published timeline included in the appendix. Vendors include photographers, officiator, flower delivery, limo service, assistant coordinators, and additional deliveries. Pre-wedding staff and vendors include: manager, lodging staff, event set-up/breakdown staff, kitchen staff, wait staff, bartenders, valets, band or DJ, and wedding coordinator. While some of the staff duties will be performed by the same employee, the generation estimate conservatively assumes that each duty is performed by a separate employee.

For comparison, equations for uses, such as quality restaurant and motel from the manual, *Trip Generation*, Tenth Edition, 2017, an Institute of Transportation Engineers (ITE) Informational Report, are included in **Table 3b**.

TABLE 3b
ITE TRIP GENERATION EQUATIONS

Land Use Description	ITE #	Time Period	Equations	Independent Variable (X)	Entering %	Exiting %
Motel	320	Weekday	$T = 3.35(X)$	(30) Rooms	50%	50%
		PM Peak Hour of Adj Street	$T = 0.35(X) + 3.53$		54%	46%
		PM Peak Hour of Generator	$\ln(T) = 0.92\ln(X) - 0.52$		55%	45%
		Saturday	$T = 8.71(X)$	(30) Occupied Rooms	50%	50%
		Saturday Peak	$T = 0.36(X) + 36.83$		45%	55%
Quality Restaurant	931	Weekday	AR: $T = 83.84(X)$	(6.5) Restaurant	50%	50%
		PM Peak Hour of Adj Street	AR: $T = 7.80(X)$		67%	33%
		PM Peak Hour of Generator	AR: $T = 8.28(X)$	(5) Restaurant/ Brewery	61%	39%
		Saturday	AR: $T = 90.04(X)$	1,000 SF	50%	50%
		Saturday Peak	AR: $T = 10.68(X)$		59%	41%

T = number of site-generated vehicular trips AR = Trip Generation Rate, No equation provided. SNA = Split Not Available
M= Measured Trip Rate

Table 3c lists the estimated trips generated by the proposed development at full build out. Trip generation information is included in a separate, tabbed section of the appendix. The resulting trip generation from the ITE equations is not representative of a wedding venue as a wedding will not realistically generate a 1,000 to 1,300 daily vehicle trips and therefore the ITE equations cannot be used. Additionally, Lodging Saturday peak hour traffic (before 11:00 and after 3:00 PM) does not occur during normal Saturday peak hours and is not included in the Saturday peak hour totals.

As illustrated in **Table 3c**, estimated wedding event traffic generation entering during the peak hour of the adjacent street is estimated to be of greater impact than ITE estimated generated traffic for known ITE uses. Wedding event traffic is used in the TIA. From discussion with the Township, it was noted that in some future event that if the wedding venue was converted to more of a restaurant use, **Table 3c** demonstrates that the trip generation estimates are very similar and the resulting operational characteristics evaluated herein would also be very similar.

TABLE 3c
TRIP GENERATION
PROPOSED DEVELOPMENT – BUILD OUT

	Trips											
	Total				Enter				Exit			
Land Use	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding
ITE#	320	931	931	NA	320	931	931	NA	320	931	931	NA
Time Period												
Weekday	101	419	545	216	50	210	272	108	51	209	273	108
	1065			216	532			108	533			108
Weekday PM Adj.	14	39	51	88	8	26	34	79	6	13	17	9
	104			88	68			79	36			9
Weekday PM Gen.	14	41	54	88	8	25	33	79	6	16	21	9
	109			88	66			79	43			9
Saturday	261	450	585	216	131	225	293	108	130	225	292	108
	1296			216	649			108	647			108
Saturday Peak	48	53	69	88	22	31	41	79	26	22	28	9
	48	122		88	22	72		79	26	50		9

Redevelopment as a wedding venue is estimated to generate approximately 216 new vehicle trips on an average Friday or Saturday. The trip generation estimate includes approximately 88 vehicle trips during Friday PM peak hour of the street and Saturday peak hour of the street.

ADT per driveway is estimated from **Figure 4** sheet 3 of 3 and **Table 3a**. Driveway 1 entering and exiting peak hour volume (25) plus after peak hour exiting volume (65) = 90 estimated trips per day. Driveway 2 entering and exiting peak hour volume (63) plus non peak hour vendor volume (60) plus after peak hour exiting volume (3) = 126.

TRIP DISTRIBUTION

The distribution and assignment of site-generated trips was based upon an analysis of the following: (1) existing traffic patterns and distributions within the study area; (2) the available routes for travel; and (3) the proposed site driveway location and configuration.

Existing patterns are illustrated in **Table 4a** for vehicles along Grantham Road adjacent to the proposed development. This data includes commuters to and from the adjacent residential developments. To determine the percentage of vehicles attracted to the area from outside, entering and exiting vehicles were measured at the two retail sites along Grantham Road (Ashcombe Farms and TJ Rockwell's). Existing patterns for local retail sites are illustrated in **Table 4b**.

TABLE 4a
Existing Travel Patterns

Time Period	Entering / Exiting Grantham Road					
	Enter			Exit		
	From West	From North	From South	To West	To North	To South
PM	35%	59%	6%	26%	65%	9%
SAT	40%	51%	9%	32%	60%	8%

TABLE 4b
Existing Travel Patterns

Time Period	Retail sites along Grantham Road			
	Enter		Exit	
	From West	From East	To West	To East
PM	28%	72%	27%	73%
SAT	32%	68%	33%	67%

Approximately 60 to 72 percent of vehicles destined to, or attracted to, the area were measured from the east, with the majority of that percentage being southbound on Gettysburg Pike.

Available routes for travel are broken down into three areas and roadways. For vehicles entering from the south and south west from Carlisle and I-81, PA Route 74 is the most direct route. For vehicles entering from the south (Maryland, Virginia, and the DC metropolitan area), Gettysburg Pike from US 15 North is the most direct route. For vehicles entering from the east (I-83, I-76), west (I-76), and the north (I-81) Grantham Road via US 15 South is the most direct route. The measured distribution is indicative of the proximity of US 15. To provide a more conservative analysis, the distribution from the east is rounded up to the nearest 5 percent as shown in **Table 4c**. Entering trips were assigned to the closest driveway along Grantham Road as illustrated in **Table 4d**.

For exiting vehicles, 60 percent are estimated to use site driveway 1 due to the proximity to the main parking lot.

TABLE 4c
Estimated Travel Patterns

Time Period	Along Grantham Road			
	Enter		Exit	
	From West	From East	To West	To East
PM	25%	75%	25%	75%
SAT	30%	70%	30%	70%

TABLE 4d
Estimated Travel Patterns

Time Period	Site Driveway 1				Site Driveway 2			
	Enter		Exit		Enter		Exit	
	From West	From East	To West	To East	From West	From East	To West	To East
PM	25%	0%	15%	45%	0%	75%	10%	30%
SAT	30%	0%	18%	42%	0%	70%	12%	28%

Travel patterns and distributions of site-specific traffic are illustrated in the appendix as part of **Figure 4**.

BUILD FUTURE TRAFFIC VOLUMES (OPENING YEAR)

The site-generated trips for the proposed development were added to the 2021 opening year - base condition (no-build) to calculate 2021 opening year - projected (full build out) conditions. Projected condition traffic volumes for the Friday PM and Saturday peak hours are illustrated and included in the appendix as part of **Figure 5c**. Opening year - projected condition (build) LOS for the Friday PM and Saturday peak hours are illustrated and included in the appendix as part of **Figure 5g**. **Table 1** details the LOS for each intersection within the study area.

CAPACITY ANALYSIS

Level of Service (LOS) generally describes operational characteristics in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort and convenience and safety. Six Levels of Service are defined for each type of traffic facility, ranging from A to F. Level of Service “A” indicates free flow; Level of Service “B” indicates stable flow; Level of Service “C” indicates stable, but inhibited flow; Level of Service “D” indicates high density, restricted stable flow; Level of Service “E” indicates operation at or near capacity; Level of Service “F” is indicative of flow breakdown. Levels of Service criteria are also quantified in terms of average control delay as illustrated in **Table 5** per vehicle for a one-hour period. PennDOT policy sets acceptable LOS for intersections as overall intersection LOS C in rural areas and overall intersection LOS D in urban areas. Individual municipalities may have defined differing values for acceptable LOS by ordinance.

TABLE 5
Control Delay per Levels of Service

Level-of-Service	Control Delay Per Vehicle (Seconds)	
	Signalized Intersections	Un-Signalized Intersections
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Signalized and un-signalized intersection capacity analysis was conducted utilizing SYNCRO 10 Software. HCM data sheets are included in a separately tabbed section of the appendix. Capacity analysis is conducted per methodologies and procedures outlined in the Transportation Research Board publication HCM 6.

As previously stated above, opening year projected conditions (build) LOS for the Friday PM and Saturday peak hours are illustrated and included in the appendix as part of **Figure 5g**. For comparison, existing LOS for the Friday PM and Saturday peak hours are illustrated and included in the appendix as part of **Figure 3**. Levels of Service (LOS) for intersections within the study area have been summarized in **Table 1**. The summaries have been prepared outlining existing 2019 baseline conditions, opening year 2021 base (no-build) conditions, and projected (build) conditions. ‘Baseline’ refers to the existing development scenario represented by the measured traffic volumes listed in the *Existing traffic volumes and analysis* section of this report. ‘No-Build’ refers to a development scenario whereby traffic growth on the adjacent street is the only additional development. ‘Build’ refers to a development scenario that consists of the redevelopment of the site as a wedding venue and related driveway construction.

- *Grantham Road (SR 2026) & Gettysburg Pike un-signalized intersection:*

This intersection currently operates at LOS 'A' or better during both the PM and Saturday peak hours of the adjacent street.

During the PM peak hour of the adjacent street, intersection delay is estimated to increase by less than 2 seconds over the analysis period without the development and remain at a LOS 'A' during the opening year and then a LOS 'B' during the horizon year. Intersection delay is estimated to increase by approximately 1 second with the addition of the development generated traffic and operate at a LOS 'B'. The increase in delay is minimal and the development generated traffic is not estimated to impact this intersection during this peak period at levels that would require any mitigation or improvements.

During the Saturday peak hour of the adjacent street, intersection delay is not estimated to increase measurably over the analysis period without and with the development. The intersection is estimated to continue to operate at an estimated LOS 'A' or better in the future 2021 opening year. Development generated traffic is not estimated to impact this intersection during this peak period at levels that would require any mitigation or improvements.

- *Grantham Road (SR 2026) & Site Driveway 1 un-signalized intersection:*

Upon construction and operation of the facility this intersection is estimated to operate at LOS 'A' under the both the future 2021 opening year with the development. Average intersection delay is estimated to be negligible being 1 second or less with the development. All movements are estimated to operate at LOS 'A' or better for all scenarios.

- *Grantham Road (SR 2026) & Site Driveway 2 un-signalized intersection:*

This is the existing driveway which currently operates at LOS 'A' or better during both the PM and Saturday peak hours of the adjacent street. Intersection delay is not estimated to increase measurably over the analysis period both without and with the development. The intersection is estimated to continue to operate at a LOS 'A' or better in both the future 2021 opening year. All movements are estimated to operate at LOS 'A' or better for all scenarios. Development generated traffic is not estimated to impact this intersection during this peak period at levels that would require any mitigation or improvements.

TURN LANE WARRANT ANALYSIS

Turn lane warrant analysis was conducted for all site driveway intersections and area intersections that are altered or require LOS mitigation, per the requirements within PennDOT's publication 46, chapter 11.

Left turn lane warrants were evaluated under the 2021 opening year build scenarios for site driveway 1. Site driveway 2 was not included as no entering left turns were estimated to occur during the peak hour due to its location limiting its use.

Right turn lane warrants were evaluated under the 2021 opening year build scenarios for site driveway 2. Site driveway 1 was not included as no entering right turns were estimated to occur during the peak hour due to its location limiting its use.

Turn lane warrant data sheets are included in a separate, tabbed section of this report.

<u>Intersection with:</u>	<u>Left Turn Lane Warrant Results:</u>
o Site Driveway 1	- Not warranted under any of the study scenarios.

<u>Intersection with:</u>	<u>Right Turn Lane Warrant Results:</u>
o Site Driveway 2	- Not warranted under any of the study scenarios.

Turn lane warrant analysis worksheets are included in a separately tabbed section of the appendix.

TURN RESTRICTION WARRANT ANALYSIS

Turn restriction warrants were evaluated per 67 PA Code § 212.111 for the proposed site driveway intersection. None of the six warrants were met for the build development scenarios.

QUEUE ANALYSIS

Queue lengths were calculated utilizing SYNCRO 10 Software based on HCM methodology. Calculated 95th% queue lengths under the HCM 6 methodology for each movement at each intersection are indicated in **Table 6a** for the peak hours. Calculated 50th% queue lengths under the HCM 6 methodology and calculated 95th% queue lengths under the Synchro methodology for each movement at each signalized intersection are not applicable for this analysis

Queuing analysis indicates that for all design scenarios, queue lengths either fall within the available storage lengths or do not extend to the nearest major intersection no-build scenario queue lengths by a car length (25 feet). Queue lengths are estimated to continue to be less than the distance to the proposed full movement driveways.

TABLE 6a
CACULATED 95TH % QUEUE LENGTHS

Intersection	Move ment	Storage Length	PM Peak Hour					Saturday Peak Hour				
			2019	2021				2019	2021			
			No- Build	No- Build	Build			No- Build	No- Build	Build		
Grantham Road - Gettysburg Pike	EBL/R	*540	10	10	10			7	7	10		
	NBL/T	500	22	22	25			13	15	15		
	SBT/R	880	60	60	77			20	22	30		
Site Driveway 1 - Grantham Road	EBL/T	680	NA	NA	3			NA	NA	3		
	WBT/R	*200	NA	NA	0			NA	NA	0		
	SBL/R	100	NA	NA	0			NA	NA	0		
Site Driveway 2 - Grantham Road	EBL/T	200	0	0	0			0	0	0		
	WBT/R	540	0	0	0			0	0	0		
	SBL/R	50	0	0	0			0	0	0		

Lengths are in feet.

■ = Length greater than storage length.

* Distance to SD2

SIGHT DISTANCE ANALYSIS

A sight distance analysis was performed for the site driveway intersections. In general, recommended safe sight distances depend upon the posted speed limit, roadway grades, and the number of travel lanes. The existing sight distances at the site driveways were measured and compared to the sight distance standards as specified in Title 67 of the PA Code, Chapter 441, "Access to and Occupancy of Highways by Driveways and Local Roads," August, 1996. Where PennDOT 'desirable sight distances' were not met, minimum sight distance criteria was evaluated.

Minimum or PennDOT's safe stopping sight distance (SSSD) standard are as calculated by the following equation:

$$SSSD = 1.47VT + V^2/[30(f \pm g)]$$

SSSD = safe stopping sight distance (acceptable sight distance)

V = Velocity of Vehicle (posted)

T = Perception Reaction Time of Driver (2.5 seconds)

f = Coefficient of Friction for Wet Pavements (average of 0.30)

g = Percent of Roadway Grade Divided by 100

PennDOT's safe stopping sight distance standards both exceed the stopping sight distance requirements as specified in A Policy on Geometric Design of Highways and Streets, of the American Association of State Highway and Transportation Officials (AASHTO), Chapter III, "Elements of Design," 2004. **Table 7** shows the measured or design and calculated sight distances at the site driveways for vehicles entering and exiting the site.

Sight distance analysis indicates that for both site driveway 1 and site driveway 2 the desirable (safe sight distance) will be met for all design scenarios with the removal of trees and vegetation along the opposite side of the roadway (located on Township property).

TABLE 7
SIGHT DISTANCE ANALYSIS FOR GRANTHAM ROAD –
SITE DRIVEWAY 1 UN-SIGNALIZED INTERSECTION

	<i>Direction</i>	<i>Speed (mph)</i>	<i>Approach Grade (%)</i>	<i>Acceleration Grade (%)</i>	<i>Sight Distances (feet)</i>		
					<i>Desirable</i>	<i>Design</i>	<i>Calculated MIN</i>
<i>Exiting Right Turns</i>	<i>To the left</i>	35	+1	-1	440 T1 (Met)	460	NA Desirable Met
<i>Exiting Left Turns</i>	<i>To the right</i>	35	+1	-1	350 T1 (Met)	1,435	NA Desirable Met
<i>Entering Left Turns</i>	<i>From Behind</i>	35	+1	NA	NA	1,400	245 (Met)
<i>Entering Left turns</i>	<i>Opposing</i>	35	+1	NA	300 T5 (Met)	460	NA Desirable Met

T1: Table 1 441.8(h)(1)

T1a: Table 1 441.8(h)(2)(iii)(C)

T5: Table 5 441.8(h)(1)

**SIGHT DISTANCE ANALYSIS FOR GRANTHAM ROAD –
SITE DRIVEWAY 2 UN-SIGNALIZED INTERSECTION**

	Direction	Speed (mph)	Approach Grade (%)	Acceleration Grade (%)	Sight Distances (feet)		
					Desirable	Design	Calculated MIN
Exiting Right Turns	<i>To the left</i>	35	-2	-1	440 T1 (Met)	615	NA Desirable Met
Exiting Left Turns	<i>To the right</i>	35	+1	+2	350 T1 (Met)	1,615	NA Desirable Met
Entering Left Turns	<i>From Behind</i>	35	+1	NA	NA	1,574	245 (Met)
Entering Left turns	<i>Opposing</i>	35	-2	NA	300 T5 (Met)	440	NA Desirable Met

T1: Table 1 441.8(h)(1)

T1a: Table 1 441.8(h)(2)(iii)(C)

T5: Table 5 441.8(h)(1)

RECOMMENDED IMPROVEMENTS

Offsite improvements are not recommended as the additional traffic generated by the proposed development will not impact the study intersections at levels that would normally require mitigation.

Site access is recommended to be constructed as follows:

- Site driveway 1 - Construct full movement driveway onto Grantham Road, 24 feet in width per Township and PennDOT specifications. A 'stop' sign shall be provided for the exiting movement.
- Site driveway 2 - Construct full movement driveway onto Grantham Road, 24 feet in width per Township and PennDOT specifications. A 'stop' sign shall be provided for the exiting movement.
- Remove trees and vegetation located on Township property along the opposite side of Grantham Road to achieve a minimum design site distance of 460 feet to the east of site driveway 1. Ensure the desirable sight distance of 440 feet will be met.

The recommended improvements are preliminarily estimated to cost approximately 22,000 dollars and shall be constructed prior to the opening of the development. The recommended improvements are anticipated to be constructed at the same time as the site work construction, approximately Spring of 2021. The Highway Occupancy Permittee shall fund and have the improvements constructed. The Pennsylvania Department of Transportation requires the statement that *'all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department.'* In summary, the proposed development and improvements will have minimal traffic impact on the study intersections which will continue to operate at existing levels of service, capacity, and safety.

FURTHER DISCUSSION ON NEED FOR PENNDOT TRAFFIC IMPACT STUDY

Based on the trip generation and site access analysis provided herein, the proposed facility will have minimal impact on the adjacent road system. PennDOT's "Guidelines for preparation of a Traffic Impact Study" indicates that a TIS is required when one of the following conditions is met: (1) *the access is expected to have an ADT of 3,000 or more;* (2) *during any one hour time period, the development is expected to generate either 100 or more new vehicle trips entering the development or 100 or more new vehicle trips exiting the development;* or (3) *in the opinion of the Department, the development is expected to have a significant impact on highway safety or traffic flow even though it does not meet (1) or (2) above.* According to these criteria, the proposed development does **not** meet PennDOT volume warrants for preparation of TIS, as the development is not estimated to generate more than 100 inbound or outbound new peak hour trips.

Appendices

Figures

Included

- ☒ Figure 3: Existing Volume/LOS
- ☐ Figure 3a: Existing Signal Plan (if applicable)
- ☒ Figure 4: Trip Distribution Percentage and Volumes

Opening Year Conditions:

- ☒ Figure 5a: Opening Year Traffic Volumes without Development (AM, PM, Site Peak)
- ☐ Figure 5b: Opening Year Traffic Volume without Development & with Committed Development
- ☒ Figure 5c: Opening Year Traffic Volumes with Development
- ☐ Figure 5d: Opening Year Traffic Volumes with Development & Committed Development
- ☒ Figure 5e: Opening Year Levels of Service without Development
- ☐ Figure 5f: Opening Year Levels of Service without Development & with Committed Development
- ☒ Figure 5g: Opening Year Levels of Service with Development
- ☐ Figure 5h: Opening Year Levels of Service with Development & Committed Development
- ☐ Figure 5i: Opening Year Levels of Service with Development & Recommended Mitigation
- ☐ Figure 5j: Opening Year Levels of Service with Development, Committed Development, & Recommended Mitigation

Design Horizon Year Conditions:

- ☐ Figure 6a: Design Horizon Year Traffic Volumes without Development (AM, PM, Site Peak)
- ☐ Figure 6b: Design Horizon Year Traffic Volumes without Development & with Committed Development
- ☐ Figure 6c: Design Horizon Year Traffic Volumes with Development
- ☐ Figure 6d: Design Horizon Year Traffic Volumes with Development & Committed Development
- ☐ Figure 6e: Design Horizon Year Levels of Service without Development
- ☐ Figure 6f: Design Horizon Year Levels of Service without Development & with Committed Development
- ☐ Figure 6g: Design Horizon Year Levels of Service with Development
- ☐ Figure 6h: Design Horizon Year Levels of Service with Development & Committed Development
- ☐ Figure 6i: Design Horizon Year Levels of Service with Development & Recommended Mitigation
- ☐ Figure 6j: Design Horizon Year Levels of Service with Development, Committed Development, & Recommended Mitigation

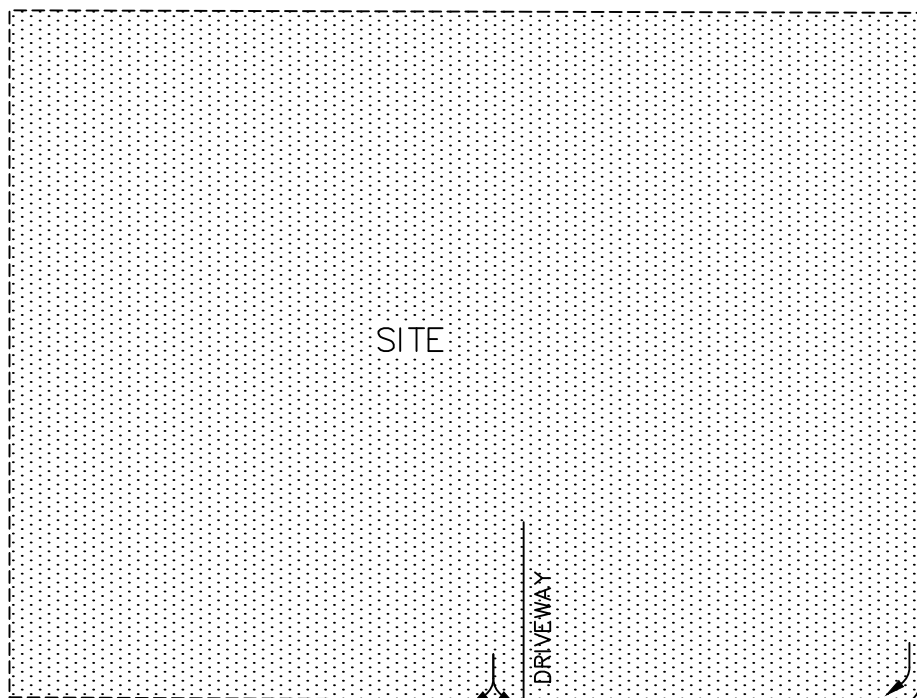
Misc.

- ☒ Site Photographs
- ☒ Existing Conditions (sketches, Transit Data, etc.)
- ☒ Turning Movement Counts, 24 Hour Volumes
- ☒ Growth Rate and Volume Worksheets
- ☒ Trip Generation Information
- ☒ HCM Worksheets
- ☐ Gap Analysis
- ☐ Delay Analysis
- ☐ Traffic Signal Warrant Analysis
- ☒ Turn Lane Analysis
- ☒ Correspondence

Figure 3






GETTYSBURG PIKE



GRANTHAM ROAD

SR 2026

-  = Channelized Island
-  = Signal-Controlled Approach
-  = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

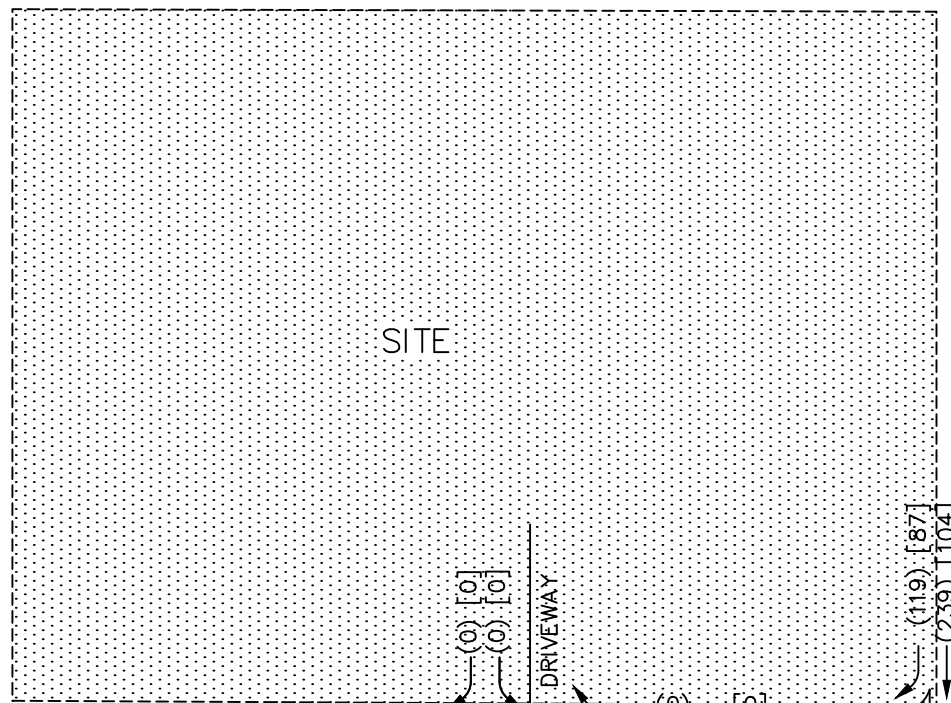
ALPHA
ALPHA CONSULTING ENGINEERS, INC.

FIGURE 3 SHEET 1 OF 3

EXISTING LANE CONFIGURATION
AND INTERSECTION CONTROL



GETTYSBURG PIKE



GRANTHAM ROAD

SR 2026

(0) [0]
(71) [69]

(53) [55]
(18) [14]

(119) [87]
(239) [104]

(13) [15]
(160) [108]

- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

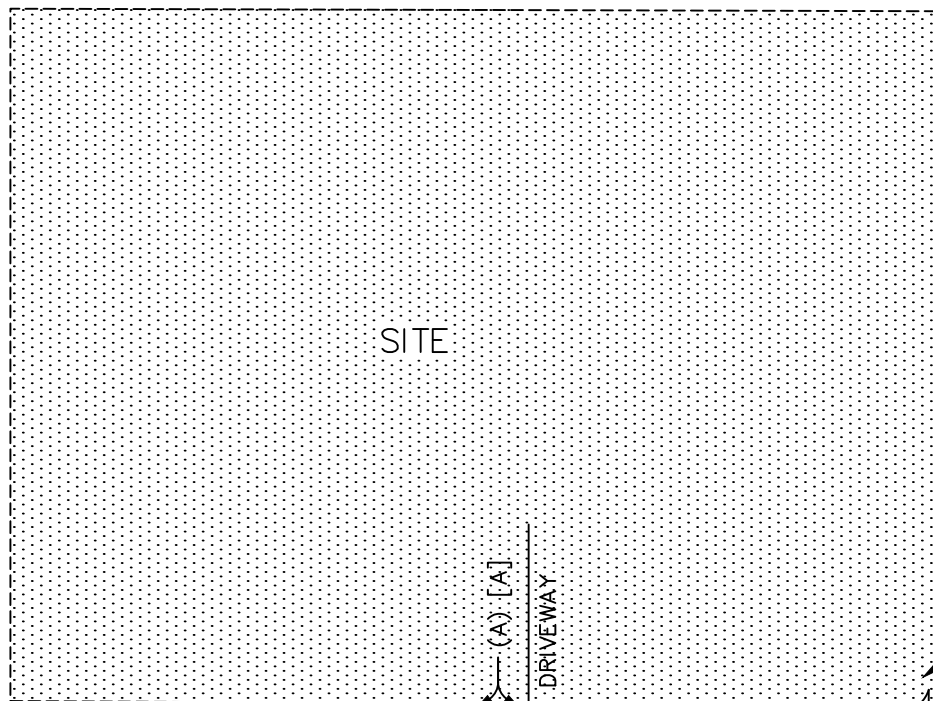
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FIGURE 3 SHEET 2 OF 3

2019 BASELINE CONDITIONS
PEAK HOUR TRAFFIC VOLUMES



GETTYSBURG PIKE



GRANTHAM ROAD

LOS (A) [A]

(A) [A]

SITE DRIVEWAY

(A) [A]

SR 2026




LOS (A) [A]

(A) [A]

(B) [A]

STOP

(A) [A]

-  = Channelized Island
-  = Signal-Controlled Approach
-  = Stop-Controlled Approach

= AM Peak Hour Data
(#) = PM Peak Hour Data
[#] = Saturday Peak Hour Data
SD : Site Driveway
ILOS : Intersection Level of Service
Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

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FIGURE 3 SHEET 3 OF 3

2019 BASELINE CONDITIONS
PEAK HOUR LOS

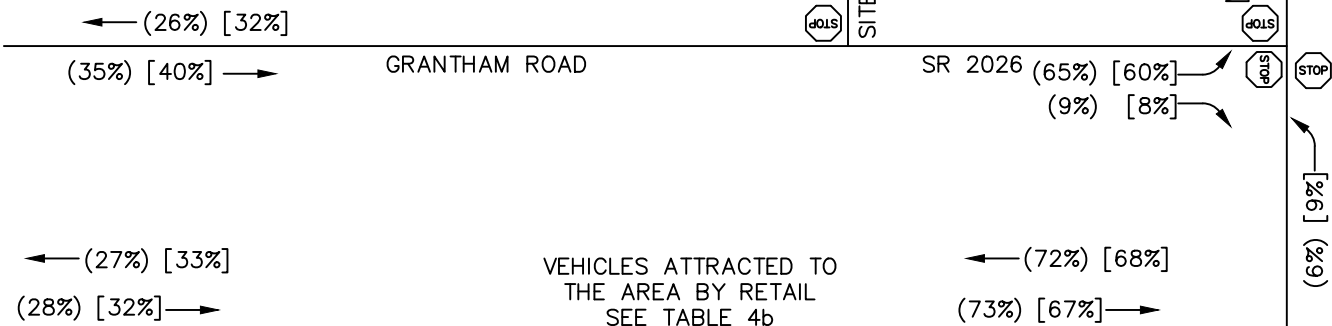
Figure 4



GETTYSBURG PIKE

SITE

SITE DRIVEWAY



- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

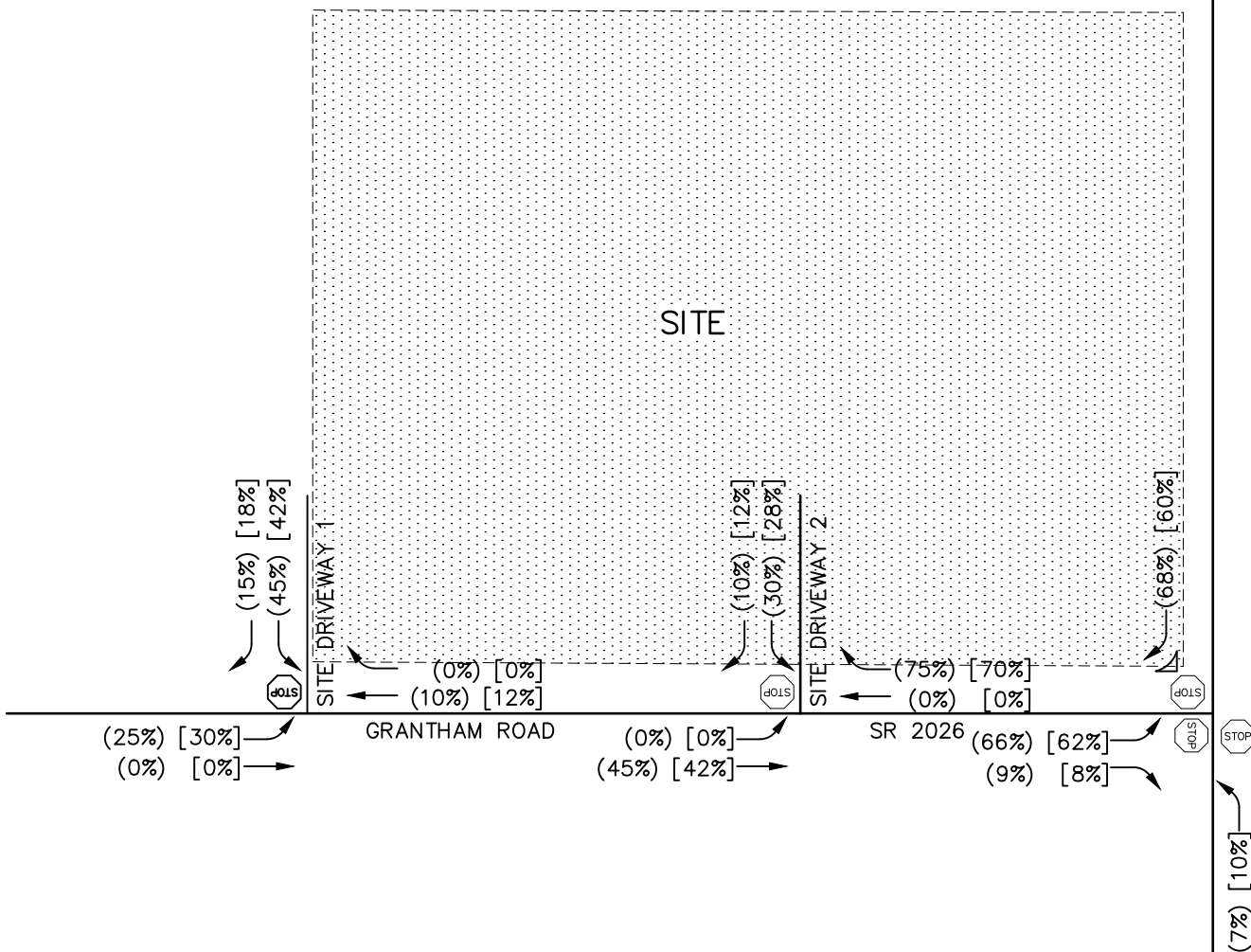
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FIGURE 4 SHEET 1 OF 3
EXISTING DISTRIBUTION PERCENTAGE



GETTYSBURG PIKE



- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

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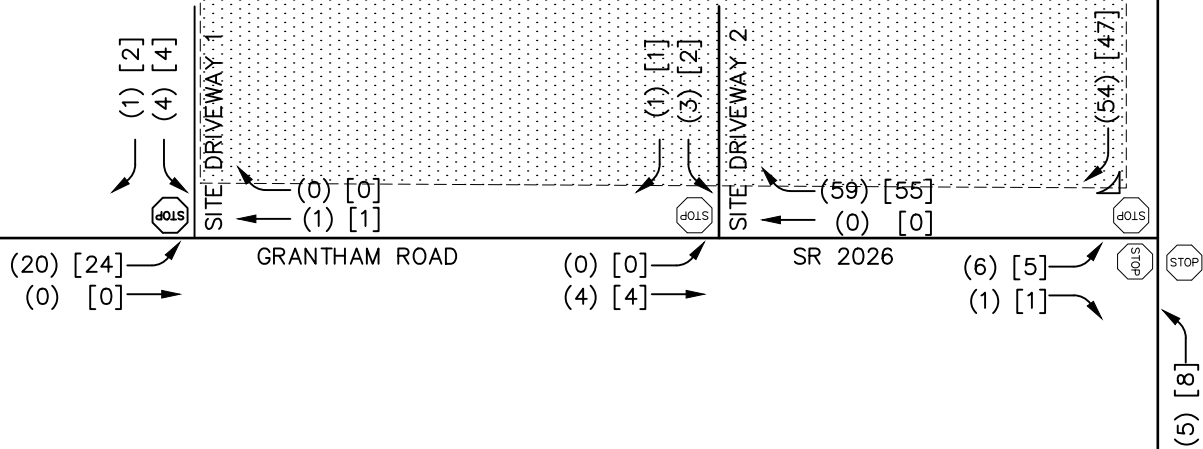
FIGURE 4 SHEET 2 OF 3

ESTIMATED BUILD DISTRIBUTION PERCENTAGE
PEAK HOURS



GETTYSBURG PIKE

SITE



- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach

= AM Peak Hour Data
(#) = PM Peak Hour Data
[#] = Saturday Peak Hour Data
SD : Site Driveway
ILOS : Intersection Level of Service
Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

ALPHA
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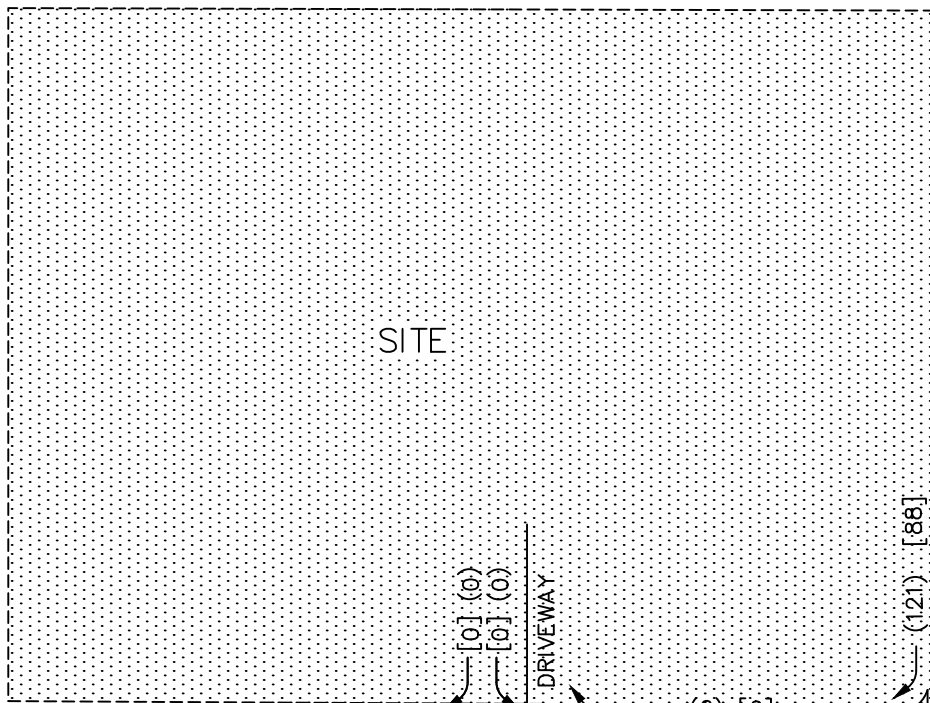
FIGURE 4 SHEET 3 OF 3

BUILD PROJECTED CONDITIONS
DISTRIBUTION/ASSIGN. TRIPS

Figure 5a-5g



GETTYSBURG PIKE



GRANTHAM ROAD

SR 2026

(0) [0]
(72) [70]

(54) [56]
(18) [14]

(13) [15]
(162) [110]

- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach

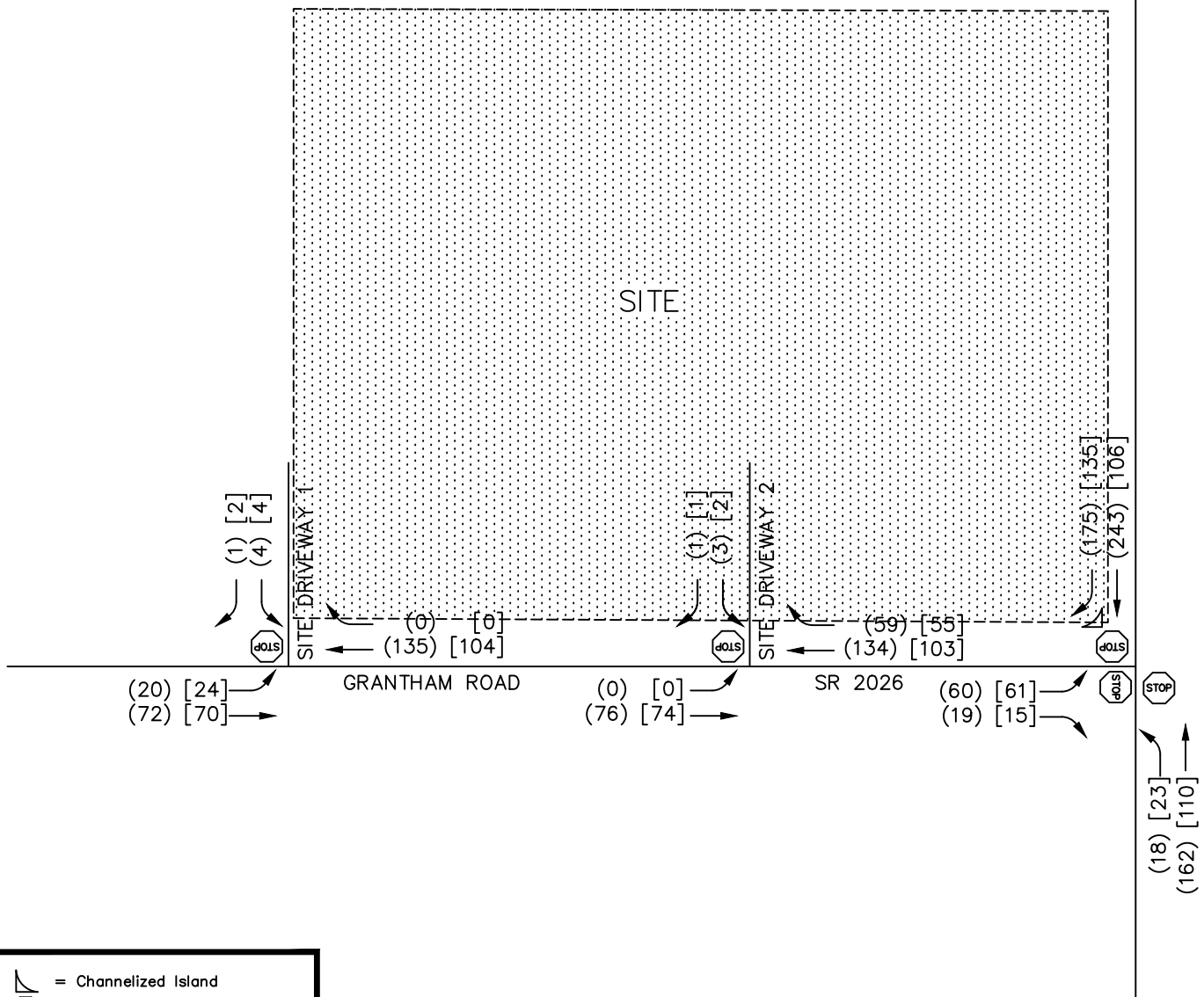
= AM Peak Hour Data
 (#) = PM Peak Hour Data
 [#] = Saturday Peak Hour Data
 SD : Site Driveway
 ILOS : Intersection Level of Service
 Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

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FIGURE 5A SHEET 1 OF 1

2021 OPENING YEAR - BASE CONDITIONS
 PEAK HOUR TRAFFIC VOLUMES



- = Channelized Island
- = Signal-Controlled Approach
- = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

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FIGURE 5C SHEET 1 OF 1

2021 OPENING YEAR - PROJECTED CONDITIONS
PEAK HOUR TRAFFIC VOLUMES



GETTYSBURG PIKE

SITE

GRANTHAM ROAD

LOS (A)[A]

(A) [A]

SITE DRIVEWAY

(A) [A]

(A) [A]

SR 2026




(A) [A]

(B) [A]

LOS (A)[A]

(A) [A]

(A) [A]

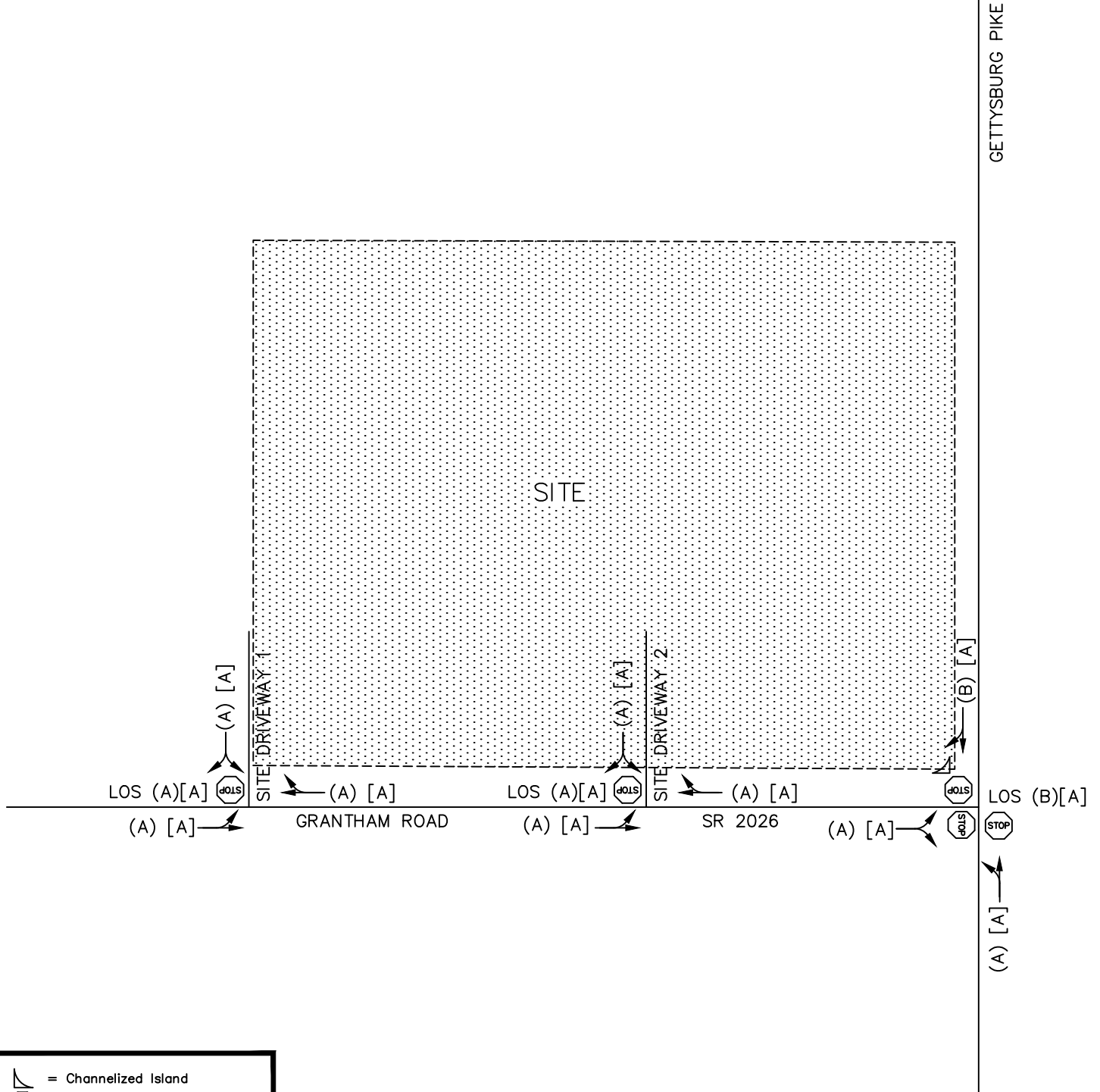
-  = Channelized Island
-  = Signal-Controlled Approach
-  = Stop-Controlled Approach




= AM Peak Hour Data
(#) = PM Peak Hour Data
[#] = Saturday Peak Hour Data
SD : Site Driveway
ILOS : Intersection Level of Service
Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

ALPHA
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FIGURE 5E SHEET 1 OF 1
2021 OPENING YEAR - BASE CONDITIONS
PEAK HOUR LOS



-  = Channelized Island
-  = Signal-Controlled Approach
-  = Stop-Controlled Approach
- # = AM Peak Hour Data
- (#) = PM Peak Hour Data
- [#] = Saturday Peak Hour Data
- SD : Site Driveway
- ILOS : Intersection Level of Service
- Schematic Drawing : Not To Scale

THE WILLOWS AT ASCHOMBE MANSION

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FIGURE 5G SHEET 1 OF 1

2021 OPENING YEAR - PROJECTED CONDITIONS
PEAK HOUR LOS

Site Photographs

*GRANTHAM ROAD –
GETTYSBURG PIKE*



Eastbound on Grantham Road – Approaching Intersection



Eastbound on Grantham Road – Approaching Intersection



Westbound on Grantham Road – Departing Intersection



Westbound on Grantham Road – Departing Intersection Approaching Existing Driveway



Northbound on Gettysburg Pike – Approaching Intersection



Northbound on Gettysburg Pike – Approaching Intersection



Northbound on Gettysburg Pike – Departing Intersection



Northbound on Gettysburg Pike – Departing Intersection



Southbound on Gettysburg Pike – Approaching Intersection



Southbound on Gettysburg Pike – Approaching Intersection



Southbound on Gettysburg Pike – Departing Intersection to Grantham Road



Southbound on Gettysburg Pike – Departing Intersection



Southbound on Gettysburg Pike – Departing Intersection



Southbound on Gettysburg Pike – Departing Intersection

*GRANTHAM ROAD –
SITE DRIVEWAY*



Eastbound on Grantham Road – Approaching Intersection



Eastbound on Grantham Road – Departing Intersection



Westbound on Grantham Road – Departing Intersection



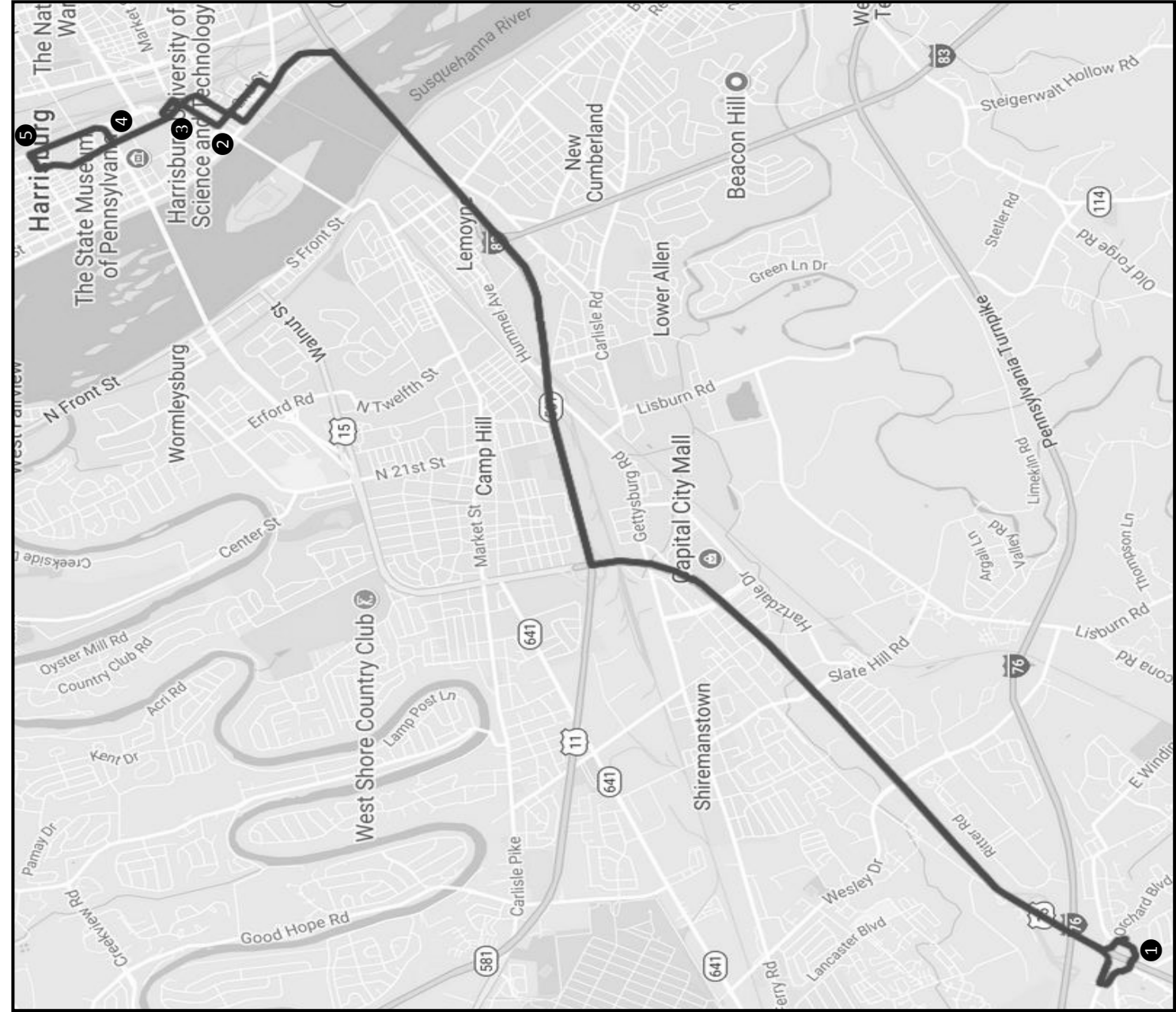
Westbound on Grantham Road – Departing Intersection



Northbound on Grantham Road - Site Driveway

Existing Data

(And Wedding Venue Info)



SENIOR CITIZENS

FREE-RIDE PROGRAM

Passengers 65 years of age and older ride free with a Commonwealth of PA SENIOR CITIZEN ID card issued by CAT. Persons 65 and over are encouraged to register for the Senior Citizen Free Ride Program.

HALF FARE PROGRAM

Persons with a qualifying disability may ride CAT at half fare with PA-DOT Reduced Transit Fare card issued by CAT. A Medicare Card may be sufficient proof of eligibility to obtain a PA-DOT Reduced Fare Card for the Half Fare Program.

Commonwealth of PA ID cards issued by other PA Transit Systems for either the Senior Citizen Free Ride Program or the ½ Fare Program for person with disabilities are accepted on CAT buses. Driver may request proof of identity and/or age. Additional information and applications are available at CAT Information offices.

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Capitol Complex
Winding Hill Park & Ride



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Track your CAT bus by scanning QR Code

or visit www.findmycatbus.com

** THIS ROUTE DOES NOT OPERATE ON STATE & FEDERAL HOLIDAYS **

Inbound to Downtown Harrisburg					WEEKDAY					Outbound to Winding Hill Park & Ride				
Winding Hill Park & Ride 1	Transfer Center 2	Train Station (Market St) 3	Commonwealth & North 4	7th & Basin (PHEAA) 5	7th & Basin (PHEAA) 5	Commonwealth & North 4	Train Station (Aberdeen St) 3	Commonwealth & North 4	Train Station (Aberdeen St) 3	Commonwealth & North 4	7th & Basin (PHEAA) 5	Winding Hill Park & Ride 1		
6:52 AM	7:15 AM	7:17 AM	7:21 AM	7:24 AM	7:24 AM	7:21 AM	3:51 PM	3:48 PM	3:51 PM	3:48 PM	3:45 PM	4:11 PM		
7:12 AM	7:35 AM	7:37 AM	7:41 AM	7:44 AM	7:44 AM	7:41 AM	4:51 PM	4:48 PM	4:51 PM	4:48 PM	4:45 PM	5:11 PM		

FARE INFORMATION

Subject to change
Exact Change Required
See CAT website for more detailed information

BASE FARE

- Adult \$1.75
- Half Fare \$.85
- Student (K-12) \$1.25

MONTHLY PASSES

- ZONE 1—Adult \$49.00
- ZONE 2—Adult \$70.00
- ZONE 3—Adult \$87.00
- Student Pass—All Zones \$35.00

MULTIPLE RIDE TICKETS

- 11 RIDE—Zone 1 \$16.50
- 11 RIDE—Zone 2 \$22.00
- 11 RIDE—Zone 3 \$28.00
- 20 RIDE Disabled Ticket \$17.50

TRANSFER—\$.25— *Transfers are not allowed to be used for round trips*

ZONE FARE—\$.60

CHILDREN: Age five and under ride free when accompanied by a fare-paying adult.

GENERAL INFORMATION

NO CAT SERVICE ON Sundays, New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving, Christmas, or when a Sunday Holiday is celebrated on a Monday.

CAN'T DO! Smoking, drinking and eating are not permitted on CAT buses. Playing radios, televisions, compact disk players, etc., in a manner that is offensive to any passenger or driver is prohibited. No pets allowed on CAT buses, except guide and service animals.

LOSE SOMETHING ON THE BUS? Articles found on a bus are kept for 30 days. Call 238-8304 if you lose an article.

CAT will make every effort to adhere to the published timetable but will not assume responsibility for inconvenience, expense, or missed connections resulting from inclement weather, unplanned detours, or excess traffic.

Need An Emergency Ride Home?

Pennsylvania Commuter Services provides a free ride home in a qualified emergency for commuters who use options other than commuting alone in their personal vehicles. For more information, visit :

www.pacommuterservices.com/emergency-ride-home.html or call 1.866.579.RIDE.

Wedding Venue References

Goodson, Lauren, and Kirsten Francis. “2020 Newlywed Report.” *WedInsights*, 2020,

go.weddingwire.com/newlywed-report.

“Home.” *Howerton+Wooten Events*, www.hwevents.com/.

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2016, www.bustle.com/articles/145193-this-is-the-average-number-of-wedding-guests-in-the-us.

Sims, Maddy, and Sophie Ross. “This Is the Average Wedding Guest List Size in the U.S.”

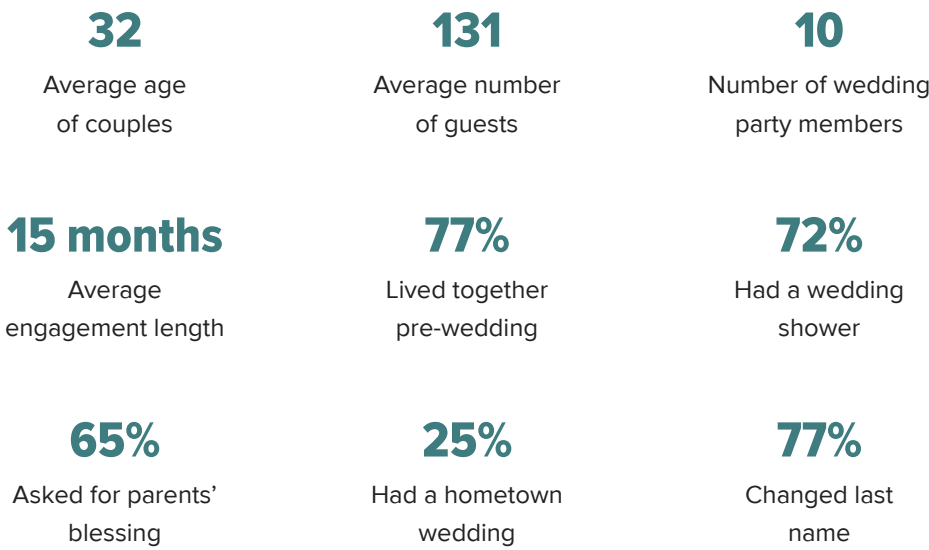
Theknot.com, The Knot, 1 Oct. 2019, www.theknot.com/content/average-wedding-guest-list-size.

Average number of wedding guest	Study Year	Source
131	2020	Wedding Wire
136	2018	The Knot
136	2017	The Knot
120	2015	Wedding Wire
153	2007	The Knot
136	Average	

Couples by the Numbers

Though every wedding is unique across the nation, data shows us that there are similarities that emerge among couples of similar backgrounds—whether that means couples of equivalent race, sexual orientation, cultural roots and/or demographics. Click on the tabs below to see how data changes among the following groups.

- All Couples
- Gen Z
- Millennials
- Gen X
- African-American
- Asian
- Caucasian
- Hispanic
- LGBTQ



Calculations based on partners with equal identifiers (i.e., same reported race).
Gen Z: 1997-current, Millennials: 1982-1996, Gen X: 1961-1981



Additional Space Requirements

- ❖ **Outdoor Space needed parking** – Be sure that your venue has enough legal parking spaces to accommodate the cars for your wedding guests. The typical rule of thumb for parking spaces is one parking space for every 2 to 2.5 people in attendance. For a wedding, you may be able to adjust that rule of thumb to 1 car per couple; 1.5 cars per family; and 1 car per single guest. Don't forget spaces for accessible parking! According to the Americans with Disabilities Act of 1990, you will need one accessible parking space for every 25 cars.
- ❖ **Outdoor Space needed for a generator** – Speaker of generators, remember to work with the venue to ensure that you will have ample space between your wedding guests and the generator. Generators are loud and you don't want them to interfere with a positive experience for your wedding guests!
- ❖ **Outdoor Space needed for noise** — Did you envision recorded music for your outdoor party? If so, check with the venue to ensure you are far enough away from your neighbors. Some venues don't allow amplified music to be played outside because of their local noise ordinances. Check in advance before you sign on the dotted line!
- ❖ **Space needed for the head table** – If you decide that you want to add an elevated head table for you and your bridal party of 16, consider adding an additional 400 square feet to your minimum space required.

This Is The Average Number Of Wedding Guests In The U.S.

By [AMANDA CHATEL](#) | March 1, 2016 |



According to the 2015 Newlywed Survey released this week by WeddingWire, the average number of wedding guests is 120 people. Although that seems like a reasonable amount,



This Is the Average Wedding Guest List Size in the U.S.

How does yours stack up?

by Maddy Sims and Sophie Ross



Rachel Marie Photographie

Determining your [guest list](#) is one of the most—if not the most—important tasks on your [wedding planning checklist](#). The size of your guest list will affect your [venue](#), [budget](#) and so many other aspects of your wedding. As you create yours, you may be wondering what the average wedding size in the US is (and how yours compares). Good news: We've got the answer for you.

According to [The Knot 2018 Real Weddings Study](#), the average wedding size is currently 136. (For context, that number is the same as it was in 2017, but down from an all-time high of 153 in 2007.)

ADVERTISEMENT



A Complete Wedding Timeline, Six Ways

Expert tips to keep your wedding on track

WEDDING TIMELINE WITH A 4 P.M. START TIME

Because the 4 p.m. ceremony time, 10 p.m. reception end (with both ceremony and reception in the same venue), with secular ceremony and photos beforehand is a pretty common format, let's start with that wedding timeline.

10:00 a.m.—Hair and makeup / Getting ready
12:00–2:00 p.m.—Most vendors arrive for setup
2:00 p.m.—Wedding party and family photos start
3:30 p.m.—Doors open / Room ready for guests / Pre-ceremony music starts
4:00 p.m.—Invite time
4:15 p.m.—Ceremony starts
4:35 p.m.—Ceremony ends
4:40 p.m.—Cocktail hour starts
5:45 p.m.—Move guests into dinner
6:00 p.m.—Buffet opens / Dinner served
6:20 p.m.—All guests have food
6:30 p.m.—Toasts
7:30 p.m.—First dance
7:35 p.m.—General dancing music starts
8:00 p.m.—Second set of pre-sunset portraits
8:26 p.m.—Sunset
8:30 p.m.—Dessert
9:45 p.m.—Last call
9:55 p.m.—Music off
10:00 p.m.—Guests depart
11:00 p.m.—Breakdown done / All staff departs

COCKTAIL PARTY STYLE RECEPTION TIMELINE

The key is continuous rounds of food, with some heavier things around “dinner” time, and a menu that consists of food that can be eaten standing up (so, no knives, but forks are fine!) and served on smaller plates (because, big plates are awkward when you have to hold them standing up). For a cocktail style reception you don’t need tables or seating for everyone, although you should have some scattered throughout, particularly if you’re going to have older guests. A cocktail style reception might look something like the following:

3:00 p.m.—Vendors arrive for setup
4:30 p.m.—Doors open / Room ready for guests / Pre-ceremony music starts
5:00 p.m.—Invite time
5:15 p.m.—Ceremony starts
5:30 p.m.—Ceremony ends
5:30 p.m.—First round of food comes out / Bar opens
5:30 p.m.—Music starts inside
6:30 p.m.—Pre-sunset portraits
6:45 p.m.—“Dinner” rounds of food come out
7:07 p.m.—Sunset
7:15 p.m.—Toasts
7:30 p.m.—First dance
8:00 p.m.—Couple’s “Thank You” toast followed by cake cutting
9:00 p.m.—Couple and guests depart
10:00 p.m.—Breakdown done / Vendors out

EARLY AFTERNOON WEDDING DAY TIMELINE

Afternoon weddings are a happy medium, and they can work especially well for all-outdoor events. Not only do you not have to get up super early, but afternoon weddings still leave enough time for just the two of you to go out for dinner. (Seriously, if your reception is a meal other than dinner, and you’re not planning on hanging out with your guests later, please build room in your budget to take yourselves out to a lovely meal somewhere.) This is also a very kid-friendly wedding timeline, which may be important to you if there are lots of small people in your life:

9:00 a.m.—Hair and makeup / Getting ready
9:30 a.m.—Vendors arrive / Setup starts
10:30 a.m.—Getting ready photos start
11:00 a.m.—First look and couple’s portraits
11:45 a.m.—Family pictures
12:30 p.m.—Doors open / Room ready for guests / Pre-ceremony music starts
1:00 p.m.—Invite time
1:15 p.m.—Ceremony starts
1:35 p.m.—Ceremony concludes
1:40 p.m.—Cocktail “hour” starts / Additional family photos
2:30 p.m.—Lunch starts
3:00 p.m.—Toasts

3:30 p.m.—First dance
5:00 p.m.—Cake cutting / Dessert
6:15 p.m.—Couple departs
6:30 p.m.—Guests depart
6:30 p.m.—Breakdown commences
7:30 p.m.—All vendors out

AMERICAN FLAT TRACK
WILLIAMS GROVE SPEEDWAY
MECHANICSBURG, PA
ROUND 18



Williams Grove Half-Mile presented by Appalachian Harley-Davidson

Event Schedule

Williams Grove Speedway

1 Speedway Dr Mechanicsburg, PA

<https://tickets.americanflattrack.com/2019-williams-grove-half-mile.html>

Registration Location:

Inside gate off Williams Grove Road

Saturday, September 7, 2019

1:00PM	Gates Open for Fans		
1:15PM	Honda Talon Experience		
1:30PM	AFT Twins Practice 1		
1:40PM	AFT Production Twins Practice		
2:02PM	AFT Singles Practice		
2:25PM	AFT Twins Practice 2		
2:35PM	AFT Production Twins Qualifying 1		
2:57PM	AFT Singles Qualifying 1		
3:20PM	AFT Twins Qualifying 1		
3:30PM	AFT Production Twins Qualifying 2		
3:52PM	AFT Singles Qualifying 2		
4:15PM	AFT Twins Qualifying 2		
4:25PM	Honda Talon Experience		
4:55PM	AFT Singles Heat 1	5 Laps	(1-10 to Semis)
5:00PM	AFT Singles Heat 2	5 Laps	(1-10 to Semis)
5:05PM	AFT Singles Heat 3	5 Laps	(1-10 to Semis)
5:10PM	Honda Talon Experience		
5:30PM	Opening Ceremonies		
5:40PM	AFT Production Twins Semi 1	10 Laps	(1 - 8 to Main)
5:47PM	AFT Production Twins Semi 2	10 Laps	(1 - 8 to Main)
6:05PM	AFT Singles Semi 1	8 Laps	(1 - 8 to Main)
6:10PM	AFT Singles Semi 2	8 Laps	(1 - 8 to Main)
6:25PM	AFT Twins Semi 1	10 Laps	(1 - 8 to Main)
6:32PM	AFT Twins Semi 2	10 Laps	(1 - 8 to Main)
6:40PM	Rider Autograph Session / Open Paddock		
6:50PM	Honda Talon Experience		
7:40PM	AFT Production Twins Rider Introductions		
7:50PM	AFT Production Twins Main Event	15 Laps	
8:00PM	AFT Production Twins Victory Podium		
8:10PM	AFT Singles Rider Introductions		
8:20PM	AFT Singles Main Event	15 Laps	
8:30PM	AFT Singles Victory Podium		
8:40PM	AFT Twins Rider Introductions		
8:50PM	AFT Twins Main Event	25 Laps	
9:05PM	AFT Twins Victory Podium		



2019 SCHEDULE

Highlighted in blue = Hoosier Diamond Series Events

Schedule & Prices tentative and subject to change

Gates open two hours prior to starting time.

Warm-ups one-half hour prior to starting time.

GA= General Admission Y = Youth (13-20)



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DATE	TIME	EVENT
17-Mar	2:00	Hoosier Presents Opening Day 410 Sprints GA \$15 Y \$10
22-Mar	7:30	ARCH Night 410 Sprints & ULMS Super Late Model Series GA \$18 Y \$10
29-Mar	7:30	410 Sprints & Super Late Models GA \$16 Y \$10
5-Apr	7:30	410 Sprints & USAC East Coast Wingless Sprints GA \$17 Y \$10
12-Apr	7:30	Tommy Hinnershitz Memorial All Star Sprints Hoosier Diamond Series / PASS IMCA Sprints/EMMR Photo GA \$20 Y \$10
19-Apr	8:00	Blazer's Body Shop Night 410 Sprints & Super Sportsman GA \$16 Y \$10
26-Apr	8:00	410 Sprints Yellow Breeches 500 & 358 Sprints GA \$16 Y \$10
3-May	7:30	410 Sprints & Lucas Oil ASCS National Tour Plus United Racing Club GA \$25 Y \$10
		
10-May	7:30	Brooks PowerSports Night 410 Sprints World of Outlaws Tune Up Hoosier Diamond Series/358 Sprints GA \$17 Y \$10
17-May	7:30	H & N Landscaping Presents the World of Outlaws Sprint Cars & Fireworks GA \$30 Y \$15
18-May	7:30	H & N Landscaping Presents the World of Outlaws Sprint Cars Morgan Cup & Fireworks GA \$30 Y \$15
24-May	7:30	Lynn Paxton Tribute Race 410 Sprint Cars Hoosier Diamond Series/358 Sprints EMMR Photo Shoot & Fireworks GA \$18 Y \$10
31-May	8:00	410 Sprints Yellow Breeches 500 & 358 Sprints GA \$16 Y \$10
7-Jun	7:30	H & N Landscaping School's Out Night 410 Sprints KRS Graphics Super Late Model Challenge Series /EMMR Photo Shoot & Fireworks GA \$20 Y \$10
14-Jun	7:30	KRS Graphics Presents The USAC Silver Crown Series & 410 Sprint Cars/EMMR GA \$28 Y \$10
21-Jun	8:00	York County Racing Club Night 410 Sprints Yellow Breeches 500 & 358 Sprint Car Summer Series GA \$16 Y \$10
28-Jun	7:30	Sprint Car Unlimited Night 410 Sprints PA Speedweek Hoosier Diamond Series/358 Sprints GA \$18 Y \$10



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5-Jul	7:30	Mitch Smith Memorial 410 Sprints PA Speedweek Hoosier Diamond Series/Mason Dixon shootout for 358 Late Models & Fireworks GA \$23 Y \$10
12-Jul	8:00	410 Sprints & United Racing Club EMMR Photo Shoot GA \$17 Y \$10
19-Jul	7:30	410 Sprints World of Outlaws Tune Up Hoosier Diamond Series/358 Sprints GA \$17 Y \$10
26-Jul	7:30	Champion Racing Oil Summer Nationals sanctioned by World of Outlaws Sprint Cars & Fireworks GA \$30 Y \$15
27-Jul	7:30	Champion Racing Oil Summer Nationals sanctioned by World of Outlaws Sprint Cars & Fireworks GA \$30 Y \$15
2-Aug	8:00	Billy Kimmel Memorial 410 Sprints Yellow Breeches 500 & 358 Sprints Summer Series GA \$16 Y \$10
9-Aug		NO RACING Y \$10
16-Aug	7:30	World of Outlaws Late Models \$10,000 to win/410 Sprints GA \$28 Y \$10
23-Aug	7:30	Union Quarries Presents the Jack Gunn Memorial All Star Sprints Twin 20's Hoosier Diamond Series/EMMR Track Time GA \$25 Y \$10
30-Aug	7:30	Keith Kauffman Tribute Race 410 Sprints Hoosier Diamond Series/United Racing Club /EMMR & Fireworks GA \$18 Y \$10
6-Sep		NO RACING Y \$10
		American Flat Track Williams Grove Half-Mile 9/7/2019
13-Sep	7:30	Dirt Classic Qualifier \$5,000 to win Hoosier Diamond Series / 410 Sprints & PASS IMCA Sprints GA \$18 Y \$10
20-Sep	8:00	410 Sprints Yellow Breeches 500 & 358 Sprints Summer Series GA \$16 Y \$10
27-Sep	7:30	410 Sprints World of Outlaws Tune Up Hoosier Diamond Series/358 Sprints GA \$17 Y \$10
4-Oct	7:30	Champion Racing Oil National Open Sanctioned by World of Outlaws Sprint Cars & Fireworks GA \$30 Y \$15
5-Oct	7:30	Champion Racing Oil National Open Sanctioned by World of Outlaws Sprint Cars & Fireworks Final Points Race GA \$35 Y \$20

Manual Turn Movement Data

Willows at Ashcombe Mansion

Grantham Road - Gettysburg Pike Friday PM

Weather: 80 Clear
 Serial #: TU-1610
 By: M Allen

File Name : 3
 Site Code : 01
 Start Date : 9/6/2019
 Page No : 1

Groups Printed- Passenger Veh - Heavy Veh - Bus

Start Time	Grantham Road From West				Gettysburg Pike From South				Gettysburg Pike From North				Int. Total
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	
03:30 PM	13	4	0	17	4	26	0	30	45	14	0	59	106
03:45 PM	8	5	0	13	6	24	0	30	37	24	0	61	104
Total	21	9	0	30	10	50	0	60	82	38	0	120	210
04:00 PM	16	2	0	18	3	24	0	27	45	13	0	58	103
04:15 PM	12	5	0	17	5	27	0	32	49	28	0	77	126
04:30 PM	15	3	0	18	3	34	0	37	53	31	1	85	140
04:45 PM	16	5	0	21	5	49	0	54	64	27	0	91	166
Total	59	15	0	74	16	134	0	150	211	99	1	311	535
05:00 PM	11	6	0	17	2	50	0	52	51	31	0	82	151
05:15 PM	11	4	0	15	3	27	0	30	71	30	0	101	146
05:30 PM	7	3	0	10	4	26	0	30	38	21	0	59	99
05:45 PM	15	7	0	22	5	29	0	34	53	30	0	83	139
Total	44	20	0	64	14	132	0	146	213	112	0	325	535
06:00 PM	12	5	0	17	4	20	0	24	29	17	0	46	87
06:15 PM	15	4	0	19	6	32	0	38	38	27	0	65	122
Grand Total	151	53	0	204	50	368	0	418	573	293	1	867	1489
Apprch %	74	26	0		12	88	0		66.1	33.8	0.1		
Total %	10.1	3.6	0	13.7	3.4	24.7	0	28.1	38.5	19.7	0.1	58.2	
Passenger Veh	151	53	0	204	50	368	0	418	571	293	1	865	1487
% Passenger Veh	100	100	0	100	100	100	0	100	99.7	100	100	99.8	99.9
Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	2	0	0	2	2
% Bus	0	0	0	0	0	0	0	0	0.3	0	0	0.2	0.1

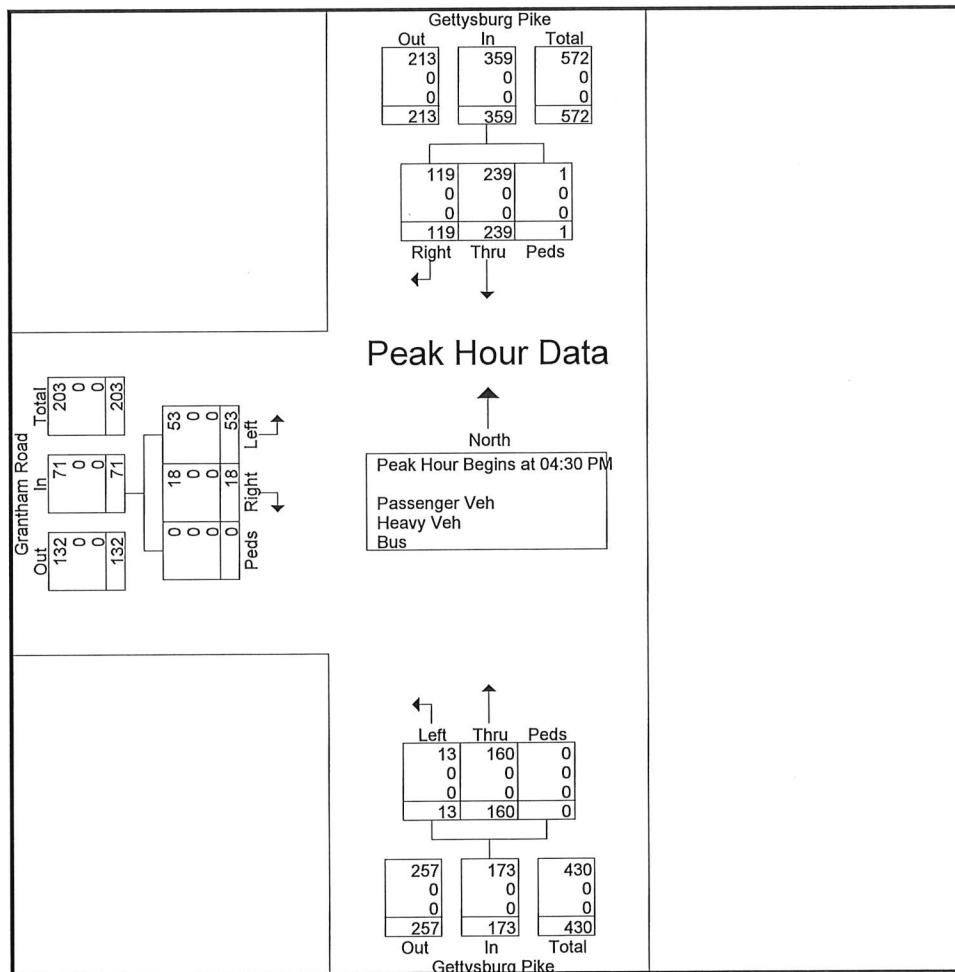
Willows at Ashcombe Mansion

Grantham Road - Gettysburg Pike Friday PM

Weather: 80 Clear
 Serial #: TU-1610
 By: M Allen

File Name : 3
 Site Code : 01
 Start Date : 9/6/2019
 Page No : 2

	Grantham Road From West				Gettysburg Pike From South				Gettysburg Pike From North				
Start Time	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 3:30:00 PM to 6:15:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 4:30:00 PM													
4:30:00 PM	15	3	0	18	3	34	0	37	53	31	1	85	140
4:45:00 PM	16	5	0	21	5	49	0	54	64	27	0	91	166
5:00:00 PM	11	6	0	17	2	50	0	52	51	31	0	82	151
5:15:00 PM	11	4	0	15	3	27	0	30	71	30	0	101	146
Total Volume	53	18	0	71	13	160	0	173	239	119	1	359	603
% App. Total	74.6	25.4	0		7.5	92.5	0		66.6	33.1	0.3		
PHF	.828	.750	.000	.845	.650	.800	.000	.801	.842	.960	.250	.889	.908
Passenger Veh	53	18	0	71	13	160	0	173	239	119	1	359	603
% Passenger Veh	100	100	0	100	100	100	0	100	100	100	100	100	100
Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0



Willows at Ashcombe Mansion

Grantham Road - Gettysburg Pike Saturday

Weather: 80 Clear
Serial # TU-1610
By: M Allen

File Name : 4
Site Code : 4
Start Date : 9/7/2019
Page No : 1

Groups Printed- Passenger Veh - Heavy Veh - Bus

[illegible]

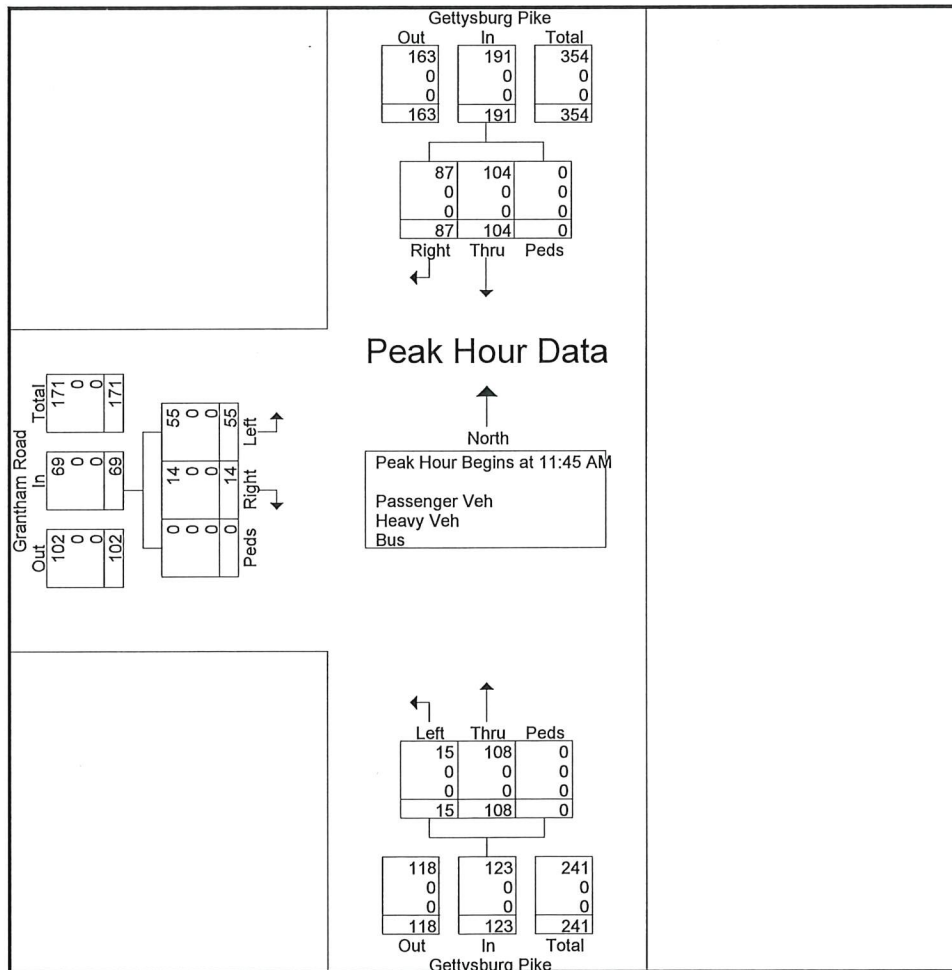
Willows at Ashcombe Mansion

Grantham Road - Gettysburg Pike Saturday

Weather: 80 Clear
 Serial # TU-1610
 By: M Allen

File Name : 4
 Site Code : 4
 Start Date : 9/7/2019
 Page No : 2

	Grantham Road From West				Gettysburg Pike From South				Gettysburg Pike From North				
Start Time	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00:00 AM to 1:45:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:45:00 AM													
11:45:00 AM	14	5	0	19	3	29	0	32	22	20	0	42	93
12:00:00 PM	10	4	0	14	6	30	0	36	28	25	0	53	103
12:15:00 PM	13	3	0	16	3	24	0	27	25	18	0	43	86
12:30:00 PM	18	2	0	20	3	25	0	28	29	24	0	53	101
Total Volume	55	14	0	69	15	108	0	123	104	87	0	191	383
% App. Total	79.7	20.3	0		12.2	87.8	0		54.5	45.5	0		
PHF	.764	.700	.000	.863	.625	.900	.000	.854	.897	.870	.000	.901	.930
Passenger Veh	55	14	0	69	15	108	0	123	104	87	0	191	383
% Passenger Veh	100	100	0	100	100	100	0	100	100	100	0	100	100
Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0



Willows at Ashcombe Mansion

Grantham Road - Retail Sites Friday PM

Weather: 40 Clear
 Serial # 1610
 By: Mark A.

File Name : 5
 Site Code : 05
 Start Date : 2/21/2020
 Page No : 1

Groups Printed- Vehicles

Start Time	Grantham Road From West			Grantham Road From East			Ashcombe Farms From South			TJ Rockwells From North			Int. Total
	Left	Right	App. Total	Left	Right	App. Total	Left	Right	App. Total	Left	Right	App. Total	
04:00 PM	2	0	2	2	8	10	1	1	2	1	0	1	15
04:15 PM	5	1	6	0	7	7	0	1	1	6	4	10	24
04:30 PM	3	1	4	5	3	8	1	0	1	6	4	10	23
04:45 PM	4	2	6	3	16	19	1	1	2	8	2	10	37
Total	14	4	18	10	34	44	3	3	6	21	10	31	99
05:00 PM	6	0	6	2	22	24	2	3	5	5	1	6	41
05:15 PM	8	0	8	3	12	15	0	4	4	6	2	8	35
05:30 PM	5	4	9	2	20	22	0	2	2	4	0	4	37
05:45 PM	6	1	7	5	16	21	1	3	4	14	5	19	51
Total	25	5	30	12	70	82	3	12	15	29	8	37	164
Grand Total	39	9	48	22	104	126	6	15	21	50	18	68	263
Apprch %	81.2	18.8		17.5	82.5		28.6	71.4		73.5	26.5		
Total %	14.8	3.4	18.3	8.4	39.5	47.9	2.3	5.7	8	19	6.8	25.9	

Willows at Ashcombe Mansion

Grantham Road - Retail Sites Saturday

Weather: 40 Clear
 Serial # 1610
 By: Mark A.

File Name : 6
 Site Code : 05
 Start Date : 2/22/2020
 Page No : 1

Groups Printed- Vehicles

Start Time	Grantham Road From West			Grantham Road From East			Ashcombe Farms From South			TJ Rockwells From North			Int. Total
	Left	Right	App. Total	Left	Right	App. Total	Left	Right	App. Total	Left	Right	App. Total	
11:00 AM	2	5	7	7	1	8	4	12	16	0	0	0	31
11:15 AM	1	4	5	14	2	16	2	9	11	0	1	1	33
11:30 AM	4	12	16	15	4	19	1	10	11	1	0	1	47
11:45 AM	5	6	11	10	10	20	12	9	21	2	1	3	55
Total	12	27	39	46	17	63	19	40	59	3	2	5	166
12:00 PM	7	6	13	12	14	26	5	11	16	2	2	4	59
12:15 PM	10	10	20	28	20	48	8	14	22	4	3	7	97
12:30 PM	8	7	15	15	26	41	10	15	25	7	2	9	90
12:45 PM	5	5	10	17	15	32	5	12	17	12	2	14	73
Total	30	28	58	72	75	147	28	52	80	25	9	34	319
Grand Total	42	55	97	118	92	210	47	92	139	28	11	39	485
Apprch %	43.3	56.7		56.2	43.8		33.8	66.2		71.8	28.2		
Total %	8.7	11.3	20	24.3	19	43.3	9.7	19	28.7	5.8	2.3	8	

Growth Rate & Volume Worksheets

Growth Factors for August 2019 to July 2020				
County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	0.93	0.73
ALLEGHENY	0.81	*	0.00	0.37
ARMSTRONG	0.79	*	0.00	0.36
BEAVER	0.73	1.93	0.00	0.33
BEDFORD	*	2.10	0.00	0.42
BERKS	1.10	2.41	0.20	0.57
BLAIR	0.75	1.91	0.00	0.36
BRADFORD	1.08	*	0.01	0.49
BUCKS	1.31	2.31	0.54	0.59
BUTLER	1.75	2.74	0.65	0.75
CAMBRIA	0.34	*	0.00	0.18
CAMERON	*	*	*	0.14
CARBON	1.30	2.58	0.33	0.62
CENTRE	1.49	2.53	0.65	0.68
CHESTER	1.70	2.99	0.52	0.80
CLARION	0.90	2.00	0.00	0.40
CLEARFIELD	0.93	2.06	0.00	0.42
CLINTON	0.88	2.21	0.00	0.45
COLUMBIA	1.14	2.25	0.30	0.54
CRAWFORD	0.89	1.96	0.03	0.42
CUMBERLAND	1.53	2.55	0.74	0.69
DAUPHIN	1.31	*	0.41	0.63
DELAWARE	0.93	*	0.00	*
ELK	*	*	0.00	0.29
ERIE	0.95	2.14	0.00	0.43
FAYETTE	0.77	*	0.00	0.38
FOREST	*	*	*	0.65
FRANKLIN	1.31	2.54	0.47	0.65
FULTON	*	2.10	*	0.50
GREENE	1.19	2.62	0.00	0.56
HUNTINGDON	*	1.91	0.00	0.37
INDIANA	1.17	*	0.11	0.52
JEFFERSON	*	2.11	0.00	0.42
JUNIATA	*	*	*	0.55
LACKAWANNA	0.78	2.27	0.00	0.42
LANCASTER	1.74	2.64	1.08	0.78
LAWRENCE	0.74	2.05	0.00	0.35
LEBANON	*	2.44	0.39	0.61
LEHIGH	1.54	2.86	0.43	0.73
LUZERNE	0.71	2.14	0.00	0.39
LYCOMING	0.96	2.16	0.00	0.45
MCKEAN	0.60	*	0.00	0.33
MERCER	0.63	1.96	0.00	0.33
MIFFLIN	0.73	*	0.00	0.37
MONROE	1.40	2.46	0.68	0.67
MONTGOMERY	1.17	*	0.28	0.57
MONTOUR	1.48	2.61	0.28	0.65
NORTHAMPTON	1.28	2.53	0.41	0.63
NORTHUMBERLAND	0.75	2.04	0.00	0.39
PERRY	*	*	0.92	0.63
PHILADELPHIA	0.69	*	0.00	*
PIKE	2.14	2.79	1.59	0.96
POTTER	*	*	*	0.46
SCHUYLKILL	0.58	1.89	0.00	0.33
SNYDER	1.15	*	0.35	0.55
SOMERSET	0.59	1.72	0.00	0.32
SULLIVAN	*	*	*	0.42
SUSQUEHANNA	1.11	2.23	0.27	0.53
TIOGA	*	*	*	0.48
UNION	1.52	2.42	0.82	0.69
VENANGO	*	1.67	0.00	0.28
WARREN	*	*	0.00	0.36
WASHINGTON	1.28	2.62	0.10	0.59
WAYNE	*	2.22	0.16	0.51
WESTMORELAND	0.89	2.05	0.00	0.40
WYOMING	*	*	0.00	0.43
YORK	1.34	2.53	0.54	0.66

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2018), as well as Woods and Poole demographic and economic data. The factors should be compounded when calculating future values. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.

Future Volume Work Sheet:

Ashcombe

318032

1

Upper Allen Township, Cumberland Co., PA

Study Year: 2019
 Growth Rate: 0.74
 Time Period: Weekday PM Peak Hour of the Street
 Intersection: Grantham Road SR2026 - Gettysburg Pike

		Grantham Road (SR 2026) EB			WB			Gettysburg Pike NB			Gettysburg Pike SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Study Year	2019	53		18				13	160			239	119
Opening Year	2021	54	0	18	0	0	0	13	162	0	0	243	121
Design Horizon Year	2031	58	0	20	0	0	0	14	175	0	0	261	130
Development Generation		6		1				5	0			0	54
With Development	2021	60	0	19	0	0	0	18	162	0	0	243	175
With Development	2031	64	0	21	0	0	0	19	175	0	0	261	184

Study Year: 2019
 Growth Rate: 0.74
 Time Period: Weekday SAT Peak Hour of the Street
 Intersection: Grantham Road SR2026 - Gettysburg Pike

		Grantham Road (SR 2026) EB			WB			Gettysburg Pike NB			Gettysburg Pike SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Study Year	2019	55		14				15	108			104	87
Opening Year	2021	56	0	14	0	0	0	15	110	0	0	106	88
Design Horizon Year	2031	60	0	15	0	0	0	16	118	0	0	114	95
Development Generation		5		1				8	0			0	47
With Development	2021	61	0	15	0	0	0	23	110	0	0	106	135
With Development	2031	65	0	16	0	0	0	24	118	0	0	114	142

Trip Generation Worksheets

(For Comparison Only)

Land Use: 320

Motel

Description

A motel is a place of lodging that provides sleeping accommodations and often a restaurant. Motels generally offer free on-site parking and provide little or no meeting space and few (if any) supporting facilities. Exterior corridors accessing rooms—immediately adjacent to a parking lot—commonly characterize motels. Hotel (Land Use 310), all suites hotel (Land Use 311), business hotel (Land Use 312), and resort hotel (Land Use 330) are related uses.

Additional Data

Typically, the average employment at motels is much lower than at hotels.

Sixteen studies provided information on occupancy rates at the time the studies were conducted. The average occupancy rate for these studies was approximately 82 percent.

Time-of-day distribution data for this land use are presented in Appendix A. For the four general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 5:30 and 6:30 a.m. and 5:15 and 6:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Florida, Indiana, New Jersey, New York, Oregon, South Dakota, and Texas.

For all lodging uses, it is important to collect data on occupied rooms as well as total rooms in order to accurately predict trip generation characteristics for the site.

Source Numbers

172, 187, 191, 277, 295, 300, 357, 439, 443, 598, 877, 915

Motel (320)

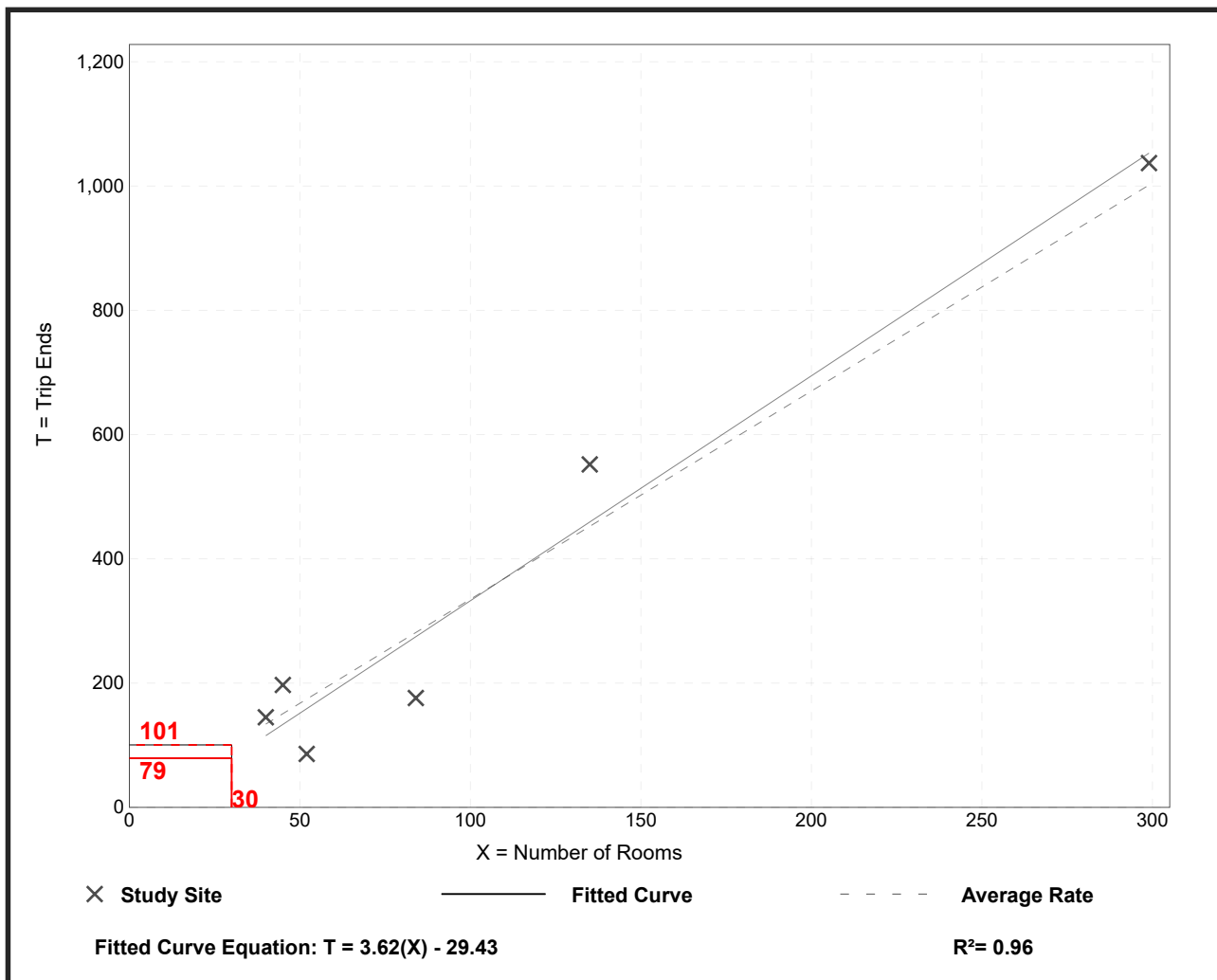
Vehicle Trip Ends vs: Rooms
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Rooms: 109
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
3.35	1.65 - 4.38	0.87

Data Plot and Equation



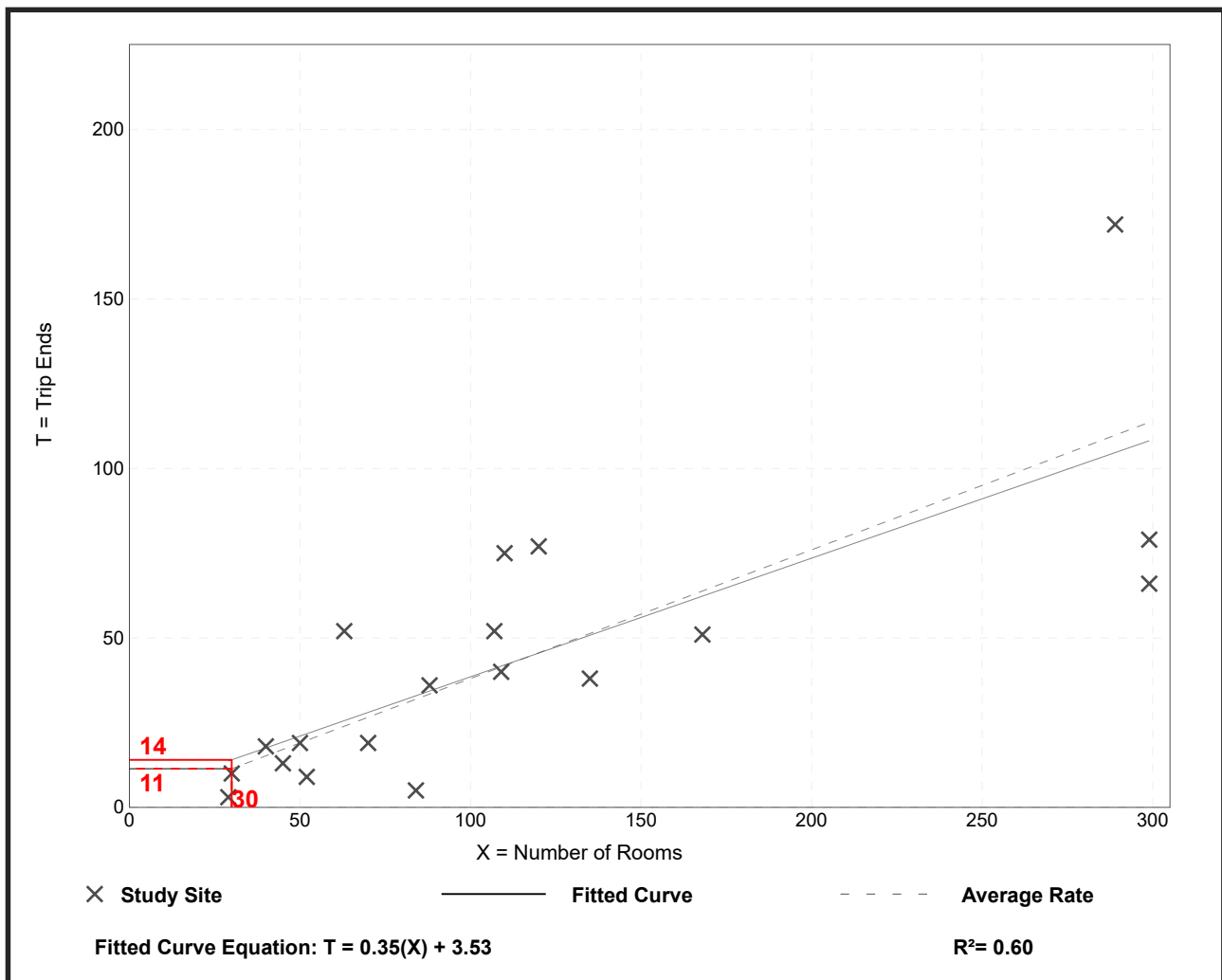
Motel (320)

Vehicle Trip Ends vs: Rooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 19
 Avg. Num. of Rooms: 115
 Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.38	0.06 - 0.83	0.19

Data Plot and Equation



Motel (320)

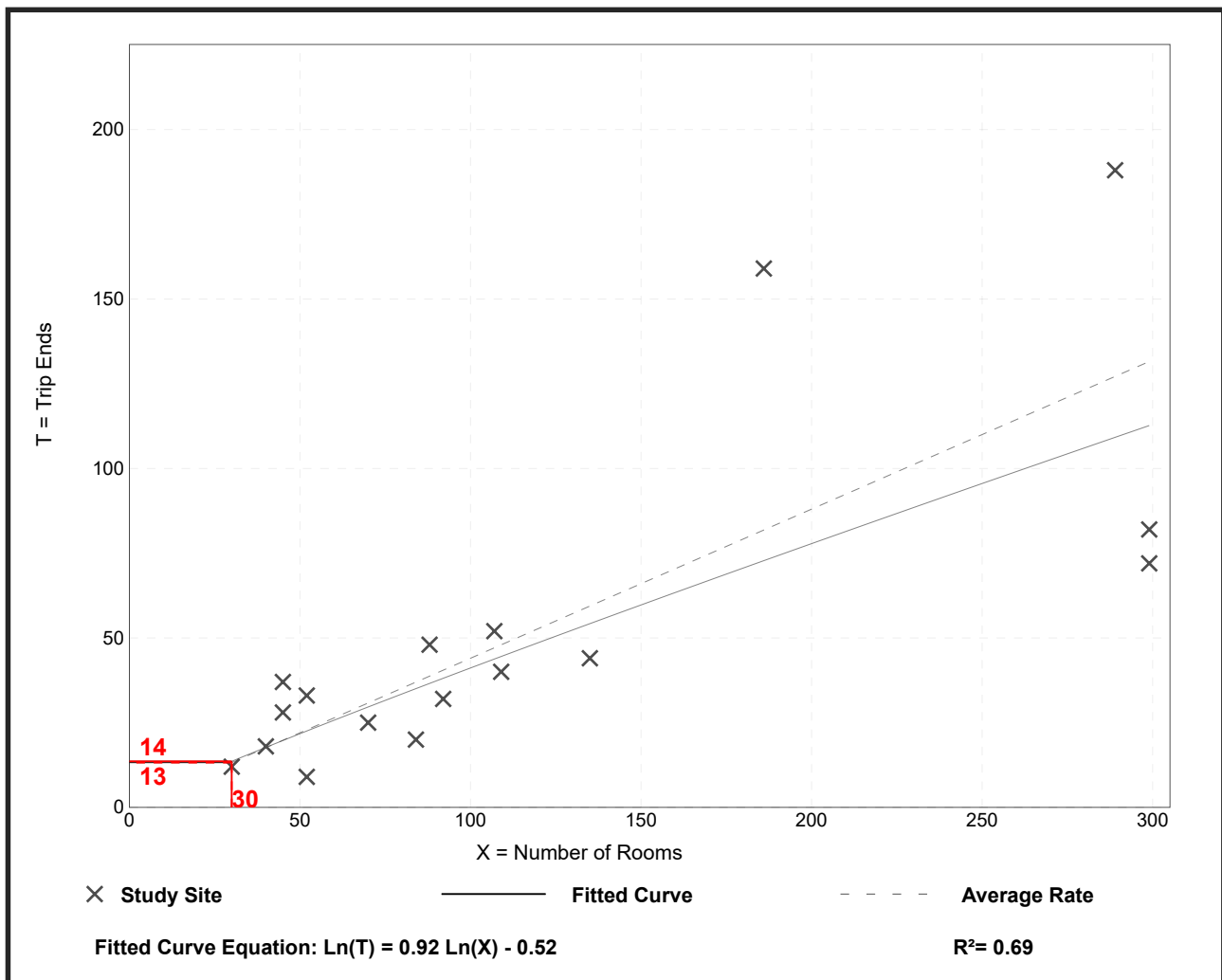
Vehicle Trip Ends vs: Rooms
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 17
Avg. Num. of Rooms: 119
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.44	0.17 - 0.85	0.21

Data Plot and Equation



Motel (320)

Vehicle Trip Ends vs: Occupied Rooms
On a: Saturday

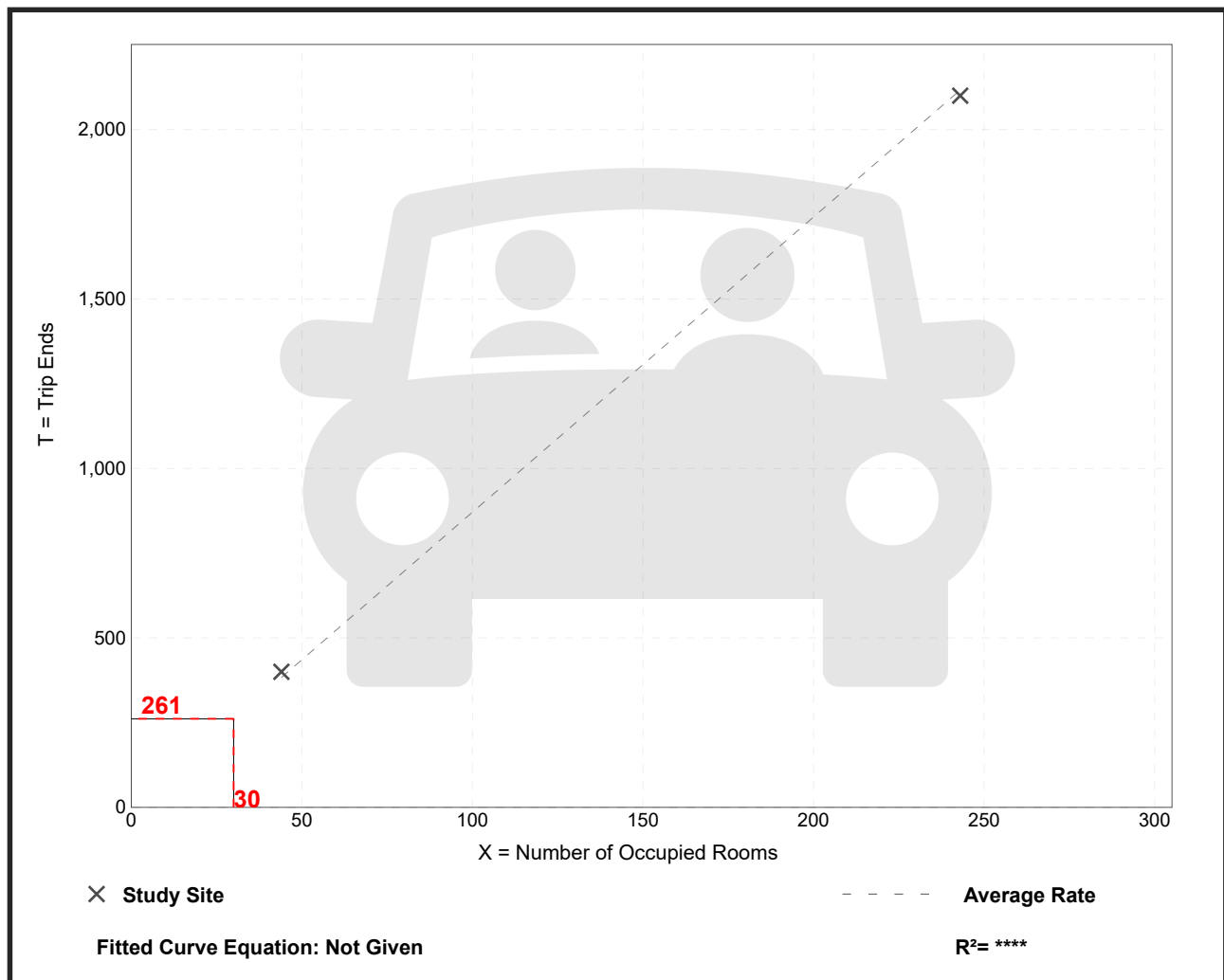
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Occupied Rooms: 144
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Occupied Room

Average Rate	Range of Rates	Standard Deviation
8.71	8.64 - 9.09	*

Data Plot and Equation

Caution – Small Sample Size



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Motel (320)

Vehicle Trip Ends vs: Occupied Rooms
On a: Saturday, Peak Hour of Generator

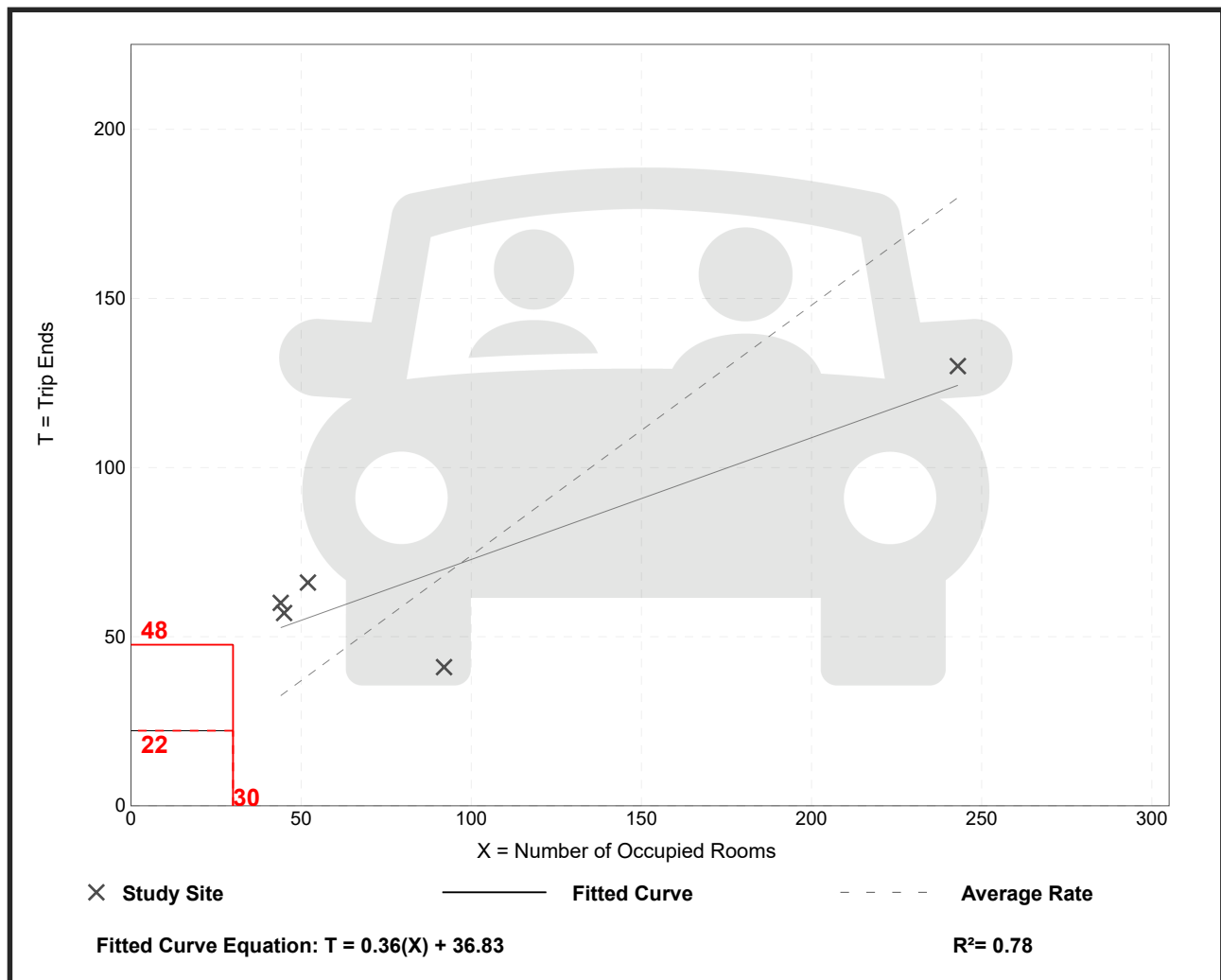
Setting/Location: General Urban/Suburban
 Number of Studies: 5
 Avg. Num. of Occupied Rooms: 95
 Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Occupied Room

Average Rate	Range of Rates	Standard Deviation
0.74	0.45 - 1.36	0.40

Data Plot and Equation

Caution – Small Sample Size



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Land Use: 931

Quality Restaurant

Description

This land use consists of high quality, full-service eating establishments with a typical duration of stay of at least one hour. Quality restaurants generally do not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires reservations and is generally not part of a chain. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for meals after they eat. While some of the study sites have lounge or bar facilities (serving alcoholic beverages), they are ancillary to the restaurant. Fast casual restaurant (Land Use 930) and high-turnover (sit-down) restaurant (Land Use 932) are related uses.

Additional Data

The outdoor seating area is not included in the overall gross floor area. Therefore, the number of seats may be a more reliable independent variable on which to establish trip generation rates for facilities having significant outdoor seating.

The sites were surveyed in the 1980s and the 1990s in Alberta (CAN), California, Colorado, Florida, Indiana, Kentucky, New Jersey, and Utah.

Source Numbers

126, 260, 291, 301, 338, 339, 368, 437, 440, 976

Quality Restaurant (931)

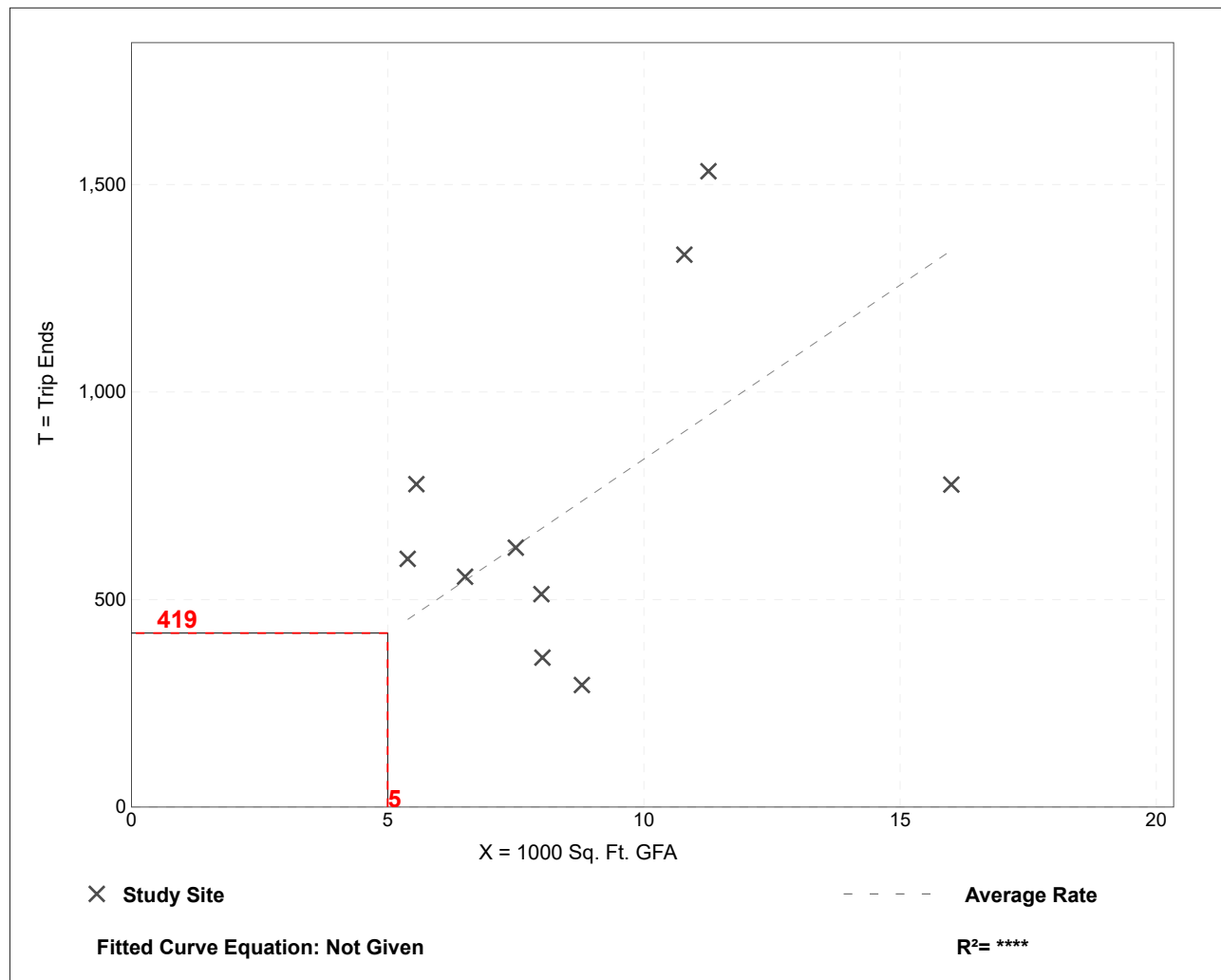
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
83.84	33.45 - 139.93	40.01

Data Plot and Equation



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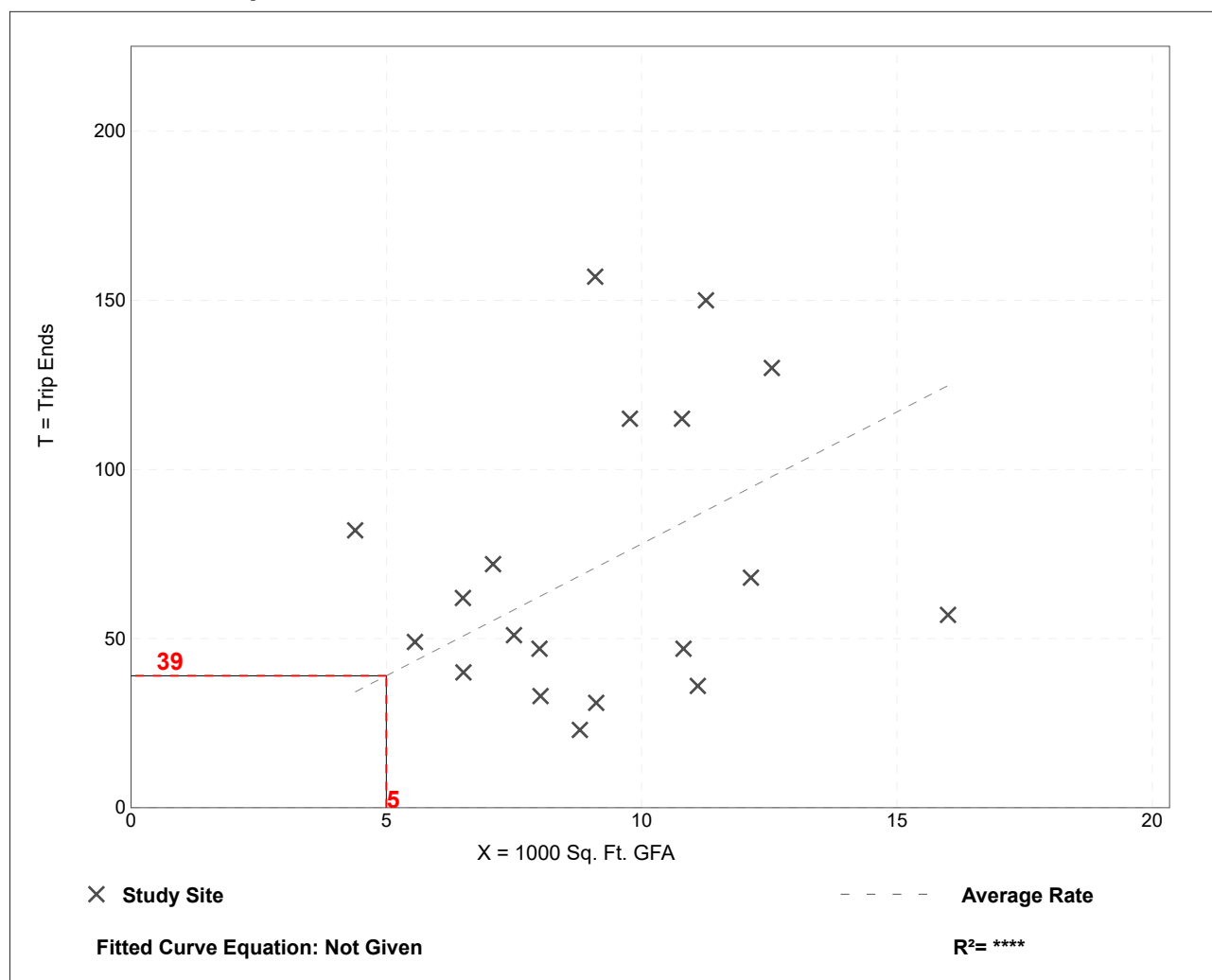
Quality Restaurant (931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 19
 Avg. 1000 Sq. Ft. GFA: 9
 Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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Quality Restaurant (931)

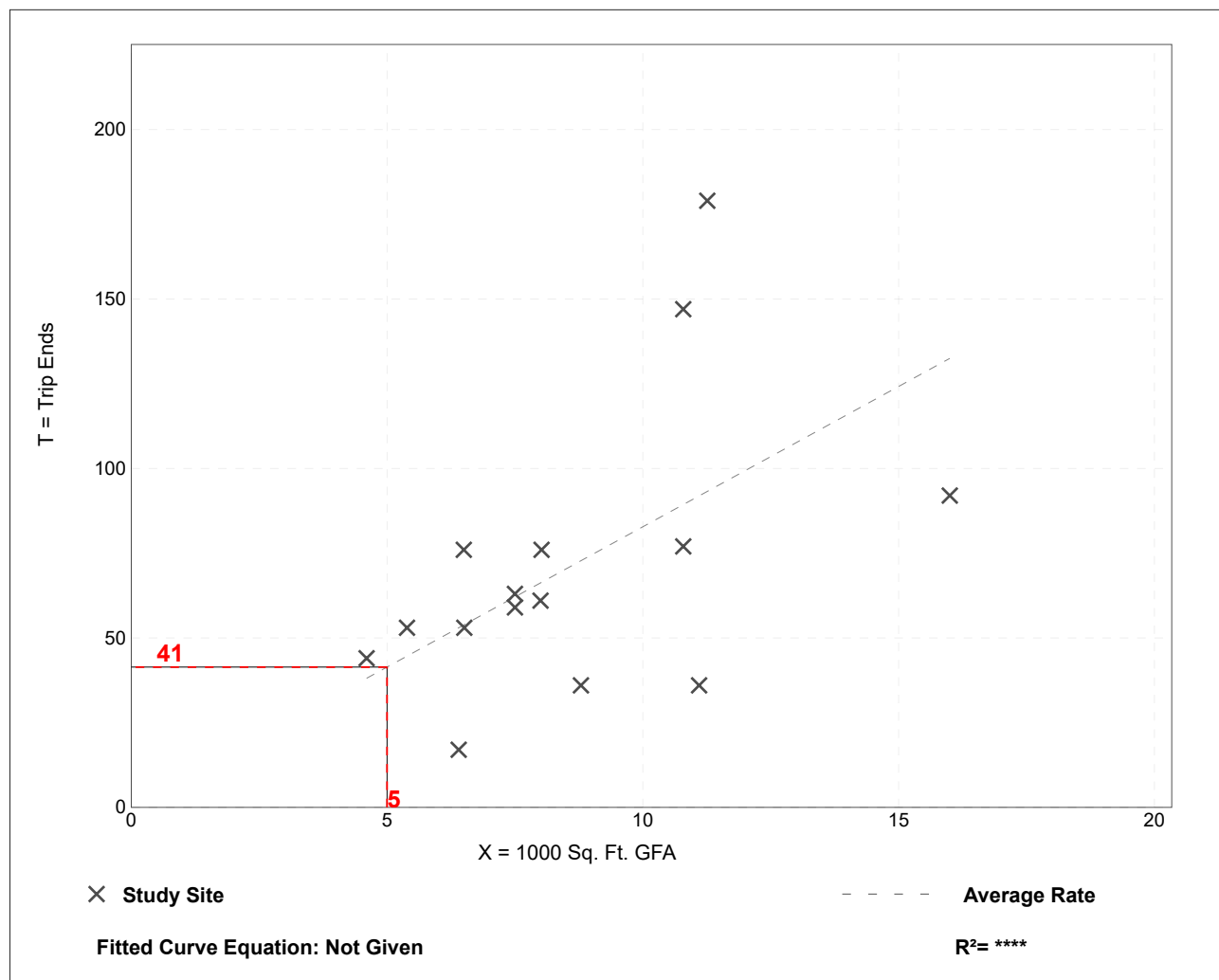
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
 Number of Studies: 15
 Avg. 1000 Sq. Ft. GFA: 9
 Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.28	2.66 - 15.90	3.89

Data Plot and Equation



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Quality Restaurant (931)

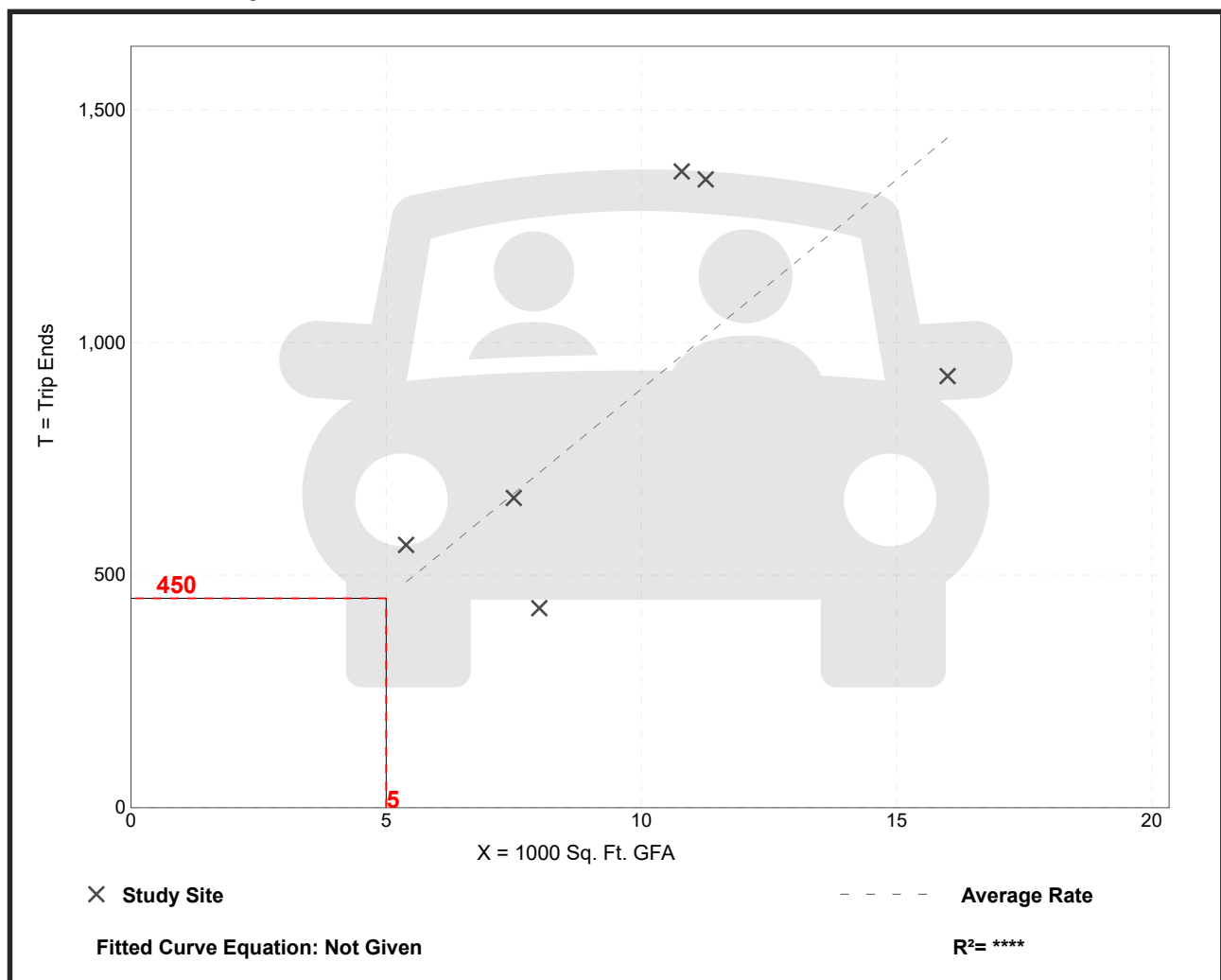
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
90.04	53.63 - 126.78	32.81

Data Plot and Equation



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Quality Restaurant (931)

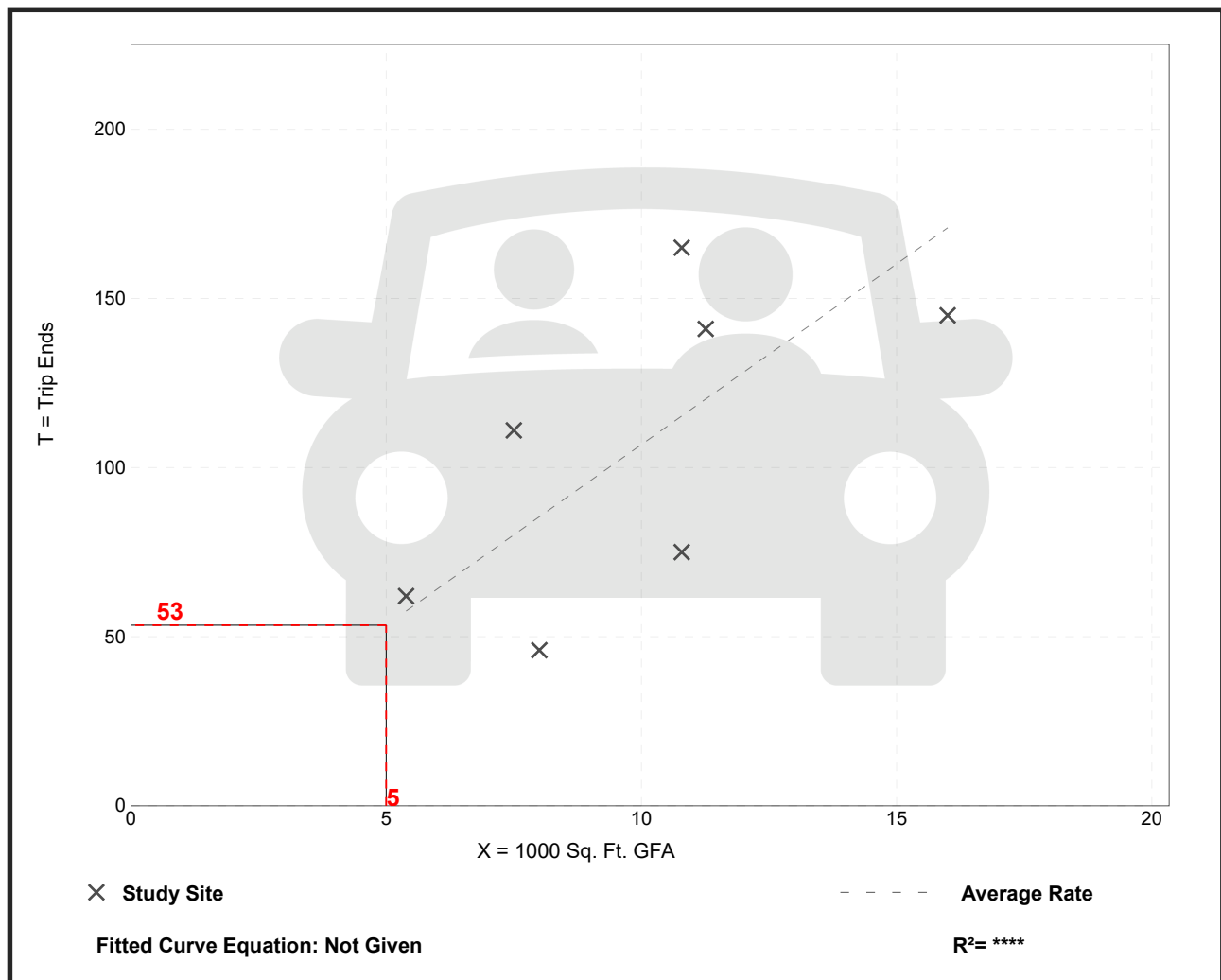
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
 Number of Studies: 7
 Avg. 1000 Sq. Ft. GFA: 10
 Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.68	5.75 - 15.29	3.62

Data Plot and Equation



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Quality Restaurant (931)

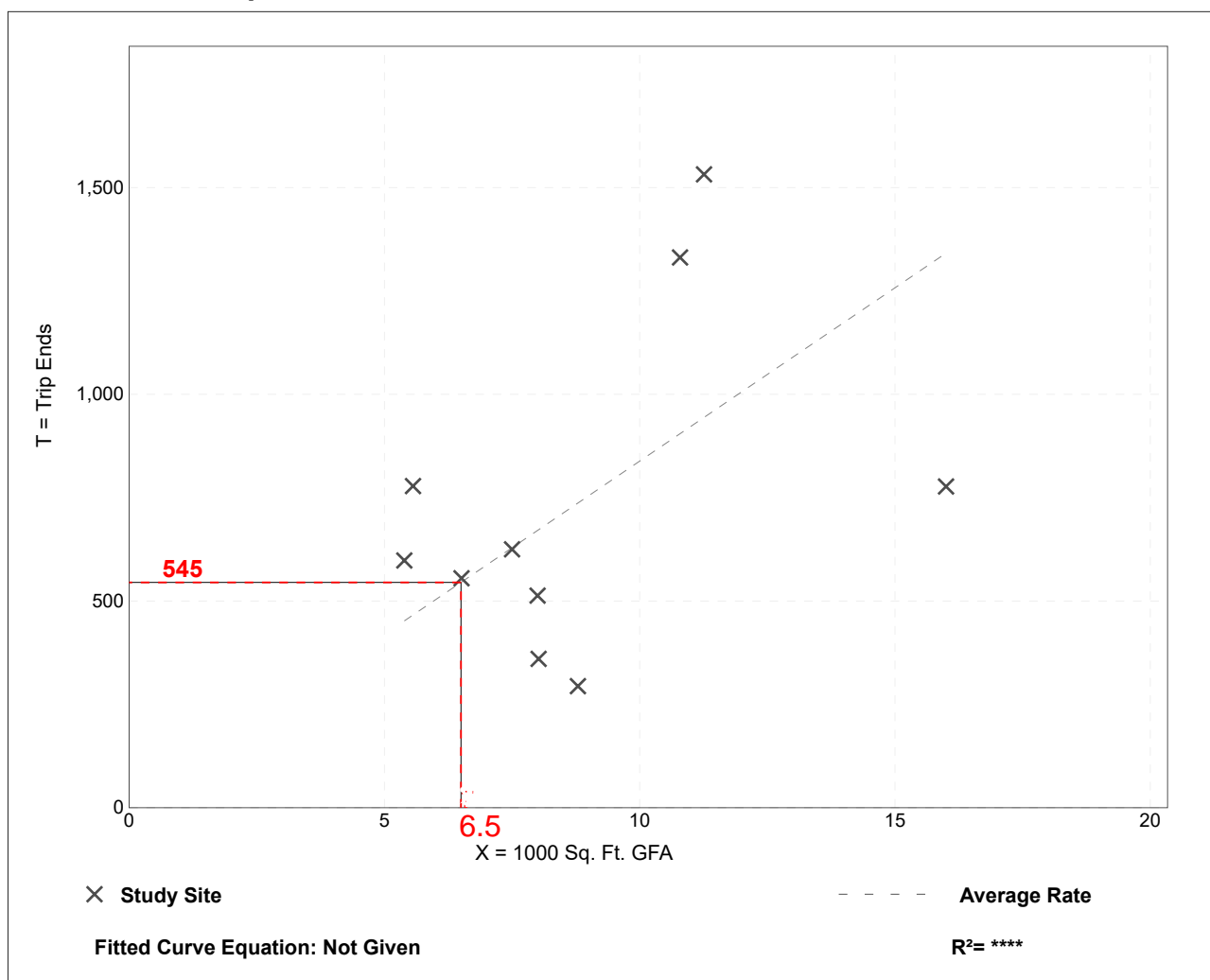
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
83.84	33.45 - 139.93	40.01

Data Plot and Equation



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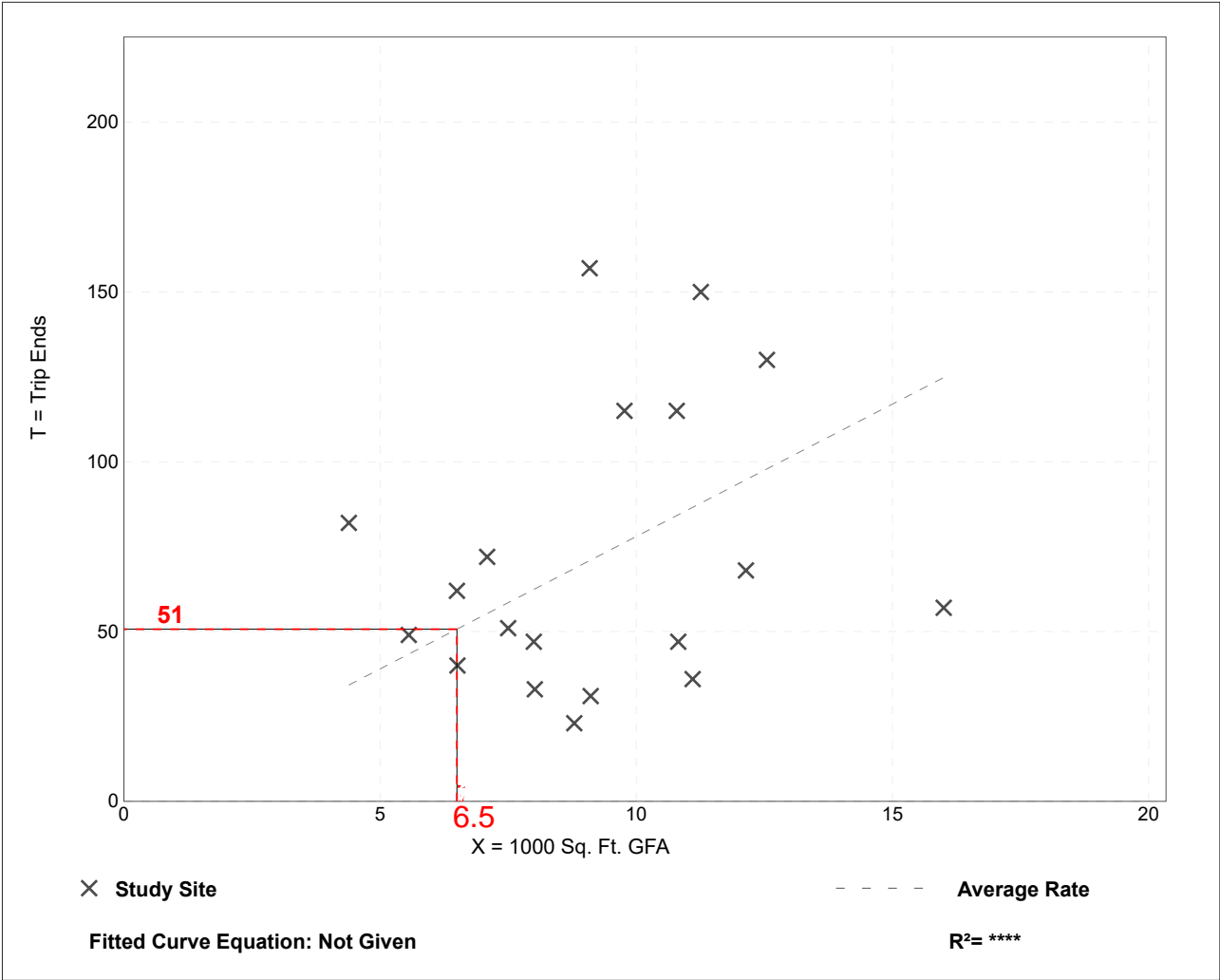
Quality Restaurant (931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 19
 Avg. 1000 Sq. Ft. GFA: 9
 Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



Quality Restaurant (931)

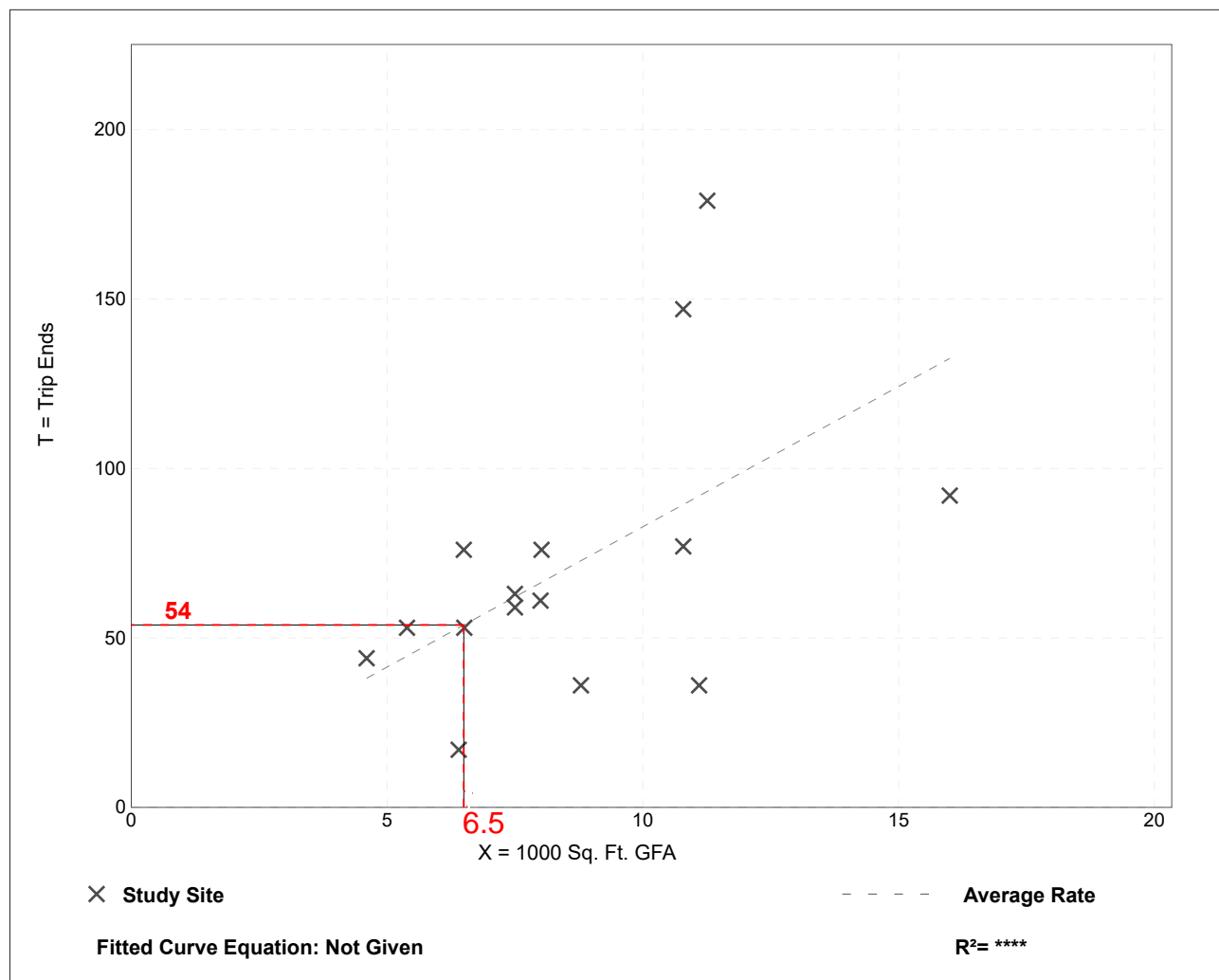
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
 Number of Studies: 15
 Avg. 1000 Sq. Ft. GFA: 9
 Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.28	2.66 - 15.90	3.89

Data Plot and Equation



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Quality Restaurant (931)

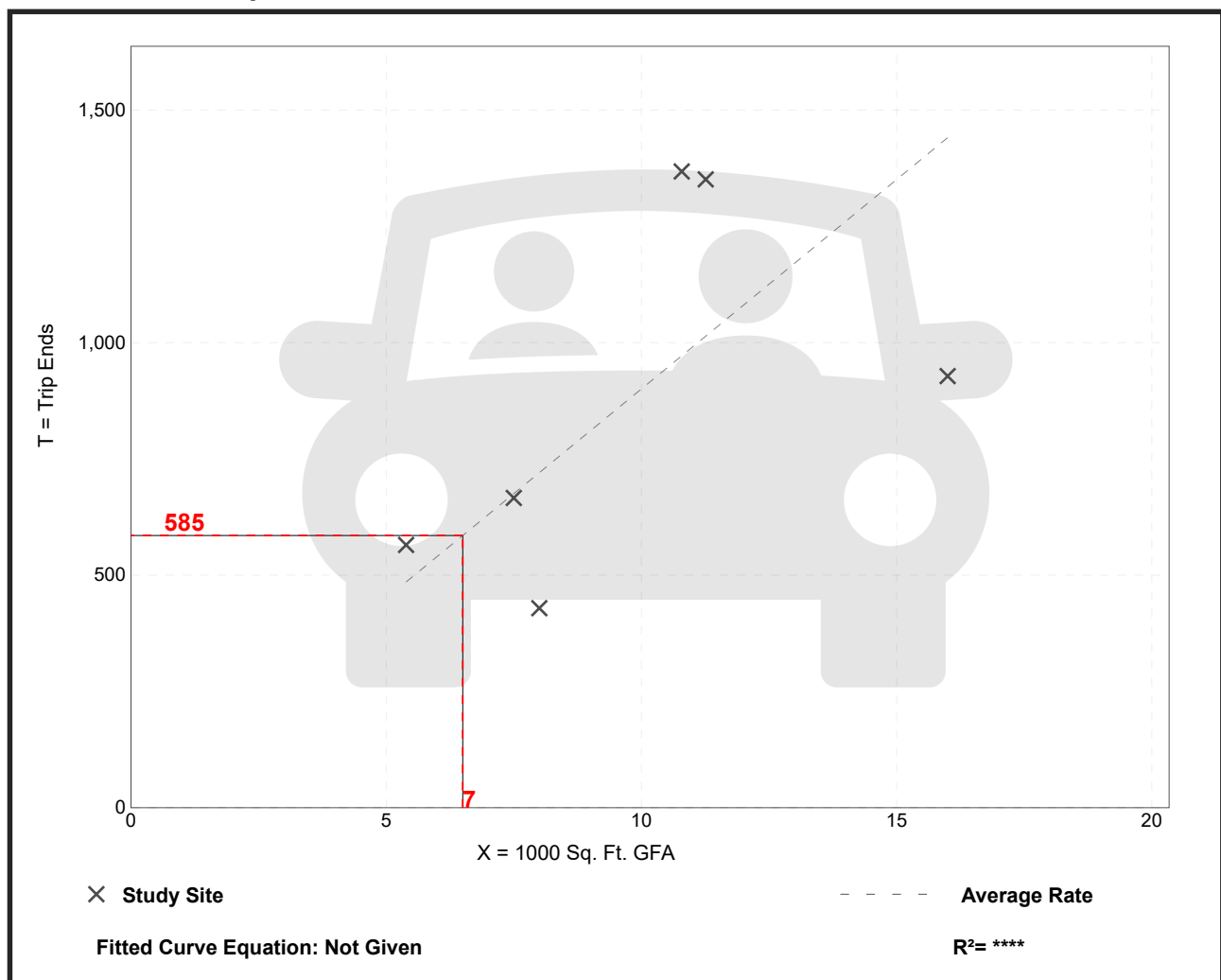
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
90.04	53.63 - 126.78	32.81

Data Plot and Equation



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Quality Restaurant (931)

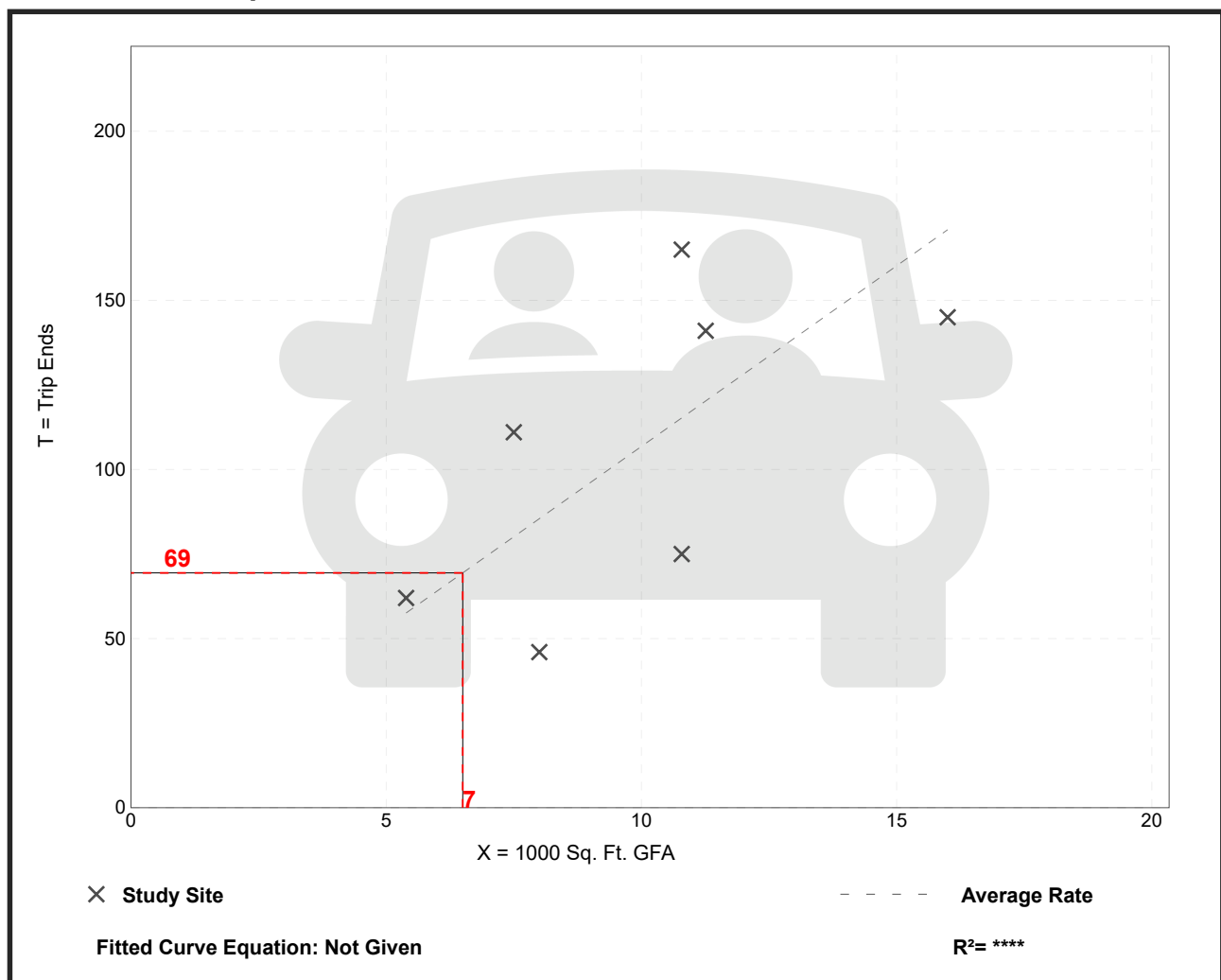
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
 Number of Studies: 7
 Avg. 1000 Sq. Ft. GFA: 10
 Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.68	5.75 - 15.29	3.62

Data Plot and Equation



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HCM Worksheets

2019 PM & SAT / 2021 Base PM & SAT Critical Headway

Intersection #			PennDOT Base Value	Hvy Veh Lane Factor	Hvy Veh %	Minor Street Grade Factor	Grade	T intersection Factor for Minor Street	Critical Headway for Movement
		Movement							
1	Major	EBL	4.3	1	0		1		4.3
		WBL					1		0.0
	Minor	SBL	7.1	1	0	0.2	0	0.7	6.4
		SBR	6.2	1	0	0.1	0		6.2
2	Major	EBL	4.3	1	0		-1		4.3
		WBL							0.0
	Minor	SBL	7.1	1	0	0.2	1	0.7	6.6
		SBR	6.2	1	0	0.1	1		6.3

2021 Build PM & SAT Critical Headway

Intersection #			PennDOT Base Value	Hvy Veh Lane Factor	Hvy Veh %	Minor Street Grade Factor	Grade	T intersection Factor for Minor Street	Critical Headway for Movement
		Movement							
1	Major	EBL	4.3	1	2		1		4.3
		WBL					1		0.0
	Minor	SBL	7.1	1	2	0.2	0	0.7	6.4
		SBR	6.2	1	2	0.1	0		6.2
2	Major	EBL	4.3	1	2		-1		4.3
		WBL							0.0
	Minor	SBL	7.1	1	2	0.2	1	0.7	6.6
		SBR	6.2	1	2	0.1	1		6.3

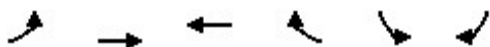
2019 PM & SAT / 2021 Base PM & SAT - Follow-up Headway						
Intersection #			PennDOT Base Value	Lane Factor	Hvy Veh %	Follow-up Headway for Movement
		Movement				
1	Major	EBL	3.0	0.9	0	3.0
		WBL				
	Minor	SBL	3.0	0.9	0	3.0
		SBR	3.1	0.9	0	3.1
2	Major	EBL	3.0	0.9	0	3.0
		WBL				
	Minor	SBL	3.0	0.9	0	3.0
		SBR	3.1	0.9	0	3.1

2021 Build PM & SAT - Follow-up Headway						
Intersection #			PennDOT Base Value	Lane Factor	Hvy Veh %	Follow-up Headway for Movement
		Movement				
1	Major	EBL	3.0	0.9	2	3.0
		WBL				
	Minor	SBL	3.0	0.9	2	3.0
		SBR	3.1	0.9	2	3.1
2	Major	EBL	3.0	0.9	2	3.0
		WBL				
	Minor	SBL	3.0	0.9	2	3.0
		SBR	3.1	0.9	2	3.1

2019 Baseline Scenario PM Peak Hour

Lanes, Volumes, Timings
2: Grantham Rd & Ex. Driveway

2019 Baseline Year
(Baseline Scenario) Friday PM Peak Hour Street












Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	71	132	0	0	0
Future Volume (vph)	0	71	132	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1782	1791	0	1764	0
Flt Permitted						
Satd. Flow (perm)	0	1782	1791	0	1764	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		2248	569		412	
Travel Time (s)		43.8	11.1		11.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	74	138	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	74	138	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 10.3% ICU Level of Service A
Analysis Period (min) 15


Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2019 Baseline Year
(Baseline Scenario) Friday PM Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	53	18	13	160	239	119
Future Volume (vph)	53	18	13	160	239	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.965				0.955	
Flt Protected	0.964			0.996		
Satd. Flow (prot)	1608	0	0	1811	1684	0
Flt Permitted	0.964			0.996		
Satd. Flow (perm)	1608	0	0	1811	1684	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	1471	
Travel Time (s)	11.1			16.8	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	58	20	14	176	263	131
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	0	0	190	394	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2019 Baseline Year
(Baseline Scenario) Friday PM Peak Hour Street

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	71	132	0	0	0
Future Vol, veh/h	0	71	132	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	74	138	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	138	0	-	0	212	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	74	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1077	-	-	-	888	967
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	1103	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1077	-	-	-	888	967
Mov Cap-2 Maneuver	-	-	-	-	888	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	1103	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1077	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2019 Baseline Year
(Baseline Scenario) Friday PM Peak Hour Street

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	18	13	160	239	119
Future Vol, veh/h	53	18	13	160	239	119
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	58	20	14	176	263	131
Number of Lanes	1	0	0	1	1	0

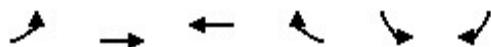
Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	8.9	10.4
HCM LOS	A	A	B




Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	8%	75%	0%
Vol Thru, %	92%	0%	67%
Vol Right, %	0%	25%	33%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	173	71	358
LT Vol	13	53	0
Through Vol	160	0	239
RT Vol	0	18	119
Lane Flow Rate	190	78	393
Geometry Grp	1	1	1
Degree of Util (X)	0.238	0.111	0.449
Departure Headway (Hd)	4.506	5.128	4.111
Convergence, Y/N	Yes	Yes	Yes
Cap	798	698	877
Service Time	2.529	3.166	2.128
HCM Lane V/C Ratio	0.238	0.112	0.448
HCM Control Delay	8.9	8.8	10.4
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.9	0.4	2.4

2021 Opening Year No Build Scenario PM Peak Hour

Lanes, Volumes, Timings
2: Grantham Rd & Ex. Driveway










2021 Opening Year
(No Build Scenario) Friday PM Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	72	134	0	0	0
Future Volume (vph)	0	72	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1782	1791	0	1764	0
Flt Permitted						
Satd. Flow (perm)	0	1782	1791	0	1764	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		2248	569		412	
Travel Time (s)		43.8	11.1		11.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	75	140	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	75	140	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	10.4%			ICU Level of Service A		
Analysis Period (min)	15					



Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(No Build Scenario) Friday PM Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	54	18	13	162	243	121
Future Volume (vph)	54	18	13	162	243	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.955	
Flt Protected	0.964			0.996		
Satd. Flow (prot)	1610	0	0	1811	1684	0
Flt Permitted	0.964			0.996		
Satd. Flow (perm)	1610	0	0	1811	1684	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	1471	
Travel Time (s)	11.1			16.8	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	59	20	14	178	267	133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	0	0	192	400	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2021 Opening Year
(No Build Scenario) Friday PM Peak Hour Street

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	72	134	0	0	0
Future Vol, veh/h	0	72	134	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	75	140	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	140	0	-	0	215	140
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	75	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1076	-	-	-	884	965
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1102	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1076	-	-	-	884	965
Mov Cap-2 Maneuver	-	-	-	-	884	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1102	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1076	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(No Build Scenario) Friday PM Peak Hour Street

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	18	13	162	243	121
Future Vol, veh/h	54	18	13	162	243	121
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	20	14	178	267	133
Number of Lanes	1	0	0	1	1	0

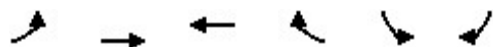
Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	9	10.6
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	7%	75%	0%
Vol Thru, %	93%	0%	67%
Vol Right, %	0%	25%	33%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	175	72	364
LT Vol	13	54	0
Through Vol	162	0	243
RT Vol	0	18	121
Lane Flow Rate	192	79	400
Geometry Grp	1	1	1
Degree of Util (X)	0.241	0.113	0.457
Departure Headway (Hd)	4.515	5.15	4.115
Convergence, Y/N	Yes	Yes	Yes
Cap	796	695	876
Service Time	2.54	3.188	2.135
HCM Lane V/C Ratio	0.241	0.114	0.457
HCM Control Delay	9	8.8	10.6
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.9	0.4	2.4

2021 Opening Year Build Scenario PM Peak Hour

Lanes, Volumes, Timings
1: Grantham Rd & Site Driveway 1

2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	72	135	0	4	1
Future Volume (vph)	20	72	135	0	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		1%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.973	
Flt Protected		0.989			0.962	
Satd. Flow (prot)	0	1711	1730	0	1744	0
Flt Permitted		0.989			0.962	
Satd. Flow (perm)	0	1711	1730	0	1744	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		1850	398		472	
Travel Time (s)		36.0	7.8		12.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	80	150	0	4	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	102	150	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.10	1.10	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

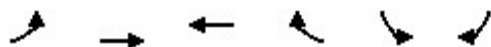
Intersection Capacity Utilization 25.3% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings

2: Grantham Rd & Ex. Driveway

2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	76	134	59	3	1
Future Volume (vph)	0	76	134	59	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.959		0.966	
Flt Protected					0.964	
Satd. Flow (prot)	0	1747	1684	0	1611	0
Flt Permitted					0.964	
Satd. Flow (perm)	0	1747	1684	0	1611	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		398	569		412	
Travel Time (s)		7.8	11.1		11.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	79	140	61	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	79	201	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other










Control Type: Unsignalized

Intersection Capacity Utilization 20.6% ICU Level of Service A

Analysis Period (min) 15




Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	19	18	162	243	175
Future Volume (vph)	60	19	18	162	243	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.967				0.944	
Flt Protected	0.963			0.995		
Satd. Flow (prot)	1610	0	0	1809	1664	0
Flt Permitted	0.963			0.995		
Satd. Flow (perm)	1610	0	0	1809	1664	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	406	
Travel Time (s)	11.1			16.8	7.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	66	21	20	178	267	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	0	198	459	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Grantham Rd & Site Driveway 1

2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	72	135	0	4	1
Future Vol, veh/h	20	72	135	0	4	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	1	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	80	150	0	4	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	150	0	-	0	274	150
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1067	-	-	-	823	955
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	1048	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1067	-	-	-	805	955
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	1048	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.8	0		9.4		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1067	-	-	-	831	
HCM Lane V/C Ratio	0.021	-	-	-	0.007	
HCM Control Delay (s)	8.4	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0	

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	76	134	59	3	1
Future Vol, veh/h	0	76	134	59	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	79	140	61	3	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	201	0	-	0	250	171
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	4.3	-	-	-	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.62	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1025	-	-	-	839	925
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	1096	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1025	-	-	-	839	925
Mov Cap-2 Maneuver	-	-	-	-	839	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	1096	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9.2		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1025	-	-	-	859	
HCM Lane V/C Ratio	-	-	-	-	0.005	
HCM Control Delay (s)	0	-	-	-	9.2	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(Build Scenario) Friday PM Peak Hour Street

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	19	18	162	243	175
Future Vol, veh/h	60	19	18	162	243	175
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	66	21	20	178	267	192
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.1	9.2	11.6
HCM LOS	A	A	B

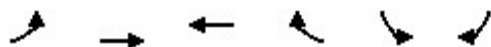
Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	10%	76%	0%
Vol Thru, %	90%	0%	58%
Vol Right, %	0%	24%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	180	79	418
LT Vol	18	60	0
Through Vol	162	0	243
RT Vol	0	19	175
Lane Flow Rate	198	87	459
Geometry Grp	1	1	1
Degree of Util (X)	0.253	0.127	0.523
Departure Headway (Hd)	4.604	5.283	4.101
Convergence, Y/N	Yes	Yes	Yes
Cap	779	676	882
Service Time	2.634	3.333	2.122
HCM Lane V/C Ratio	0.254	0.129	0.52
HCM Control Delay	9.2	9.1	11.6
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1	0.4	3.1




2019 Baseline Scenario SATURDAY Peak Hour

Lanes, Volumes, Timings

2: Grantham Rd & Ex. Driveway










2019 Baseline Year
(Baseline Scenario) Saturday Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	69	102	0	0	0
Future Volume (vph)	0	69	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1782	1791	0	1764	0
Flt Permitted						
Satd. Flow (perm)	0	1782	1791	0	1764	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		2248	569		412	
Travel Time (s)		43.8	11.1		11.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	76	112	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	112	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	8.7%			ICU Level of Service A		
Analysis Period (min)	15					




Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2019 Baseline Year
(Baseline Scenario) Saturday Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	14	15	108	104	87
Future Volume (vph)	55	14	15	108	104	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.938	
Flt Protected	0.962			0.994		
Satd. Flow (prot)	1618	0	0	1807	1654	0
Flt Permitted	0.962			0.994		
Satd. Flow (perm)	1618	0	0	1807	1654	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	1471	
Travel Time (s)	11.1			16.8	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	59	15	16	116	112	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	0	132	206	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2019 Baseline Year
(Baseline Scenario) Saturday Peak Hour Street

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	102	0	0	0
Future Vol, veh/h	0	69	102	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	76	112	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	112	0	-	0	188	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1099	-	-	-	918	1001
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1100	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	918	1001
Mov Cap-2 Maneuver	-	-	-	-	918	-
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1100	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1099	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	-	0
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	-

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2019 Baseline Year
(Baseline Scenario) Saturday Peak Hour Street

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	14	15	108	104	87
Future Vol, veh/h	55	14	15	108	104	87
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	59	15	16	116	112	94
Number of Lanes	1	0	0	1	1	0

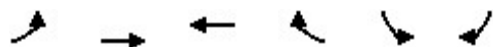
Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.1	8.1	8.1
HCM LOS	A	A	A




Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	80%	0%
Vol Thru, %	88%	0%	54%
Vol Right, %	0%	20%	46%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	123	69	191
LT Vol	15	55	0
Through Vol	108	0	104
RT Vol	0	14	87
Lane Flow Rate	132	74	205
Geometry Grp	1	1	1
Degree of Util (X)	0.155	0.096	0.22
Departure Headway (Hd)	4.212	4.647	3.858
Convergence, Y/N	Yes	Yes	Yes
Cap	839	776	914
Service Time	2.306	2.647	1.951
HCM Lane V/C Ratio	0.157	0.095	0.224
HCM Control Delay	8.1	8.1	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.3	0.8

2021 Opening Year No Build Scenario
SATURDAY Peak Hour

Lanes, Volumes, Timings
2: Grantham Rd & Ex. Driveway










2021 Opening Year
(No Build Scenario) Saturday Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	70	103	0	0	0
Future Volume (vph)	0	70	103	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1782	1791	0	1764	0
Flt Permitted						
Satd. Flow (perm)	0	1782	1791	0	1764	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		2248	569		412	
Travel Time (s)		43.8	11.1		11.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	77	113	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	77	113	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	8.8%			ICU Level of Service A		
Analysis Period (min)	15					



Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(No Build Scenario) Saturday Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	14	15	110	106	88
Future Volume (vph)	56	14	15	110	106	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.939	
Flt Protected	0.962			0.994		
Satd. Flow (prot)	1618	0	0	1807	1656	0
Flt Permitted	0.962			0.994		
Satd. Flow (perm)	1618	0	0	1807	1656	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	1471	
Travel Time (s)	11.1			16.8	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	60	15	16	118	114	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	0	134	209	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2021 Opening Year
(No Build Scenario) Saturday Peak Hour Street

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	70	103	0	0	0
Future Vol, veh/h	0	70	103	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	77	113	0	0	0
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	113	0	-	0	190	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1099	-	-	-	916	1000
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1099	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	916	1000
Mov Cap-2 Maneuver	-	-	-	-	916	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1099	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1099	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	-	-	0	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	-	

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(No Build Scenario) Saturday Peak Hour Street

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	14	15	110	106	88
Future Vol, veh/h	56	14	15	110	106	88
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	15	16	118	114	95
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.2	8.1	8.1
HCM LOS	A	A	A

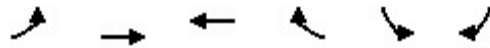
Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	12%	80%	0%
Vol Thru, %	88%	0%	55%
Vol Right, %	0%	20%	45%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	70	194
LT Vol	15	56	0
Through Vol	110	0	106
RT Vol	0	14	88
Lane Flow Rate	134	75	209
Geometry Grp	1	1	1
Degree of Util (X)	0.157	0.097	0.224
Departure Headway (Hd)	4.215	4.66	3.862
Convergence, Y/N	Yes	Yes	Yes
Cap	837	774	914
Service Time	2.311	2.66	1.955
HCM Lane V/C Ratio	0.16	0.097	0.229
HCM Control Delay	8.1	8.2	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.9

2021 Opening Year Build Scenario

SATURDAY Peak Hour

Lanes, Volumes, Timings
1: Grantham Rd & Site Driveway 1

2021 Opening Year
(Build Scenario) Saturday Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	70	104	0	4	2
Future Volume (vph)	24	70	104	0	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		1%	1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.955	
Flt Protected		0.987			0.968	
Satd. Flow (prot)	0	1707	1730	0	1722	0
Flt Permitted		0.987			0.968	
Satd. Flow (perm)	0	1707	1730	0	1722	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		1850	398		472	
Travel Time (s)		36.0	7.8		12.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	78	116	0	4	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	105	116	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.10	1.10	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

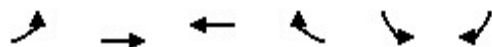
Control Type: Unsignalized

Intersection Capacity Utilization 21.7% ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
2: Grantham Rd & Ex. Driveway

2021 Opening Year
(Build Scenario) Saturday Peak Hour Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	74	103	55	2	1
Future Volume (vph)	0	74	103	55	2	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		-1%	-2%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.953		0.955	
Flt Protected					0.968	
Satd. Flow (prot)	0	1747	1673	0	1599	0
Flt Permitted					0.968	
Satd. Flow (perm)	0	1747	1673	0	1599	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		398	569		412	
Travel Time (s)		7.8	11.1		11.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	81	113	60	2	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	81	173	0	3	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.08	1.08	1.10	1.10
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other










Control Type: Unsignalized

Intersection Capacity Utilization 18.8% ICU Level of Service A

Analysis Period (min) 15




Lanes, Volumes, Timings
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(Build Scenario) Saturday Peak Hour Street

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	61	15	23	110	106	135
Future Volume (vph)	61	15	23	110	106	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	11	11	11	11
Grade (%)	5%			2%	8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974				0.924	
Flt Protected	0.961			0.991		
Satd. Flow (prot)	1618	0	0	1802	1629	0
Flt Permitted	0.961			0.991		
Satd. Flow (perm)	1618	0	0	1802	1629	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	569			863	406	
Travel Time (s)	11.1			16.8	7.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	66	16	25	118	114	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	0	143	259	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	10			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.06	1.06	1.10	1.10
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Grantham Rd & Site Driveway 1

2021 Opening Year
(Build Scenario) Saturday Peak Hour Street

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	70	104	0	4	2
Future Vol, veh/h	24	70	104	0	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	1	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	78	116	0	4	2
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	116	0	-	0	248	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	132	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	6.4	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1096	-	-	-	854	999
Stage 1	-	-	-	-	1024	-
Stage 2	-	-	-	-	1039	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1096	-	-	-	832	999
Mov Cap-2 Maneuver	-	-	-	-	832	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	1039	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.1	0		9.1		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1096	-	-	-	881	
HCM Lane V/C Ratio	0.024	-	-	-	0.008	
HCM Control Delay (s)	8.4	0	-	-	9.1	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0	

HCM 6th TWSC
2: Grantham Rd & Ex. Driveway




2021 Opening Year
(Build Scenario) Saturday Peak Hour Street

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	74	103	55	2	1
Future Vol, veh/h	0	74	103	55	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-2	-	1	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	81	113	60	2	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	173	0	-	0	224	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	81	-
Critical Hdwy	4.3	-	-	-	6.62	6.32
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	5.62	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1048	-	-	-	871	960
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	1094	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1048	-	-	-	871	960
Mov Cap-2 Maneuver	-	-	-	-	871	-
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	1094	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1048	-	-	-	-	899
HCM Lane V/C Ratio	-	-	-	-	-	0.004
HCM Control Delay (s)	0	-	-	-	-	9
HCM Lane LOS	A	-	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

HCM 6th AWSC
4: Gettysburg Pike & Grantham Rd

2021 Opening Year
(Build Scenario) Saturday Peak Hour Street

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	15	23	110	106	135
Future Vol, veh/h	61	15	23	110	106	135
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	66	16	25	118	114	145
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.4	8.3	8.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	17%	80%	0%
Vol Thru, %	83%	0%	44%
Vol Right, %	0%	20%	56%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	133	76	241
LT Vol	23	61	0
Through Vol	110	0	106
RT Vol	0	15	135
Lane Flow Rate	143	82	259
Geometry Grp	1	1	1
Degree of Util (X)	0.174	0.109	0.282
Departure Headway (Hd)	4.383	4.78	3.919
Convergence, Y/N	Yes	Yes	Yes
Cap	821	751	920
Service Time	2.398	2.799	1.931
HCM Lane V/C Ratio	0.174	0.109	0.282
HCM Control Delay	8.3	8.4	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.4	1.2

Queue Analysis

		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
SD1		EBL	EBT	WBT			WBR				SBL	SBT	SBR
PM 2019 BASE	VEH												
	H.VEH												
	VEH/LN												
	FT												
PM 2021 NB	VEH												
	H.VEH												
	VEH/LN												
	FT												
PM 2021 BUILD	VEH	20	71			132	0				4		1
	H.VEH	0	1			3	0				0		0
	VEH/LN	0.1				0					0		
	FT	3				0					0		
SD1		EBL	EBT	WBT			WBR				SBL	SBT	SBR
SAT 2019 BASE	VEH												
	H.VEH												
	VEH/LN												
	FT												
SAT 2021 NB	VEH												
	H.VEH												
	VEH/LN												
	FT												
SAT 2021 BUILD	VEH	24	69			102	0				4		2
	H.VEH	0	1			2	0				0		0
	VEH/LN	0.1				0					0		
	FT	3				0					0		

		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
SD2		EBL	EBT	WBT			WBR				SBL	SBT	SBR
PM 2019 BASE	VEH	0	71			132	0				0		0
	H.VEH	0	0			0	0				0		0
	VEH/LN		0				0						0
	FT		0				0						0
PM 2021 NB	VEH	0	72			134	0				0		0
	H.VEH	0	0			0	0				0		0
	VEH/LN		0				0						0
	FT		0				0						0
PM 2021 BUILD	VEH	0	74			131	58				3		1
	H.VEH	0	2			3	1				0		0
	VEH/LN		0				0						0
	FT		0				0						0
SD2		EBL	EBT	WBT			WBR				SBL	SBT	SBR
SAT 2019 BASE	VEH	0	69			102	0				0		0
	H.VEH	0	0			0	0				0		0
	VEH/LN		0				0						0
	FT		0				0						0
SAT 2021 NB	VEH	0	70			103	0				0		0
	H.VEH	0	0			0	0				0		0
	VEH/LN		0				0						0
	FT		0				0						0
SAT 2021 BUILD	VEH	0	73			101	54				2		1
	H.VEH	0	1			2	1				0		0
	VEH/LN		0				0						0
	FT		0				0						0

		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
GR GP		EBL		EBR				NBL	NBT			SBT	SBR
PM 2019 BASE	VEH	53		18				13	160			239	119
	H.VEH	0		0				0	0			0	0
	VEH/LN			0.4						0.9			2.4
	FT			10					22			60	
PM 2021 NB	VEH	54		18				13	162			243	121
	H.VEH	0		0				0	0			0	0
	VEH/LN			0.4						0.9			2.4
	FT			10					22			60	
PM 2021 BUILD	VEH	60		19				18	162			243	175
	H.VEH	0		0				0	0			0	0
	VEH/LN			0.4						1			3.1
	FT			10					25			77	
GR GP		EBL		EBR				NBL	NBT			SBT	SBR
SAT 2019 BASE	VEH	55		14				15	108			104	87
	H.VEH	0		0				0	5			0	0
	VEH/LN			0.3						0.5			0.8
	FT			7					13			20	
SAT 2021 NB	VEH	56		14				15	110			106	88
	H.VEH	0		0				0	5			0	0
	VEH/LN			0.3						0.6			0.9
	FT			7					15			22	
SAT 2021 BUILD	VEH	61		15				23	110			106	135
	H.VEH	0		0				0	5			0	0
	VEH/LN			0.4						0.6			1.2
	FT			10					15			30	

Turn Lane Warrant Worksheets

Right Turn Lane
2021 Opening Year Build Scenario

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Upper Allen Twp County: Cumberland County PennDOT Engineering District: 8	Analysis Date: 5/21/2020 Conducted By: MEA Checked By: Agency/Company Name: ALPHA CEI
Intersection & Approach Description: SR 2026 Grantham Road and Site Driveway 2 Westbound advancing	
Analysis Period: 2021 Opening Year Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	Yes		0.0%	N/A
Opposing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	Yes		0.0%	N/A
Advancing Volume: N/A Opposing Volume: N/A Left Turn Volume: N/A % Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	134	2.0%	136
	Right	-	59	2.0%	60
Advancing Volume: 196 Right Turn Volume: 60					

TURN LANE WARRANT FINDINGS

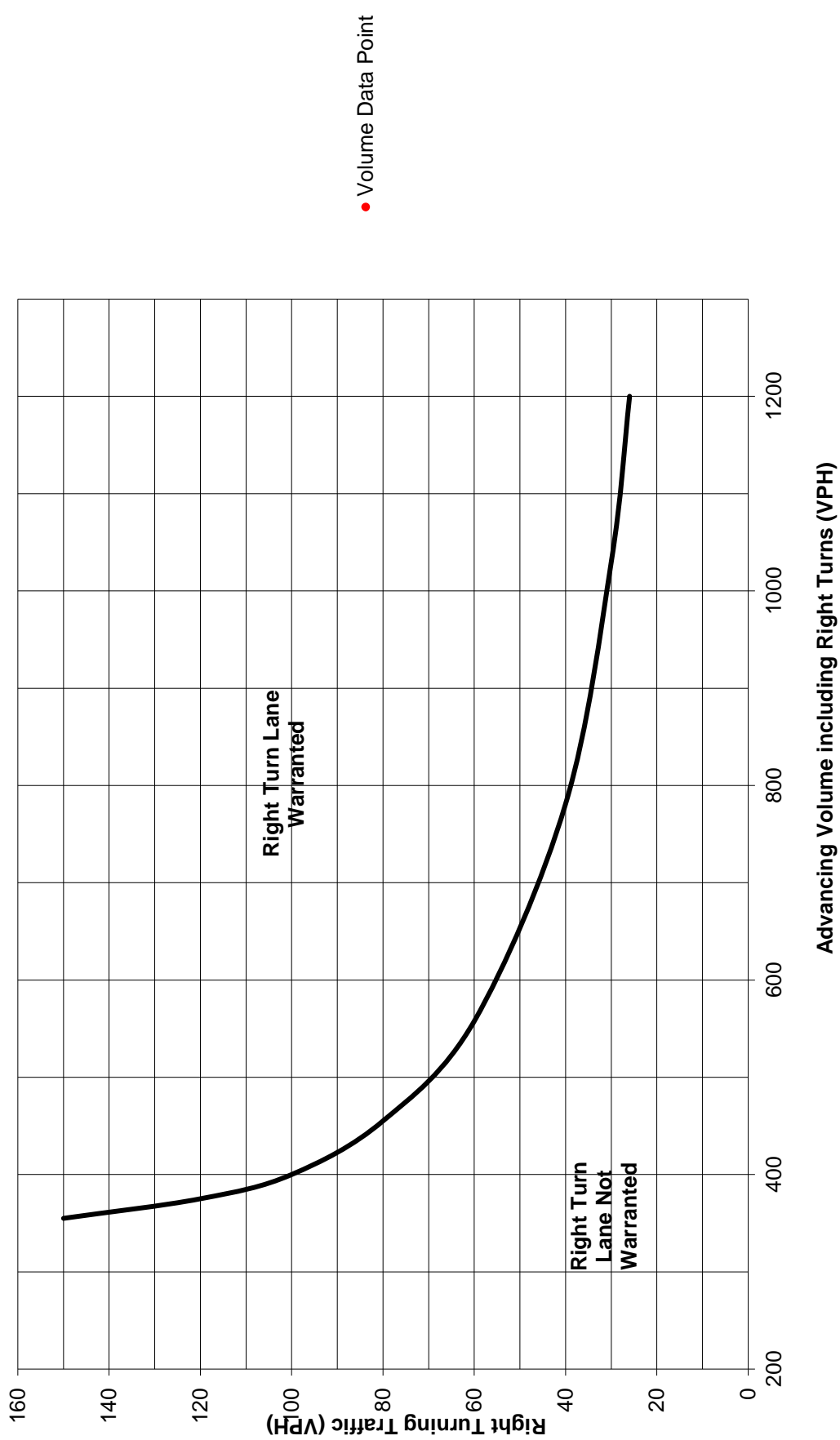
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A Warrant Met?: N/A	Applicable Warrant Figure: Figure 9 Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 60 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 0	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th rowspan="3">Type of Traffic Control</th> <th colspan="6">Speed (MPH)</th> </tr> <tr> <th colspan="2">25-35</th> <th colspan="2" rowspan="2">40-45</th> <th colspan="2" rowspan="2">50-60</th> </tr> <tr> <th colspan="6">Turn Demand Volume</th> </tr> <tr> <th></th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> <th>High</th> <th>Low</th> </tr> <tr> <td>Signalized</td> <td>A</td> <td>A</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> <td>B or C</td> </tr> <tr> <td>Unsignalized</td> <td>A</td> <td>A</td> <td>C</td> <td>B</td> <td>B or C</td> <td>B</td> </tr> </table>		Type of Traffic Control	Speed (MPH)						25-35		40-45		50-60		Turn Demand Volume							High	Low	High	Low	High	Low	Signalized	A	A	B or C	B or C	B or C	B or C	Unsignalized	A	A	C	B	B or C	B
Type of Traffic Control	Speed (MPH)																																								
	25-35		40-45		50-60																																				
	Turn Demand Volume																																								
	High	Low	High	Low	High	Low																																			
Signalized	A	A	B or C	B or C	B or C	B or C																																			
Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: N/A Feet Condition B: N/A Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet																																									
Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Upper Allen Twp"/> County: <input type="text" value="Cumberland County"/> PennDOT Engineering District: <input type="text" value="8"/>	Analysis Date: <input type="text" value="5/21/2020"/> Conducted By: <input type="text" value="MEA"/> Checked By: <input type="text" value=""/> Agency/Company Name: <input type="text" value="ALPHA CEI"/>
Intersection & Approach Description: <input type="text" value="SR 2026 Grantham Road and Site Driveway 2 Westbound advancing"/>	
Analysis Period: <input type="text" value="2021 Opening Year"/> Design Hour: <input type="text" value="SATURDAY Peak Hour"/> Intersection Control: <input type="text" value="Unsignalized"/> Posted Speed Limit (MPH): <input type="text" value="35"/> Type of Terrain: <input type="text" value="Level"/>	Number of Approach Lanes: <input type="text" value="1"/> Undivided or Divided Highway: <input type="text" value="Undivided"/> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: <input type="text" value="Right Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	Yes		0.0%	N/A
Opposing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	Yes		0.0%	N/A
Advancing Volume: <input type="text" value="N/A"/> Opposing Volume: <input type="text" value="N/A"/> Left Turn Volume: <input type="text" value="N/A"/> % Left Turns in Advancing Volume: <input type="text" value="N/A"/>					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	103	2.0%	105
	Right	-	55	2.0%	56
Advancing Volume: <input type="text" value="161"/> Right Turn Volume: <input type="text" value="56"/>					

TURN LANE WARRANT FINDINGS

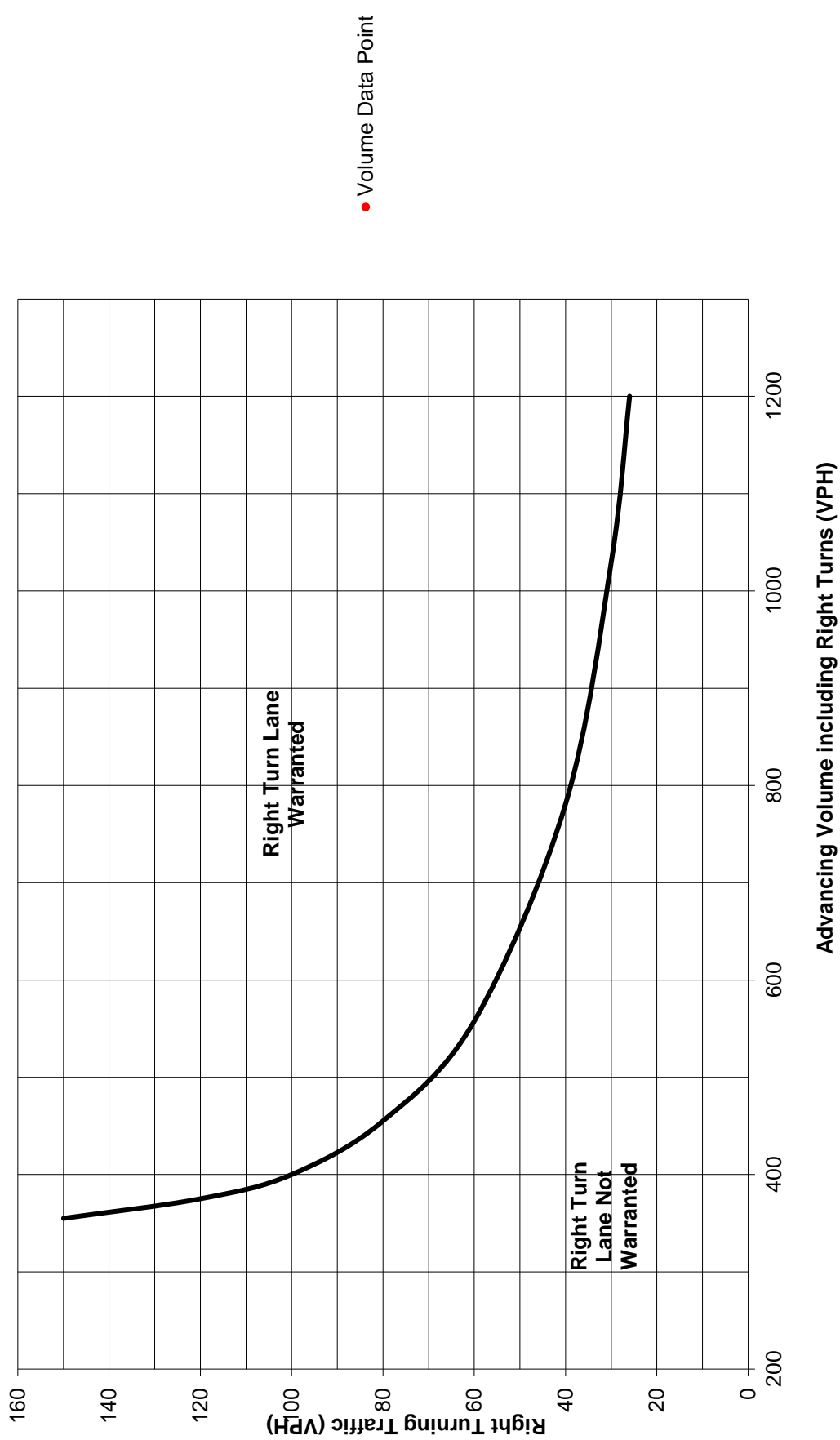
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/> Warrant Met?: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/> Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/> Design Hour Volume of Turning Lane: <input type="text" value="56"/> Cycles Per Hour (Assumed): <input type="text" value="60"/> Cycles Per Hour (If Known): <input type="text" value="0"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>																																								
PennDOT Publication 46, Exhibit 11-6																																									
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Unsignalized	A	A	C	B	B or C	B																																			
Right Turn Lane Storage Length, Condition A: <input type="text" value="N/A"/> Feet Condition B: <input type="text" value="N/A"/> Feet Condition C: <input type="text" value="N/A"/> Feet Required Right Turn Lane Storage Length: <input type="text" value="N/A"/> Feet																																									
Additional Findings: <input type="text" value="N/A"/>																																									

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Left Turn Lane 2021 Opening Year Build Scenario

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Upper Allen Twp County: Cumberland County PennDOT Engineering District: 8	Analysis Date: 5/21/2020 Conducted By: MEA Checked By: Agency/Company Name: ALPHA CEI
Intersection & Approach Description: SR 2026 Grantham Road and Site Driveway 1 Eastbound advancing	
Analysis Period: 2021 Opening Year Design Hour: PM Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	2.0%	21
	Through	-	72	2.0%	73
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	135	2.0%	137
	Right	Yes	0	0.0%	0
<div style="display: flex; justify-content: space-between;"> <div> Advancing Volume: 94 Opposing Volume: 137 Left Turn Volume: 21 </div> <div> % Left Turns in Advancing Volume: 22.34% </div> </div>					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	-		0.0%	N/A
<div style="display: flex; justify-content: space-between;"> <div> Advancing Volume: N/A Right Turn Volume: N/A </div> </div>					

TURN LANE WARRANT FINDINGS

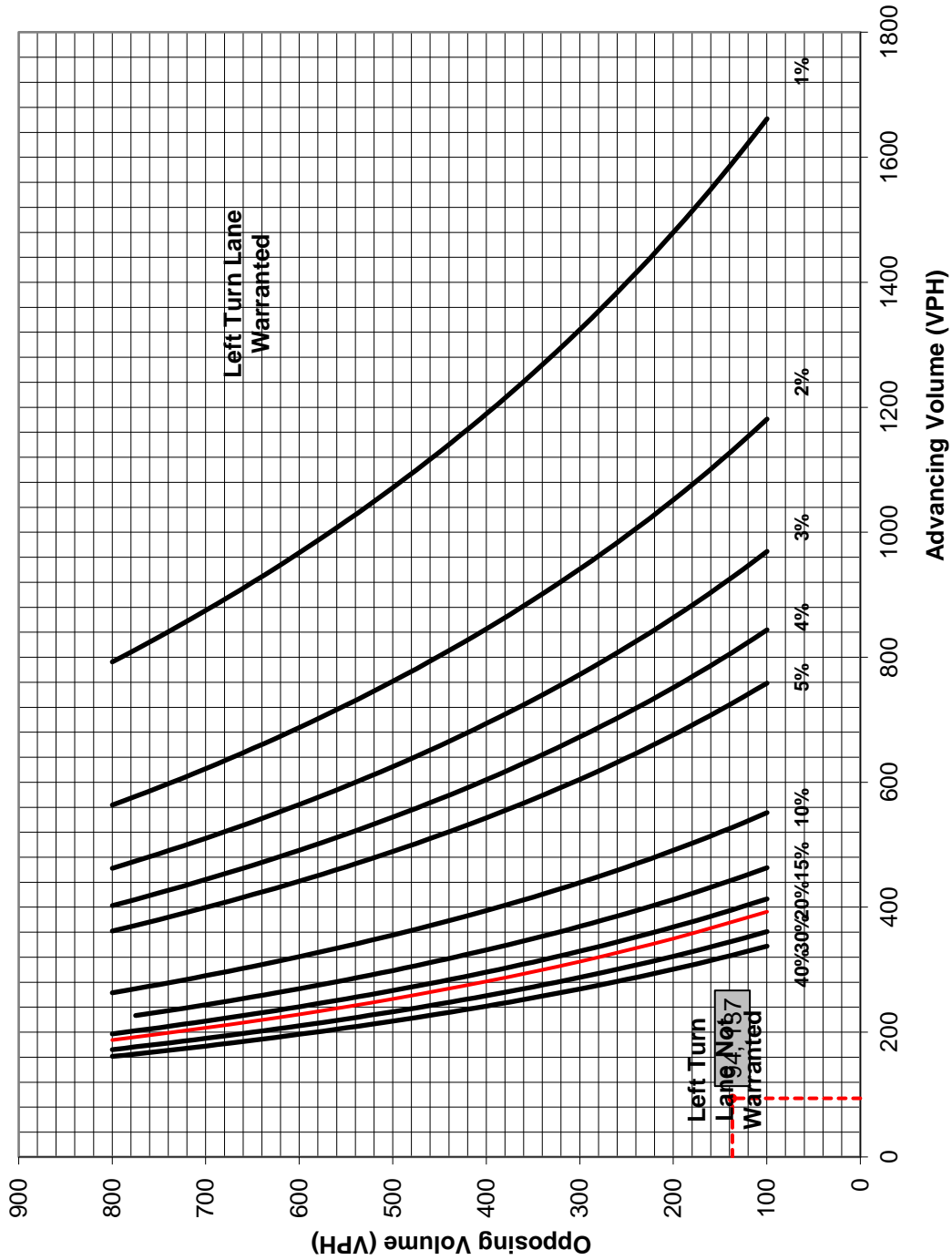
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 21 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 0	Average # of Vehicles/Cycle: N/A																																								
PennDOT Publication 46, Exhibit 11-6																																									
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Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Volume Data Point
22.3%

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Upper Allen Twp County: Cumberland County PennDOT Engineering District: 8	Analysis Date: 5/21/2020 Conducted By: MEA Checked By: Agency/Company Name: ALPHA CEI
Intersection & Approach Description: SR 2026 Grantham Road and Site Driveway 1 Eastbound advancing	
Analysis Period: 2021 Opening Year Design Hour: SATURDAY Peak Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Terrain: Level	Number of Approach Lanes: 1 Undivided or Divided Highway: Undivided <div style="border: 2px solid red; padding: 2px; display: inline-block;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	2.0%	25
	Through	-	70	2.0%	71
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	104	2.0%	106
	Right	Yes	0	0.0%	0
Advancing Volume: 96 Opposing Volume: 106 Left Turn Volume: 25 % Left Turns in Advancing Volume: 26.04%					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes		0.0%	N/A
	Through	-		0.0%	N/A
	Right	-		0.0%	N/A
Advancing Volume: N/A Right Turn Volume: N/A					

TURN LANE WARRANT FINDINGS

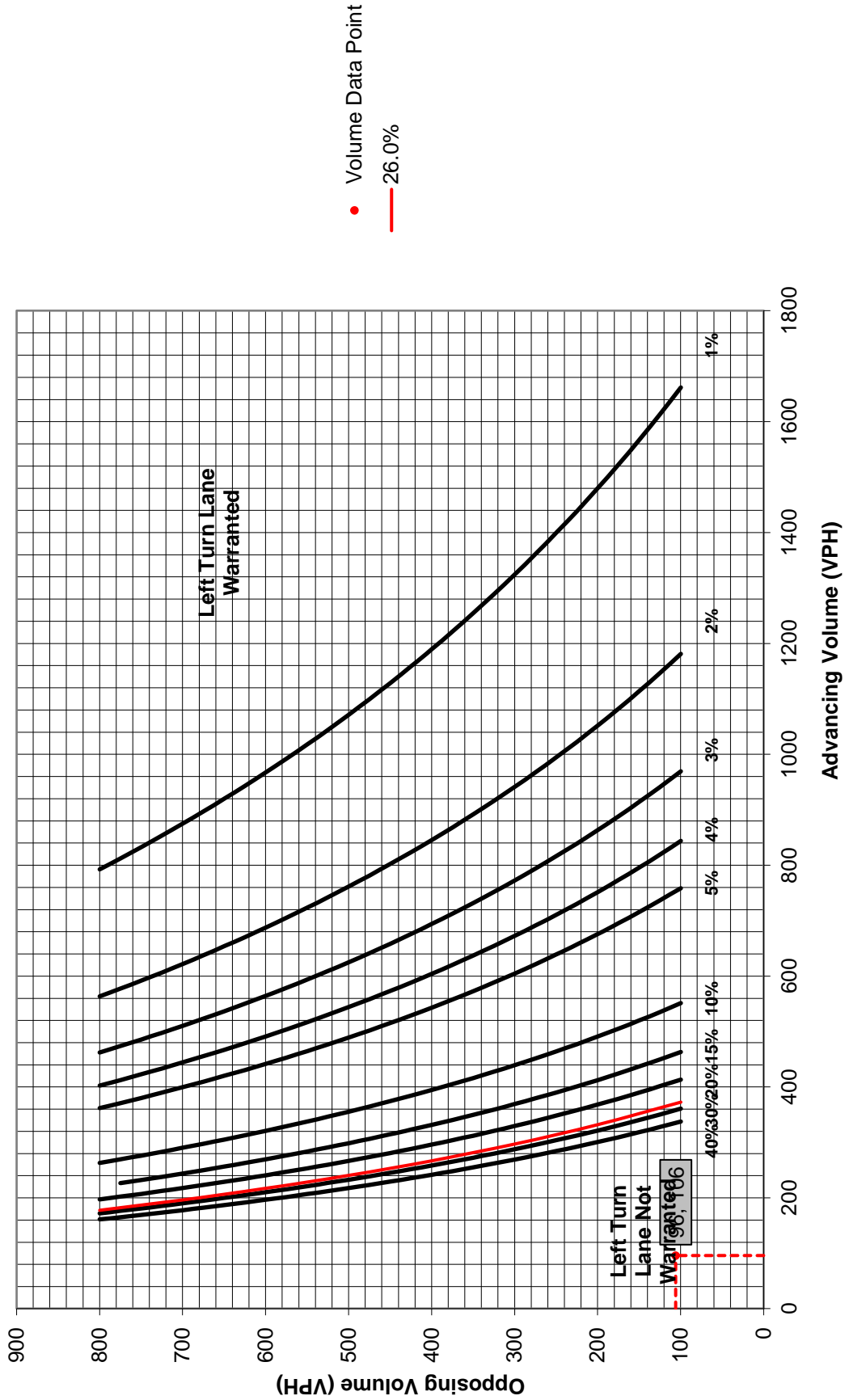
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1 Warrant Met?: No	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

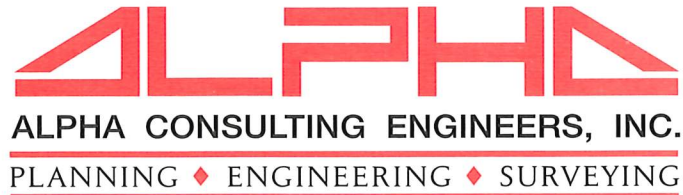
Intersection Control: Unsignalized Design Hour Volume of Turning Lane: 25 Cycles Per Hour (Assumed): 60 Cycles Per Hour (If Known): 0	Average # of Vehicles/Cycle: N/A																																								
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Additional Findings: N/A																																									

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Correspondence



September 4, 2019

Mazhar Malik
District Permit Manager
PennDOT – District 8-0
2140 Herr Street
Harrisburg, PA 17103

RE: Scoping Meeting Application
The Willows at Ashcombe Mansion
1100 Grantham Road
Upper Allen Township
Cumberland County, PA

Dear Mr. Malik:

Enclosed please find a Scoping Meeting Application along with supporting information for the above referenced project. Based on the number of estimated new vehicle trips generated by the proposed development it is not anticipated that a TIS will be required, as the trips generated do not meet the thresholds for PennDOT's three quantitative warrants listed in PennDOT's 'Policies and Procedures for TIS' manual. In accordance with PennDOT's highway occupancy permit application requirements we are requesting that PennDOT provide a TIS exemption letter. However, if the fourth warrant is met then please set up a Scoping Meeting as described in PennDOT's 'Policies and Procedures for TIS' manual.

Please note that items one through six of the application (including preliminary trip generation) have been completed, except for the Scoping Meeting Date. Items seven through eighteen have been partially completed as they are checklist items to be discussed at a Scoping Meeting if held.

Thank you for your consideration of this application. If you require any additional information, please contact me at 717-770-2500.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark E. Allen".

Mark E. Allen, P.L.S., P.E.



HOP APPLICATION MEETING MINUTES

RE: The Willows at Ashcombe
Upper Allen Township
Cumberland County, PA

Pursuant to PennDOT requirements we have prepared minutes for the meeting held at PennDOT's District 8-0 office on January 6, 2020 regarding the above referenced project.

Attendees:

Mazhar Malik	PennDOT District 8-0 Permits
Rich Alandar	PennDOT District 8-0 Permits
Eric Kinard	PennDOT District 8-0 Traffic
Dean Noles	PennDOT District 8-0 Traffic
Jen Boyer	Upper Allen Township
John Toner	Upper Allen Township
Jason Wheeler	TPD – Upper Allen Twp Traffic Engineer
John Murphy	ALPHA – Applicant's Representative
Mike Smith	ALPHA – Applicant's Representative
Mark Allen	ALPHA – Applicant's Traffic Engineer

Please see attached sign-in sheet for email and telephone information.

Presentation:

The meeting started at approximately 1:30 PM with introductions, followed by a brief overview by John Murphy outlining:

Site location. Proposed use as a wedding / event venue to provide a wide range of wedding services. Proposed facilities to include a chapel, traditional wedding hall, a brewery wedding facility, and lodging.

Discussion Summary:

Discussions centered on comments provided by PennDOT.

Comment 2: John Murphy clarified that the lodging component was specific to wedding and event services and not open to the general public. The brewery may be opened to the general public in the future but after the venue is established.

Comment 4: The applicant team indicated that the ITE methodology for trip generation will be followed; Saturday peak hour trip generation will be included in the revised scoping application if available; The applicant will look into ITE land use for 'Wineries' as an applicable use; A proposed trip generation for initial entering trips will be provided as part of the revised scoping application; The proposed use is unique to the area and no local data is known to be available.

Comment 6 and 7: A TIA will be required unless the revised trip generation is projected to generate more than a 100 new entering or exiting trips during any peak hour time period.

Comment 8: The study area was agreed to include the adjacent intersection and the site driveways.

Comment 10: Analysis will be completed for a Friday PM and a Saturday midday peak for the existing conditions and opening year 2021 for a TIA. The applicant stated that the Friday events are typically for the prewedding dinner party. Typical wedding start time are between 1:00 and 4:00PM to be able to conclude by 10-11:00PM.

Comment 12; The Township indicated that no active or immediate proposed projects are within the study the area that would contribute base traffic. The Township informed the group that Williams Grove Speedway held events on both Friday nights and Saturdays.

Comment 13: Proposed trip distribution will be included in the revised scoping application.

Comment 14: based on the previously noted timeframes and proposed use discussions, a AM peak analysis will not be required for this application. The Township indicated that the Saturday count should be performed during a Williams Grove Speedway event. The applicant's team will review the race schedule to verify if race times overlap peak hours of the adjacent street or traditional wedding timeframes. Additional information regarding race times and traditional wedding times will be provided in the revised scoping application.

Comment 17 and 18: Standard study requirement items were briefly discussed and acknowledged.

There were additional discussions related to the existing Grantham Road and Gettysburg Pike intersection noting that it is all-way stop controlled with the southbound right turn movement being channelized. Southbound traffic turning west is free flowing. The intersection is located along the crest of a vertical curve. PennDOT questioned if there was any proposed future development for the larger undeveloped areas of the tract. Mike Smith went over the large flood plain areas, how that area was undevelopable and how the topography drove facility layout and internal traffic configuration.

The meeting concluded at approximately 2:00 PM. These meeting minutes were recorded and revised based on meeting notes from the subject meeting.



pennsylvania

DEPARTMENT OF TRANSPORTATION

Highway Occupancy Permits Meeting

Date: 1.6.2020 Time: 1:30 PM

Meeting Location: Franklin Room

SR: 2026 Segment: 0030 Nearest Intersection: _____

Township/Borough: Upper Allen Township County: Cumberland

Meeting Reason: TIS Scoping Meeting

Development

Name: Willows at Ashcombe Mansion

Meeting Requested By: Mark Allen PLS, PE Phone: 717-770-2400

Township/Borough Invited: ☒ Yes ☐ No Attorney Invited? ☐ Yes ☒ No

Name/ Phone#/ Email Address:	Organization:	Job Title:
Mazhar Malik/ 717-787-8789/mmalik@pa.gov	PennDOT Dist. 8-0 Permits	District Permit Manager
Rich Alandar/ 717-787-5179/ralandar@pa.gov	PennDOT Dist. 8-0 Permits	Assistant Permit Manager
Eric Kinard/ 717-787-9237/ekinard@pa.gov	PennDOT Dist. 8-0 Traffic	Signal & Congestion Mgt. Supervisor
Dean Noles 717-772-0976/dnoles@pa.gov	PennDOT Dist. 8-0 Traffic	Traffic Control Specialist

John Murphy ^{jmurphy} @alphacri.com	Alpha	Engineer
MICHAEL SMITH ^{mksmith} @alphacri.com	Alpha	Project Manager
Mark Allen ^{mallen} @alphacri.com	Alpha	Traffic Consultant
Jason Wheeler ^{jwheeler} @trafficpd.com	TPD	Twp Traffic Consultant
John Toner ^{jtoner} @uatwp.org	Upper Allen Twp.	Planning Tech
Jen Boyer ^{jboyer} @uatwp.org	Upper Allen Twp.	Community Development Director

- Minutes of meeting will be prepared by the person requesting the meeting.
- A copy of this sign-in sheet will be distributed after the meeting.
- Department cannot accept any changes to the forms already approved by the Department.
- Department will not issue HOP until signal permit is issued and Right-of-way (ROW) plan is recorded in the County Courthouse.
- Engineer shall consider designing a roundabout which will reduce the maintenance cost for signal and will help lower taxes.
- Please submit a cross section of existing roadway where main driveway will be constructed.
- Please ensure that the width of existing shoulder is not reduced and bicyclists are accommodated.
- For E-Permitting and billing of inspection costs, please ensure that the Permittee is registered as a Business Partner in ECMS.
- All applications shall be submitted through the E-Permitting system website. Contact the County HOP where the work is being done with any questions.
- All future HOP correspondence shall be submitted to the HOP resource account at

RA-PDDistrict80HOP@pa.gov.

Draft Scope Application Comment Sheet

COUNTY:	Cumberland	MUNICIPALITY:	Upper Allen Township
JOB NAME:	The Willows at Ashcombe Mansion	PREPARED BY:	Alpha Consulting Engineers, Inc.
APPLICANT:	Ashcombe Mansion Properties, LLC	REVIEW BY:	PennDOT / PAI

Please incorporate these comments into the revised Scoping Application and resubmit:

Scope Application Comments:

(1) LOCATION OF PROPOSED DEVELOPMENT: No comments.

(2) DESCRIPTION OF PROPOSED DEVELOPMENT:

1. Provide additional information about the proposed facilities and operations. The site is listed as a Wedding Venue but includes restaurants and lodging. Specify if these facilities will be open to the public, and if so, what days and times they will be open. Also, specify what days and times the wedding events will take place.
2. Specify the segment and offset at each driveway centerline along SR 2026.
3. The applicant shall identify and confirm that the proposed driveways/intersections are the best access plan. Plans should be evaluated based on operations of each driveway, impact on adjacent roadways, safety, and acceptability to the community. The applicant shall identify the different access options available to the subject property. Verify the need for two (2) driveways along Grantham Road (SR 2026) located less than 250 feet apart. Also, confirm that the Township is in agreement with the driveway along Gettysburg Pike due to the proximity to the intersection of Grantham Road (SR 2026) and Gettysburg Pike.
4. In accordance with PennDOT Publication 282, as a general rule, at least 50 feet of throat length should be provided for non-minimum use driveways.

(3) DEVELOPMENT SCHEDULE AND STAGING: No comments.

(4) TRIP GENERATION:

1. The more conservative trip generation methodology (equation or average rate) should be utilized for the Motel (ITE Land Use Code 320).
2. Provide Saturday peak hour trip generation information.
3. The trip generation was estimated for the Weekday AM and Weekday PM peak hours using three (3) of the individual facilities proposed on the site. However, it is anticipated that this site will generate little traffic in the AM peak hour and that the Wedding Venue will generate significantly more traffic when events are being held, typically Friday and Saturday. It is also anticipated that a significant amount of traffic will enter and/or exit the site within a short period of time. The entering and exiting percentages from ITE for the individual land uses is not expected to be representative of wedding event traffic.
4. The use of local trip generation data of similar land uses may be required for this site.

(5) ESTIMATED DAILY TRIP GENERATION / DRIVEWAY CLASSIFICATION:

(a) Estimated Daily Trip Generation of Proposed Development:

1. Revise as necessary based on comments above.

(b) Driveway Classification Based on Trip Generation and One Access Point:

1. Revise as necessary based on comments above.

(6) TRANSPORTATION IMPACT STUDY REQUIRED?

1. A Transportation Impact Study (TIS) will be required for this site.

(7) TRAFFIC IMPACT ASSESSMENT REQUIRED?

1. A Transportation Impact Assessment (TIA) will not be required for this site and should be indicated as such.

(8) TIS STUDY AREA:

1. Provide documentation from Upper Allen Township, Monroe Township (if necessary), and Tri-County Regional Planning Commission indicating their review/acceptance of the scope and TIS. Address all comments to their satisfaction. Include documentation of correspondence within the TIS.
2. Include the intersection of Grantham Road (SR 2026) and Gettysburg Pike in the study area. Update all applicable sections of the scope application accordingly. Depending on the results of the trip generation and distribution, the study area may need revised to include all intersections where the proposed development is projected to generate 100 or more new trips during the peak hour.
3. The study must document the land use context of the subject property, and along key area roadways. The applicant should identify the land use context that seems most representative of a roadway segment as a whole. Land use contexts should not be defined in too fine a manner; avoid segments of less than 600-feet in length. There are seven different land use contexts, in order of intensity: rural, suburban neighborhood, suburban corridor, suburban center, town/village neighborhood, town center, and urban core. For more information on land use context, see PennDOT Design Manual, Part 1X, Appendix B.

(9) STUDY AREA TYPE: No comments.

(10) TIS ANALYSIS PERIODS AND TIMES:

1. Analyses must be completed for the Weekday PM and Saturday peak hour periods for the Existing Conditions, Opening Year Conditions (2021), and Design Horizon Year Conditions (2026). The Opening Year and Design Horizon Year analyses must be completed Without and With traffic from the proposed development. Future Year analyses for the Opening and Design Horizon Years must be completed for two scenarios (no improvements and with improvements) where applicable.

(11) TRAFFIC ADJUSTMENT FACTORS:

- (a) **Seasonal Adjustment:** No comments.
- (b) **Annual Base Traffic Growth:** No comments.
- (c) **Pass-By Trips:** No comments.
- (d) **Captured Trips for Multi-Use Sites:** No comments.
- (e) **Modal Split Reductions:** No comments.
- (f) **Other Reductions:** No comments.

(12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:

1. Confirm with Upper Allen Township and Monroe Township (if necessary) if there are any adjacent developments within the study area that should be added to the base traffic. Include documentation of correspondence within the TIS.

(13) TRIP DISTRIBUTION AND ASSIGNMENT:

1. Provide trip distribution and assignment information including calculations and backup data to support the trip distribution percentages. The proximity to US 15 should be considered in the evaluation. A review of the backup data and methodologies will be required prior to the Department accepting the trip distribution. Consider submitting this for approval prior to submitting the TIS.
2. Since there are multiple driveways serving the site, the driveway assignment methodology should be clearly explained and consider travel time, most logical path, and location of development features such as parking, etc.

(14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

1. If AM peak hour analyses is required by the Township, weekday morning turning movement counts should be conducted from 6:00 AM to 9:00 AM.

(15) CAPACITY / LOS ANALYSIS:

1. Provide calibrated Synchro analyses (in electronic format) with each submission.

(16) ROADWAY IMPROVEMENTS / MODIFICATIONS BY OTHERS TO BE INCLUDED: No comments.

(17) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:

1. It doesn't appear that sight distance for trucks will be necessary for this site.

(b) Signal Warrant Analysis: No comments.

(c) Required Signal Phasing/Timing Modifications: No comments.

(d) Traffic Signal Corridor/Network Analysis: No comments.

(e) Analysis of the Need for Turning Lanes: No comments.

(f) Turning Lane Lengths:

1. 95th percentile queue lengths should also be evaluated when determining turning lane lengths.

(g) Left Turn Signal Phasing Analysis: No comments.

(h) Queuing Analysis:

1. Queue analyses should be completed for all movements at all study intersections. 50th and 95th percentile queues from Synchro and 95th percentile queues from HCM, 6th Edition should be provided in the signalized intersection analyses and 95th percentile queues from HCM, 6th Edition should be provided in the unsignalized intersection analyses.

(i) Gap Studies: No comments.

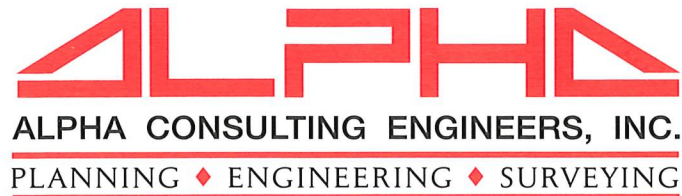
(j) Crash Analysis:

1. The most recent five years of crash data for each approach route should be obtained. The applicant shall analyze the crash data to determine if there are any crash patterns within the study area. The applicant should also contact the municipality for input regarding non-reportable crashes. Analysis of the crash data should include review of causation factors and patterns. Include the analysis of the crash data in an Appendix that is to be submitted under separate cover and sealed. Crash data is not for public consumption and is exempt from the Right to Know Law requests. Additional information on the analysis of crash rates can be found in the Appendix of Publication 212, Item 2(1) and Publication 46, Chapters 11.1 and 11.3.

(k) Weaving Analysis: No comments.

(l) Other Required Studies: No comments.

(18) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS: No comments.



March 09, 2020

Mazhar Malik
District Permit Manager
PennDOT Engineering District 8-0
2140 Herr Street
Harrisburg, PA 17103-1699

RE: Scoping Meeting Application
Ashcombe Mansion Properties LLC.
Ford Farm Road
Upper Allen Township
Cumberland County, PA

Dear Mr. Malik:

Please find the following responses in bold text to review comments (in italics) received at our meeting on January 06, 2020 for the above reference application. The scoping application has been revised to reflect the comments and responses herein.

PennDOT Scoping Application Comments:

- 1) LOCATION OF PROPOSED DEVELOPMENT: *No Comments.*
- 2) DESCRIPTION OF PROPOSED DEVELOPMENT:
 1. *Provide additional information about the proposed facilities and operations. The site is listed as a Wedding Venue but includes restaurants and lodging. Specify if these facilities will be open to the public, and if so, what days and times they will be open. Also, specify what days and times the wedding events will take place.* **Per discussions during the scoping meeting, the lodging, the mansion, and the chapel are reserved for wedding type events. The brewery may open to the general public after the venue is established.**
 2. *Specify the segment and offset at each driveway centerline along SR 2026.* **The segment and offsets at each driveway centerline have been added to the concept plan and included within the revised scoping application.**

3. *The applicant shall identify and confirm that the proposed driveways/intersections are the best access plan. Plans should be evaluated based on operations of each driveway, impact on adjacent roadways, safety, and acceptability to the community. The applicant shall identify the different access options available to the subject property. Verify the need for two (2) driveways along Grantham Road (SR 2026) located less than 250 feet apart. **Two driveways are proposed for traffic circulation, drop off areas, and for emergency access.** Also, confirm that the Township is in agreement with the driveway along Gettysburg Pike due to the proximity to the intersection of Grantham Road (SR 2026) and Gettysburg Pike. **The driveway shall be evaluated throughout the HOP application process.***
4. *In accordance with PennDOT Publication 282, as a general rule, at least 50 feet of throat length should be provided for non-minimum use driveways. **Driveway lengths have been revised to a minimum of 50-feet and are shown on the concept plan included in the revised scoping application.***

3) DEVELOPMENT SCHEDULE AND STAGING: *No Comments.*

4) TRIP GENERATION:

1. *The more conservative trip generation methodology (equation or average rate) should be utilized for the Motel (ITE Land Use Code 320). **The more conservative generation for the motel is included in the revised scoping application as required by PennDOT. Per discussions during the scoping meeting, wedding data and time frames were reviewed. As a result nationally published wedding data was used to develop generation estimates for use within the study as the ITE estimates will only be appropriate if the facility converts to the standard ITE uses. The ITE data is still included within the scoping application for comparison.***
2. *Provide Saturday peak hour trip generation information. **Saturday peak hour trip generation information has been added to the revised scoping application.***
3. *The trip generation was estimated for the Weekday AM and Weekday PM peak hours using three (3) of the individual facilities proposed on the site. However, it is anticipated that this site will generate little traffic in the AM peak hour and that the Wedding Venue will generate significantly more traffic when events are being held, typically Friday and Saturday. It is also anticipated that a significant amount of traffic will enter and/or exit the site within a short period of time. The entering and exiting percentages from ITE for the individual land uses is not expected to be representative of wedding event traffic. **The site will generate minimal traffic based on published wedding information which indicates an average of approximately 130 guest per wedding. On average seven out of ten weddings occur on a Saturday with the majority of weddings held between 1:00 and 4:00PM. A published wedding timeline is***

included. Weekday PM weddings are usually scheduled for 5:00 to 5:30PM with guest arrival times (doors open) at 4:30 PM. This time frame coincides with typical PM peak hours of the adjacent street. Weekday evening weddings have fewer guest attendance as they conflict with school and work schedules. We are proposing an entering rate of 90 percent of peak hour generation and vehicle usage based on national published attendance data.

4. *The use of local trip generation data of similar land uses may be required for this site. As discussed during the scoping meeting this specific use is not found or prevalent in Pennsylvania. Available published sources for average wedding attendance state average attendance is approximately 136 guest per wedding. Realistically the average daily trip generation would be at most 220 trips per day to account for vendors, staff and guest.*
- 5) ESTIMATED DAILY TRIP GENERATION / DRIVEWAY CLASSIFICATION:
 - (a) Estimated Daily Trip Generation of Proposed Development:
 1. *Revise as necessary based on comments above. The application has been revised.*
 - (b) Driveway Classification Based on Trip Generation and One Access Point:
 1. *Revise as necessary based on comments above. The 'Low Volume Driveway' classification remains appropriate as the site is not estimated to generate more than 1500 trips per day.*
- 6) TRANSPORTATION IMPACT STUDY REQUIRED?
 1. *A Transportation Impact Study (TIS) will be required for this site. Per discussions during the scoping meeting a TIA will be required based on the use.*
- 7) TRAFFIC IMPACT ASSESSMENT REQUIRED?
 1. *A Transportation Impact Assessment (TIA) will not be required for this site and should be indicated as such. Per discussions during the scoping meeting a TIA will be required based on the use. The application has been revised accordingly.*
- 8) TIS STUDY AREA:
 1. *Provide documentation from Upper Allen Township, Monroe Township (if necessary), and Tri-County Regional Planning Commission indicating their review/acceptance of the scope and TIS. Address all comments to their satisfaction. Include documentation of correspondence within the TIS. Documentation has been requested from the noted government entities. Correspondence will be included in the study.*
 2. *Include the intersection of Grantham Road (SR 2026) and Gettysburg Pike in the study area. Update all applicable sections of the scope application accordingly. Depending on the results of the trip generation and distribution, the study area may need revised to include all intersections where the proposed development is projected to generate 100*

or more new trips during the peak hour. The intersection of Grantham Road and Gettysburg Pike has been included in the revised scoping application.

3. *The study must document the land use context of the subject property, and along key area roadways. The applicant should identify the land use context that seems most representative of a roadway segment as a whole. Land use contexts should not be defined in too fine a manner; avoid segments of less than 600-feet in length. There are seven different land use contexts, in order of intensity: rural, suburban neighborhood, suburban corridor, suburban center, town/village neighborhood, town center, and urban core. For more information on land use context, see PennDOT Design Manual, Part I X, Appendix B. **The study will include the section regarding land use context.***

9) STUDY AREA TYPE: *No comments.*

10) TIS ANALYSIS PERIODS AND TIMES:

1. *Analyses must be completed for the Weekday PM and Saturday peak hour periods for the Existing Conditions, Opening Year Conditions (2021), and Design Horizon Year Conditions (2026). The Opening Year and Design Horizon Year analyses must be completed Without and With traffic from the proposed development. Future Year analyses for the Opening and Design Horizon Years must be completed for two scenarios (no improvements and with improvements) where applicable. **Per discussions during the scoping application meeting the horizon year is no longer required as a TIA is being prepared.***

11) TRAFFIC ADJUSTMENT FACTORS:

- | | |
|---|---------------------|
| (a) Seasonal Adjustment: | <i>No comments.</i> |
| (b) Annual Base Traffic Growth: | <i>No comments.</i> |
| (c) Pass-By Trips: | <i>No comments.</i> |
| (d) Captured Trips for Multi-Use Sites: | <i>No comments.</i> |
| (e) Modal Split Reductions: | <i>No comments.</i> |
| (f) Other Reductions: | <i>No comments.</i> |

12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:

1. *Confirm with Upper Allen Township and Monroe Township (if necessary) if there are any adjacent developments within the study area that should be added to the base traffic. Include documentation of correspondence within the TIS. Per discussions during the scoping meeting we have reviewed information for the Williams Grove*

Speedway. All evening races were scheduled with a start time of either 7:30 or 8:00PM placing the average race event traffic peak hour after the previously noted wedding event traffic peak hour. Therefore, the Williams Grove Speedway traffic will not affect the background traffic during the PM peak hour of the adjacent street. Three races occurred on a Saturday in 2019; July 27, September 9, and October 5. Data was collected during the September 9th race.

13) TRIP DISTRIBUTION AND ASSIGNMENT:

- 1. Provide trip distribution and assignment information including calculations and backup data to support the trip distribution percentages. The proximity to US 15 should be considered in the evaluation. A review of the backup data and methodologies will be required prior to the Department accepting the trip distribution. Consider submitting this for approval prior to submitting the TIS. **To determine existing patterns of vehicles attracted to this area local data was collected and included in the revised scoping application. Entering and exiting vehicles were measured at the two retail sites along Grantham Road (Ashcombe Farms and TJ Rockwell's). These percentage are included in the revised scope application and will be included in the TIA.***
- 2. Since there are multiple driveways serving the site, the driveway assignment methodology should be clearly explained and consider travel time, most logical path, and location of development features such as parking, etc. **Trip distribution and assignment information is included with the revised scoping application for review.***

14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

- 1. If AM peak hour analyses is required by the Township, weekday morning turning movement counts should be conducted from 6:00 AM to 9:00 AM. **Per discussions during the scoping meeting an AM analysis will not be required by either PennDOT or the Township.***

15) CAPACITY / LOS ANALYSIS:

- 1. Provide calibrated Synchro analyses (in electronic format) with each submission. **Calibrated Synchro analyses will be included with the study submission.***

16) ROADWAY IMPROVEMENTS / MODIFICATIONS BY OTHERS TO BE INCLUDED:

No comments.

17) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:

1. *It doesn't appear that sight distance for trucks will be necessary for this site. The reference to trucks has been removed from this item in the application.*

(b) Signal Warrant Analysis:

No comments.

(c) Required Signal Phasing/Timing Modifications:

No comments.

(d) Traffic Signal Corridor Network Analysis:

No comments.

(e) Analysis of the Need for Turning Lanes:

No comments.

(f) Turning Lane Lengths:

1. 95th percentile queue lengths should also be evaluated when determining turning lane lengths. Please see section (h) below.

(g) Left Turn Signal Phasing Analysis: *No comments.*

No comments.

(h) Queuing Analysis:

1. Queue analyses should be completed for all movements at all study intersections. 50th and 95th percentile queues from Synchro and 95th percentile queues from HCM, 6th Edition should be provided in the signalized intersection analyses and 95th percentile queues from HCM, 6th Edition should be provided in the unsignalized intersection analyses. **The requested information will be included in the study. This requirement is included in the scoping application.**

(i) Gap Studies: *No comments.*

No comments.

(0) Crash Analysis:

1. *The most recent five years of crash data for each approach route should be obtained. The applicant shall analyze the crash data to determine if there are any crash patterns within the study area. The applicant should also contact the municipality for input regarding non-reportable crashes. Analysis of the crash data should include review of causation factors and patterns. Include the analysis of the crash data in an Appendix that is to be submitted under separate cover and sealed. Crash data is not for public consumption and is exempt from the Right to Know Law requests. Additional information on the analysis of crash rates can be found in the Appendix of Publication 212, Item 2(1) and Publication 46, Chapters 11.1 and 11.3. **A crash study will be provided as a separate appendix. This item has been added to the revised scoping application.***

(k) Weaving Analysis:

No comments.

(I) Other Required Studies:

No comments.

Mr. Mazhar Malik
March 9, 2020
Page 7

(18) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE
TIS: *No comments.*

If you have any further questions or comments, please contact our office.

Sincerely,



Mark E. Allen, P.L.S., P.E.

ALPHA CONSULTING ENGINEERS, INC.
PLANNING ENGINEERING SURVEYING

RE: Willows at Ashcombe Revised Scope

Mark Allen <mallen@alphacei.com>

Tue 3/17/2020 1:20 PM

To: RA-PDDISTRICT80HOP@pa.gov <RA-PDDISTRICT80HOP@pa.gov>; RA-pdDist80Signals@pa.gov <RA-pdDist80Signals@pa.gov>

Cc: kstoner@ccpa.net <kstoner@ccpa.net>

 1 attachments (12 MB)

2020-03-09 Revised Scoping Meeting Application Package.pdf;

PennDOT District 8-0

The scoping meeting application for the Willows at Ashcombe has been revised for your review and approval. Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com

Willows at Ashcombe revised PennDOT scope application

Mark Allen <mallen@alphacei.com>

Tue 3/17/2020 1:24 PM

To: Jennifer Boyer <jboyer@uatwp.org>

 1 attachments (12 MB)

2020-03-09 Revised Scoping Meeting Application Package.pdf;

Jennifer Boyer
Community Development Director/Planner
Upper Allen Township

Jen,

A copy of the revised scope application sent to PennDOT is attached for the Township's use / review/ comment.
Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com

Draft Scope Application Comment Sheet

COUNTY:	Cumberland	MUNICIPALITY:	Upper Allen Township
JOB NAME:	The Willows at Ashcombe Mansion	PREPARED BY:	Alpha Consulting Engineers, Inc.
APPLICANT:	Ashcombe Mansion Properties, LLC	REVIEW BY:	PennDOT / PAI

Please incorporate these comments into the revised Scoping Application and resubmit:

Scope Application Comments:

(1) LOCATION OF PROPOSED DEVELOPMENT: No comments.

(2) DESCRIPTION OF PROPOSED DEVELOPMENT:

1. As discussed at the scoping application meeting, the Department would prefer limiting this development to two accesses.

(3) DEVELOPMENT SCHEDULE AND STAGING: No comments.

(4) TRIP GENERATION: No comments.

(5) ESTIMATED DAILY TRIP GENERATION / DRIVEWAY CLASSIFICATION:

(a) Estimated Daily Trip Generation of Proposed Development: No comments.

(b) Driveway Classification Based on Trip Generation and One Access Point: No comments.

(6) TRANSPORTATION IMPACT STUDY REQUIRED? No comments.

(7) TRAFFIC IMPACT ASSESSMENT REQUIRED? No comments.

(8) TIS STUDY AREA: No comments.

(9) STUDY AREA TYPE: No comments.

(10) TIS ANALYSIS PERIODS AND TIMES: No comments.

(11) TRAFFIC ADJUSTMENT FACTORS:

- (a) Seasonal Adjustment:** No comments.
- (b) Annual Base Traffic Growth:** No comments.
- (c) Pass-By Trips:** No comments.
- (d) Captured Trips for Multi-Use Sites:** No comments.
- (e) Modal Split Reductions:** No comments.
- (f) Other Reductions:** No comments.

(12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC: No comments.

(13) TRIP DISTRIBUTION AND ASSIGNMENT: No comments.

(14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES: No comments.

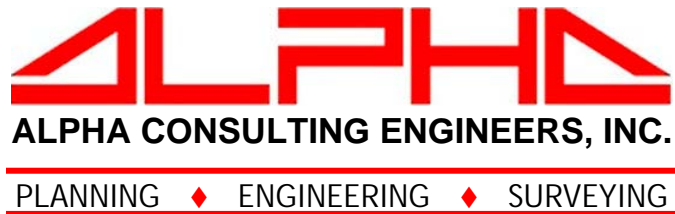
(15) CAPACITY / LOS ANALYSIS: No comments.

(16) ROADWAY IMPROVEMENTS / MODIFICATIONS BY OTHERS TO BE INCLUDED: No comments.

(17) OTHER NEEDED ANALYSES:

- (a) Sight Distance Analysis:** No comments.
- (b) Signal Warrant Analysis:** No comments.
- (c) Required Signal Phasing/Timing Modifications:** No comments.
- (d) Traffic Signal Corridor/Network Analysis:** No comments.
- (e) Analysis of the Need for Turning Lanes:** No comments.
- (f) Turning Lane Lengths:** No comments.
- (g) Left Turn Signal Phasing Analysis:** No comments.
- (h) Queuing Analysis:** No comments.
- (i) Gap Studies:** No comments.
- (j) Crash Analysis:** No comments.
- (k) Weaving Analysis:** No comments.
- (l) Other Required Studies:** No comments.

(18) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS: No comments.



May 18, 2020

Mr. Mazhar Malik
District Permits Manager
PennDOT District 8-0
2140 Herr Street
Harrisburg, PA 17103-1699

RE: Scoping Meeting Application
Ashcombe Mansion Properties LLC.
Ford Farm Road
Upper Allen Township
Cumberland County, PA

Dear Mr. Malik:

Please find the following responses (in bold text) to review comments (in italics) received April 27, 2020 for the above referenced application. The scoping application has been revised to reflect the remaining comment and response herein.

PennDOT Scoping Application Comments:

2) DESCRIPTION OF PROPOSED DEVELOPMENT:

1. *As discussed at the scoping application meeting, the Department would prefer limiting this development to two accesses.* **The concept sketch has been revised to indicate two driveways. The application has been revised to remove current references to site driveway 3 connecting to Gettysburg Pike.**

If you have any further questions or comments, please contact our office.

Sincerely,

Mark E. Allen, P.L.S., P.E.

Willows at Ashcombe Revised Scope

Mark Allen <mallen@alphacei.com>

Wed 5/20/2020 9:59 AM

To: PD, District 8-0 Signals <RA-pdDist80Signals@pa.gov>; PD, District 8-0 HOP <RA-PDDISTRICT80HOP@pa.gov>

Cc: Stoner, Kirk <kstoner@ccpa.net>

 1 attachments (14 MB)

2020-05-18 Revised Scoping Meeting Application Package.pdf;

PennDOT District 8-0

The scoping meeting application for the Willows at Ashcombe has been revised for your review and approval.
Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com

Willows at Ashcombe revised PennDOT scope application

Mark Allen <mallen@alphacei.com>

Thu 5/21/2020 9:52 AM

To: Jennifer Boyer <jboyer@uatwp.org>

 1 attachments (14 MB)

2020-05-18 Revised Scoping Meeting Application Package.pdf;

Jennifer Boyer
Community Development Director/Planner
Upper Allen Township

Jen,

A copy of the revised scope application sent to PennDOT is attached for the Township's use / review/ comment.
Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com



Memo

DATE: May 20, 2020

TO: Upper Allen Township Board of Commissioners, Planning and Zoning Committee
Commissioner Ginnie M. Anderson
Commissioner Kenneth Martin

FROM: Jennifer M. Boyer, AICP
Community Development Director/Planner

RE: Plan Name: The Willows at Ashcombe Mansion
Plan Type: Preliminary/Final Subdivision & Land Development
UAT File No.: 20-01-22
Property Parcel ID: 42-11-0726-029A & 42-11-0276-029B
Property Address: 1100 Grantham Road
Zoning District: R-1

The proposed project is for the consolidation of the two existing lots into one lot with a total tract acreage of 22.49 acres. The proposed lot will be developed into a resort style special occasion facility with 30 cottages. The facility will provide private rental for occasions such as business meetings, weddings, receptions, banquets and other similar functions. The facility will also be able to accommodate overnight guests which is not open to the general public. The property will be served by public sewer and water. The property contains wetland areas as well as floodplain and floodway areas.

A Conditional Use was secured for the proposed use at this property on December 18, 2019. A copy of the decision is included with this report.

The Applicant has requested the following modifications:

1. Modification of Section 220-9.A to allow the applicant to submit a joint Preliminary/Final Subdivision & Land Development Plan.

Staff Comment: There was concern that any accessory uses, including the brewpub, would not be followed up with a land development plan. The Applicant has provided a note on the plan stating additional buildings for accessory uses would comply with the land development process and applicable provisions in the SLDO and other Township ordinances. Staff has no other issues unless there would be additional discussion needed to address any concerns proposed in the traffic impact study.

Planning Commission: Recommended this modification request be approved.

2. Modification of Section 220-16.A(1) to allow the applicant to install curbing only along the parking stalls to allow stormwater to be directed to proposed inlets.

Staff Comment: Staff sees no issues with this request, as the lack of curbing will occur within private areas. The proposed curbing will direct runoff from paved areas into the intended inlets and/or storm basins.

Planning Commission: Recommended this modification request be approved.

The Applicant has requested the following waiver:

1. Waiver of Section 220-16.B(5) has been corrected to reflect §220-16.B(3) to allow to applicant to only install sidewalks internally. The Applicant requests to pay a fee in lieu of sidewalk construction along Grantham Road and Gettysburg Pike. Note: *The Applicant has stated they will likely seek permission to pay a fee in lieu of construction. Additional documentation must be provided stating how the Applicant's request meets one or more conditions in Section 220-16.B(9) of the SLDO. Otherwise, sidewalks should be constructed along Lisburn Road and Gettysburg Pike. It is not the Township's policy to consider waiver requests for installation of curbs and sidewalks.*

Planning Commission: Recommended this request be approved only if the applicant can demonstrate they meet the requirements to provide a fee in lieu of construction.

Staff Comments: On May 19, 2020, the Applicant provided information regarding how it meets the requirements to provide a fee in lieu of sidewalk construction. Please see the attached documents.

Currently, there are no other sidewalk deferrals in this area, nor are there existing sidewalks along these sections of Grantham Road and Gettysburg Pike. The Comprehensive Plan only identifies a future walking trail through the Trout Run area. No sidewalks are proposed along these sections of Grantham Road or Gettysburg Pike.

There are existing sidewalks within the Ashcombe and Rosegarden neighborhoods. If the Commissioners would like to see a sidewalk connection to this site, particularly if the restaurant/brewpub become open to the public, it may be more appropriate to consider sidewalks or pathways that are internal to the Applicant's site. Additionally, the Ashcombe neighborhood would need to construct sidewalks within their open space areas along Grantham Road to complete the connection.

Per Section 220-16.B(9), the Applicant may offer to pay a fee in lieu of construction if the Township determines that one or more of the following conditions has been met. The Applicant has provided justification to three subsections of the fee in lieu of

requirement (see their attached documentation). If the Commissioners deem these reasons to be just, then the Applicant would not be required to install sidewalks along Grantham Road and/or Gettysburg Pike.

- a. The sidewalks are not logical extensions or links to existing sidewalks/walkways.*
- b. Topographical, sensitive or other conditioned areas do not make it practical/feasible to construct sidewalks.*
- c. The sidewalks are not a proposed feature on the Township's Comprehensive Plan or any Official Map.*

Per Section 220-16.B(9)(b), the fee shall not exceed 110% of the current costs of construction for said sidewalk. Construction costs are to be submitted by an engineer and reviewed and approved by the Township. The Applicant's engineer has submitted a cost estimate with their waiver request, claiming a cost of \$4.00 per square foot. Most recently, we have determined the appropriate value for 4" thick concrete sidewalk to be \$7.00 per square foot. The current cost multiplied by 6,692 feet at 110% of the cost would be \$51,528.40. The estimate has been sent to the Township Engineer for his review; final determination is pending.

As one of the conditions of approval, the Applicant would be required to construct the curbing along Gettysburg Pike and Grantham Road, in accordance with Section 220-16.A(2) of the SLDO. On May 19, 2020, the Applicant requested the following deferral.

1. Deferral of Section 220-16.A(2) to not install curbing along Gettysburg Pike and Grantham Road until such time as the Township deems the improvement necessary.

Staff Comment: The Applicant has provided reasons for why curbing should not be provided along these roadways. Staff has no issues with the request, as the construction of curbing could create additional hardships. Due to the existing design of the roadways, much of the stormwater runoff is into the grass areas. The construction of curbing would require additional stormwater management measures to be put in place to control the runoff.

There are no other deferred curb improvements. There are curbs within Ashcombe and Rosegarden developments. There no existing curbs nearby along Grantham Road and Gettysburg Pike.

RECREATION FEE/LAND DEDICATION

The applicant shall, upon plan approval and prior to plan recording, contribute to the Township's Recreation Land Acquisition and Improvement Fund, in accordance with Section 220-28.D(5) of

the Codified Ordinances of Upper Allen Township. The contribution amount shall be \$14,820.80, based on 37,052 square feet of floor area.

TIMELINE

The following table presents the review period timeline for the above referenced application.

PLAN REVIEW PERIOD	CURRENT DATES
Application Date	01/22/2020
Review Period Beginning Date	02/21/2020
Last Available Planning Commission Meeting	04/27/2020
Last Available Board of Commissioners Meeting	05/20/2020
Review Period End Date	05/21/2020

OTHER AGENCY REVIEWS

The following agencies were notified on January 23, March 10, April 27, and May 11, 2020 that this plan is available for review. Their comments have been included in this report.

AGENCY	SUBMISSION OF COMMENTS
Community Development Department	02/11/20; 03/24/20; 05/04/20; 05/12/20
Township Engineer (C.S. Davidson, Inc.)	02/14/20; 03/30/20; 04/28/20
Traffic Engineer	05/15/20
Sewer Department	02/13/20; 03/27/20; 05/07/20; 05/11/20
Police Department	01/27/20; No Comment
Fire Department	01/27/20; 03/24/20; 05/12/20
Public Works/MS4 Coordinator	01/24/20; No Comment
Cumberland County Planning Commission	02/10/20

PLANNING COMMISSION RECOMMENDATION

The Upper Allen Township Planning Commission unanimously (7-0) voted to recommend approval of the Applicant's requested modifications and waiver as noted above at its April 27, 2020 meeting. They also unanimously (7-0) voted to recommend approval of the Applicant's plan with conditions listed below.

The Applicant has since revised its land development plan to address several outstanding conditions. The conditions listed below are what remain and should be considered when acting on the plan.

BOARD OF COMMISSIONERS – SUGGESTED MOTIONS

MODIFICATIONS

1. Move to approve the modification request for Section 220-9.A to allow the applicant to submit a joint Preliminary and Final Subdivision & Land Development Plan.
2. Move to approve the modification request for Section 220-16.A(1) to allow the applicant to install curbing only along the parking stalls to allow stormwater to be directed to proposed inlets. This modification only applies to curbing internal to the site.

WAIVERS FOR FEE IN LIEU OF CONSTRUCTION

3. Move to accept the Applicant's request to provide a fee in lieu of construction of sidewalks, waiving the requirements of Section 220-16.B(3) of the Subdivision Land Development Ordinance to install sidewalks along Grantham Road and Gettysburg Pike. Per Section 220-16.B(9), the Applicant shall pay a fee in the amount to be determined by the Township Engineer. The cost shall not exceed 110% of the cost to construct the sidewalk along both Grantham Road and Gettysburg Pike. Payment of the fee shall be required as a condition of approval and prior to plan recordation.

DEFERRALS

4. Move to approve the deferral request for Section 220-16.A(2) for the installation of curbing along Gettysburg Pike and Grantham Road until such time as the Township deems the improvement necessary. The curbing and all required curb detail specifications shall be shown on the final plan as a future improvement.

PLAN ACTION – SUGGESTED MOTION

Move to approve the Willows at Ashcombe plan as a preliminary/final subdivision/land development plan, UAT File # 20-01-22, with the following conditions:

TRAFFIC COMMENTS

The following comments are based on the draft TIA dated March 24, 2020 and submitted to the Township on April 27, 2020:

1. Document must be provided indicating PennDOT's and the Township's acceptance of the revised scope application.

2. In regards to the proposed trip generation of the site, backup data and/or further justification shall be provided for the following:
 - a. The TIA states that the trips for the wedding venue are based on the National Published Wedding Data and that the average attendance is 136 guests per wedding; however, no back up data was provided in the TIS for verification. Documentation shall also be provided from the Applicant confirming that they expect wedding event attendance will match the assumptions of the TIA.
 - b. The TIA indicates that the on-site Restaurant will service wedding events only; however, the current Ashcombe Mansion website states that consideration is being given to public dining during the week. In addition, the Brewpub may eventually open up to the public; however, for purposes of the TIS these uses were considered ancillary to the wedding venue events. If/when these uses do open to the public during the weekday, the Applicant must confirm with the Township if an update to the traffic analysis is required.
3. For the Gettysburg Pike driveway, supplemental signage shall be provided indicating that this is a "Service Entrance Only" to limit confusion with the Mansion's patrons.
4. The Applicant must verify the lane configuration inputs at the Grantham Road/Driveway #1 intersections in the capacity analysis.
5. The Applicant must verify the volumes were accurately input into the turn lane warrant analysis worksheets.
6. While it will have minimal impact on the TIS results, it is standard practice within District 8-0 to assume a default peak hour factor of 0.90 and 2% heavy vehicle percentage on turning movements at proposed intersections, unless actual data is provided.
7. All PennDOT comments should be addressed to their satisfaction.

SANITARY SEWER

8. Sheet No. 4 of 14 – Grading/Utility Plan shall be corrected to show: A lateral/building sewer must be shown serving the Bed & Breakfast/Event Hall conforming to the Township standard building sewer detail drawing. *Note: This is the 3rd request to have this shown. Exemptions are only allowed if the building for which connection is required is more than 350 feet from the sanitary sewer line.* A profile shall also be provided for the building sewer/lateral.
9. Sheet No. 9 of 14 – Profile Plan, shall be corrected to show on the East Entrance Profile: Under the Sanitary Sewer Notes the word 'Profile' is spelled incorrectly.

GENERAL

10. The landscaping plan (Sheet 5) identifies an alternate planting chart, which accounts for only 82 of the plantings. These 82 plantings are required of the Buffer Yard 3 requirements. The chart should also identify the alternatives for the required plantings in the Buffer Yard 1 area, the dumpster area, and the required street trees, to include the total amounts of all types of trees and shrubs to be planted.

ADMINISTRATIVE

11. The Applicant must obtain a Highway Occupancy Permit (HOP) from PennDOT for access onto a state road, and supply the Township with a copy of the HOP prior to the plan being recorded, in accordance with Section 220-17.B(3)(a) and Section 245-17.6.D of the Codified Ordinances of Upper Allen Township. Any changes to the road conditions as a result of the HOP shall be identified on the final plan.
12. This project is situated in a Special Sewer District within the Township (Ordinance 741, Chapter 200, Article XI). The Applicant shall pay the required costs, in addition to current tapping fees and other sanitary sewer-related fees.
13. The Applicant must obtain approval of the Erosion and Sediment Control Plan from the Cumberland County Conservation District and furnish to the Township a copy of the required NPDES permit in accordance with the requirements of Section 220-9.C(4)(h), Section 220-27, and Section 214-15.C of the Codified Ordinances of Upper Allen Township.
14. The Applicant shall obtain approval of the planning module for new land development or approval of an exemption from the planning requirements from the Township and PA DEP in accordance with the requirements of Section 220-20.A of the Codified Ordinances of Upper Allen Township and pay all applicable application and tapping fees in accordance with the requirements of Section 200-15.D(8) of the Codified Ordinances of Upper Allen Township.
15. The Applicant must enter into a Reservation of Capacity (ROC) Agreement with the Township and pay the appropriate ROC fees, or, pay tapping fees for the number of approved EDUs.
16. The Applicant must enter into a Sewer Extension Agreement with the Township and furnish the required \$1,000.00 escrow for plan and legal review costs, provide plats and legal descriptions for sanitary sewers to be located outside of the public rights-of-way, furnish the required escrow amount for inspection and related costs, and provide appropriate installation financial security for the sanitary sewers.

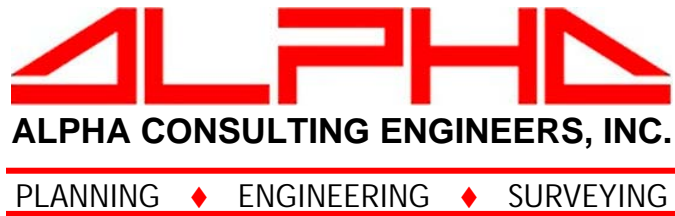
17. The Applicant shall enter into a Stormwater Best Management Practices Maintenance Operation and Maintenance Agreement with the Township and pay all applicable fees, in accordance with Section 214-20.E of the Codified Ordinances of Upper Allen Township.
18. Any modifications, waivers, and/or deferrals granted by the Board of Commissioners shall be listed on the final plan, including the date in which such action was granted, in accordance with Section 220-10.B(3) of the Codified Ordinances of Upper Allen Township. All deferred improvements shall be shown on final plans as future improvements.
19. The Applicant must sign the plan and have the signatures notarized according to Section 220-9.C(2)(dd) and 220-10.B(1)(a) of the Codified Ordinances of Upper Allen Township.
20. The Applicant must have the plan signed and sealed by a licensed surveyor and licensed engineer certifying to the accuracy of the survey and plan in accordance with Section 220-10.B(1)(b) of the Codified Ordinances of Upper Allen Township.
21. The Applicant must submit a signed and sealed construction cost estimate for all public improvements, including sanitary sewer work, in accordance with Section 220-13 of the Codified Ordinances of Upper Allen Township.
22. The Applicant must provide financial security in a form acceptable to the Township and in an amount to be estimated by the applicant and approved by the Township Engineer to insure construction of the improvements and/or concrete monuments shown on the plan, and the applicant must enter into an agreement with the Township providing for construction and installation of all improvements shown on the plan according to Section 220-13 of the Codified Ordinances of Upper Allen Township. The financial security shall contain the provision that the Township shall be informed in writing thirty (30) days before the expiration date of any letter of credit or bond provided as a condition of approval.
23. The Applicant must also furnish financial security to the Township in an amount equal to 10% of the total financial security provided to cover the cost of construction inspection, administrative, and other related costs according to Section 220-52.B of the Codified Ordinances of Upper Allen Township.
24. The Applicant must contribute to the Township Recreation Land Acquisition and Improvement Fund through the dedication of a fee in lieu of, in the amount of \$14,820.80, in accordance with the requirements of Section 220-28.D(5) of the Codified Ordinances of Upper Allen Township.
25. The Applicant shall also comply with all fees, taxes, utility rentals, building, police or fire codes, ordinances, resolutions and regulations as may be in effect from time to time concerning the proposed development.

26. The Applicant shall pay such fees as are charged from time to time by Upper Allen Township for other further reviews or permits as may be required concerning the proposed development.
27. The Applicant shall obtain final water main design approval from Suez Water Company and furnish to the Township an updated design plan.
28. The Applicant must satisfy all conditions on the approval of the plan and the plan must be recorded within 270 days from the date of approval by the Board of Commissioners or the plan will be considered disapproved.
29. Prior to obtaining the county signature for final plan recording, the Applicant shall provide a CD that includes a .dwg AutoCAD file that shows all parcel boundaries, lot lines, building footprints, road rights-of-way (to include curbs and sidewalks), edge of pavement, hydrants, and any utility or easements (public and private).

Since there are conditions on the approval of this plan, the plan will be rejected unless the owner/applicant agrees, in writing, within thirty (30) days, to comply with and abide by the specific conditions of approval.

Thank you.

cc: Board of Commissioners
Lou Fazekas, Township Manager
File



May 29, 2020

Jennifer M. Boyer
Community Development Director/Planner
Upper Allen Township
100 Gettysburg Pike
Mechanicsburg, PA 17055

RE: Transportation Impact Assessment
The Willows at Ashcombe Mansion
Upper Allen Township
Cumberland County, PA

Dear Ms. Boyer:

Please find the following responses **(in bold text)** to Township review comments (*in italics*) dated May 20, 2020 for the above referenced project:

Traffic Comments

1. *Document must be provided indicating PennDOT's and the Township's acceptance of the revised scope application.* **Documentation will be provided in the correspondence section of the TIA. Scoping application documents were submitted to PennDOT and Upper Allen Township on March 17, 2020. The Township had no comments and the remaining PennDOT comment has been addressed.**
2. *In regards to the proposed trip generation of the site, backup data and/or further justification shall be provided for the following:*
 - a. *The TIA states that the trips for the wedding venue are based on the National Published Wedding Data and that the average attendance is 136 guests per wedding; however, no back up data was provided in the TIS for verification. Documentation shall also be provided from the Applicant confirming that they expect wedding event attendance will match the assumptions of the TIA.* **Referenced data was provided in the March 9, 2020 revision of the Scoping Application. PennDOT has no further comments regarding the trip generation estimate.**

- b. *The TIA indicates that the on-site Restaurant will service wedding events only; however, the current Ashcombe Mansion website states that consideration is being given to public dining during the week. In addition, the Brewpub may eventually open up to the public; however, for purposes of the TIS these uses were considered ancillary to the wedding venue events. **The correspondence section of the study acknowledges that the brewery may be open to the general public in the letter dated March 9, 2020. If/when these uses do open to the public during the weekday, the Applicant must confirm with the Township if an update to the traffic analysis is required. During the early stages of the scoping application process, the applicant proposed analyzing the trip generation using restaurant land uses but was directed to analyze the facility using wedding data. The use as restaurant facilities, or conversion to, was addressed in the scoping application correspondence, specifically in the letter dated March 9, 2020 wherein it was noted that the ITE trip generation estimates were still included within the study for comparison. Since peak hour traffic generations are similar between the wedding venue and restaurant scenarios, capacity, delay queueing, and turn lane warrant results will be similar. Therefore, an update is not needed.***
3. *For the Gettysburg Pike driveway, supplemental signage shall be provided indicating that this is a "Service Entrance Only" to limit confusion with the Mansion's patrons. **The Gettysburg Pike access has been removed from the preliminary plan and the traffic analysis.***
4. *The Applicant must verify the lane configuration inputs at the Grantham Road/Driveway #1 intersections in the capacity analysis. **The lane configuration within the capacity analysis has been revised for the noted driveway.***
5. *The Applicant must verify the volumes were accurately input into the turn lane warrant analysis worksheets. **Turn lane warrant worksheets have been verified and match the volumes on Figure 5C. Heavy vehicle percentages have been updated as noted in the response to comment 6.***
6. *While it will have minimal impact on the TIS results, it is standard practice within District 8-0 to assume a default peak hour factor of 0.90 and 2% heavy vehicle percentage on turning movements at proposed intersections, unless actual data is provided. **The peak hour factor has been revised to 0.90. Heavy vehicles were not present during the data collection for the existing roadway corridor nor the existing driveway. A heavy vehicle percentage of 2 has been added for the new driveway to the west (site driveway 1).***

7. *All PennDOT comments should be addressed to their satisfaction.* **Acknowledged.**

If you have any further questions or comments, please contact our office.

Sincerely,



Mark E. Allen PLS, PE

ALPHA

Ashcombe

Mark Allen <mallen@alphacei.com>

Wed 6/3/2020 1:09 PM

To: Jennifer Boyer <jboyer@uatwp.org>

Jennifer Boyer

Community Development Director/Planner

Upper Allen Township

Jen,

Please find attached via the drop box link below, the TIA for The Willows at Ashcombe, revised per comments received May 20, 2020.

<https://www.dropbox.com/sh/s9wdvzhcxsvklh/AAD0wMTXAJ9RPyg9MhKNnlpLa?dl=0>

Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com



TRAFFIC PLANNING AND DESIGN, INC.

WWW.TRAFFICPD.COM

June 11, 2020

Ms. Jennifer Boyer, AICP
Community Development Director/Planner
Upper Allen Township
100 Gettysburg Pike
Mechanicsburg, PA 17055

RE: Traffic Impact Study Review

Willows at Ashcombe Mansion
Upper Allen Township, Cumberland County
TPD No. UATO.0027

Dear Ms. Boyer:

Traffic Planning and Design, Inc. (TPD) has reviewed the Transportation Impact Assessment submission for the above referenced project. In performing this evaluation, we reviewed the following information:

- Transportation Impact Assessment for The Willows at Ashcombe Mansion, prepared by ALPHA Consulting Engineers, Inc, dated May 29, 2020.

Based on our review we offer the following comments:

1. TPD has no further comments on the TIA, however all PennDOT comments should be addressed to their satisfaction.

We reserve the right to offer additional comments as more information is supplied. If you have any questions, please do not hesitate to contact us.

Sincerely,

TRAFFIC PLANNING AND DESIGN, INC.

Jason T. Wheeler, PTP
Project Manager
Jwheeler@TrafficPD.com

Craig D. Mellott, P.E., PTOE
Principal, Central PA Regional Leader
Cmellott@trafficpd.com

RE: Willows at Ashcombe Revised Scope

Jennifer Boyer <jboyer@uatwp.org>

Tue 6/16/2020 12:26 PM

To: Mark Allen <mallen@alphacei.com>

Mark –

The Township finds the revised scoping meeting application dated May 18, 2020 to be acceptable. We concur that all PennDOT comments should be addressed to their satisfaction.

Sincerely,

Jennifer

Jennifer M. Boyer, AICP

Community Development Director/Planner

Upper Allen Township

717.766.0756

www.uatwp.org



Please consider the environment before you print this document.

From: Mark Allen <mallen@alphacei.com>

Sent: Saturday, June 13, 2020 10:07 AM

To: Jennifer Boyer <jboyer@uatwp.org>

Subject: Re: Willows at Ashcombe Revised Scope

From: Mark Allen [<mailto:mallen@alphacei.com>]

Sent: Monday, June 8, 2020 9:58 AM

To: Jennifer Boyer <jboyer@uatwp.org>

Cc: John Murphy <jmurphy@alphacei.com>; Michael Smith <msmith@alphacei.com>

Subject: Fw: Willows at Ashcombe Revised Scope

Jennifer Boyer

Community Development Director/Planner

Upper Allen Township

Jen,

PennDOT has found the scoping meeting application to be acceptable.

As noted in their email below, please provide the Township's concurrence so that we may prepare the final document and proceed with the review process with PennDOT.

Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com

From: PD, District 8-0 Signals <RA-pdDist80Signals@pa.gov>

Sent: Friday, June 5, 2020 12:19 PM

To: Mark Allen <mallen@alphacei.com>

Cc: kstoner@ccpa.net <kstoner@ccpa.net>; PD, District 8-0 HOP <RA-PDDISTRICT80HOP@pa.gov>; Malik, Mazhar <MMALIK@pa.gov>; Kinard, Eric W <ekinard@pa.gov>; Flad, Christopher <cflad@pa.gov>; PD, District 8-0 Signals <RA-pdDist80Signals@pa.gov>

Subject: RE: Willows at Ashcombe Revised Scope

Mark,

The revised Scope Application is acceptable to us. After you hear back from everyone please send it back out as a final version. Then you may prepare the TIA accordingly.

If you have any questions or concerns please feel free to email or call.

Thanks.

Dean Noles | Traffic Control Specialist

PA Department of Transportation | PennDOT Engineering District 8-0

2140 Herr Street | Harrisburg PA 17103-1699

Phone: 717.772.0976 | Fax: 717.705.0375

www.penndot.gov

Ashcombe Final Scope

Mark Allen <mallen@alphacei.com>

Thu 6/18/2020 2:08 PM

To: Noles, Dean T <dnoles@pa.gov>; Jennifer Boyer <jboyer@uatwp.org>

Cc: PD, District 8-0 HOP <RA-PDDISTRICT80HOP@pa.gov>; PD, District 8-0 Signals <RA-pdDist80Signals@pa.gov>

 1 attachments (14 MB)

2020-06-18 Final Scoping Meeting Application Package.pdf;

Dean/ Jen,

A copy of the final scope is attached for your records.

A copy will be included in the EPS with the TIA when submitted.

Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com

SCOPING MEETING APPLICATION FOR The Willows at Ashcombe Mansion

Applicant:
Ashcombe Mansion Property LLC.
1100 Grantham Road
Mechanicsburg, PA 17055
REP: Deborah Myers Welsh

Site Location:
1100 Grantham Road
Upper Allen Township
Cumberland County
Pennsylvania

October 30, 2019
Revised May 18, 2020
Final June 18, 2020

Prepared by:


ALPHA CONSULTING ENGINEERS, INC.
PLANNING ♦ ENGINEERING ♦ SURVEYING
115 Limekiln Road, P.O. Box G
New Cumberland, PA 17070
(717) 770-2500 Fax (717) 770-2400
www.alphacei.com

TRANSPORTATION IMPACT STUDY (TIS) SCOPING MEETING APPLICATION

Scoping Meeting Date: January 6, 2020
Applicant: Ashcombe Mansion Property LLC.
Applicant's Consultant: ALPHA Consulting Engineers Inc.
Applicant's Primary Contact: Deborah Myers Welsh

(Attach a list of meeting attendees along with phone numbers and email address)

(1) LOCATION OF PROPOSED DEVELOPMENT: (Attach location map if available) **Exhibit 3 & 4**

PennDOT Engineering Dist.: 08 - 2 County: Cumberland
Municipality: Upper Allen Township
State Route(s) (SR): 2026
Segment(s): 0030 Offset(s): 0646 - 1636

State Route(s) (SR): _____
Segment(s): _____ Offset(s): _____

(2) DESCRIPTION OF PROPOSED DEVELOPMENT: (Attach site plan if available) **Exhibit 5**

Existing site access: Existing driveway on Grantham Road.

Existing Land Use: Previously Bed and Breakfast.

Proposed site access: SR2026/0030/0813 and 0030/1042

Proposed land uses: Wedding Venue: lodging, mansion, and the chapel are reserved for wedding type events and are not open to the general public. The brewery may open to the general public after the venue is established

Community linkages (*access to neighboring properties, cross easements, pedestrian and transit accommodations*):

A section will be included within the study addressing the community linkages

(3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: **Existing** Full Build Out Date: **Spring 2021**

Describe Proposed Development Schedule/Staging: **Single stage to complete facilities.**

- (4) TRIP GENERATION: (Use the most recent edition of "Institute of Transportation Engineers (ITE) Trip Generation," unless the Department approves another source. Non-ITE methods must be fully justified based on surveys of multiple sites of the same land use type and size.)

Trip generation for the proposed development will be based on:

___ ITE Trip Generation Manual. **Provided for comparison.**
(List proposed development land uses and associated ITE Land Use Codes)

X Other independent surveys. **Per discussion at scope meeting wedding data used.**
(Attach justification for non-ITE methods)

List land development and trip generation information, as appropriate. If necessary, attach additional sheets to indicate additional land uses or development phases.

ITE TRIP GENERATION EQUATIONS

Land Use Description	ITE #	Time Period	Equations	Independent Variable (X)	Entering %	Exiting %
Motel	320	Weekday	$T = 3.35(X)$	(30) Rooms	50%	50%
		PM Peak Hour of Adj Street	$T = 0.35(X) + 3.53$		54%	46%
		PM Peak Hour of Generator	$\ln(T) = 0.92\ln(X) - 0.52$		55%	45%
		Saturday	$T = 8.71(X)$	(30) Occupied Rooms	50%	50%
		Saturday Peak	$T = 0.36(X) + 36.83$		45%	55%
Quality Restaurant	931	Weekday	AR: $T = 83.84(X)$	(6.5) Restaurant	50%	50%
		PM Peak Hour of Adj Street	AR: $T = 7.80(X)$		67%	33%
		PM Peak Hour of Generator	AR: $T = 8.28(X)$	(5) Restaurant/ Brewery 1,000 SF	61%	39%
		Saturday	AR: $T = 90.04(X)$		50%	50%
		Saturday Peak	AR: $T = 10.68(X)$		59%	41%

T = number of site-generated vehicular trips

AR = Trip Generation Rate, No equation provided.

SNA = Split Not Available

M = Measured Trip Rate

National Published Wedding Data

Average wedding party size	Average number of wedding guest	Number of vehicles per guest	Average vendor size	Average number of trips		Entering %	Exiting %
10	136	0.5	10	$10+136(0.5)+10$	= 88	90	10
Pre/Post Wedding event Staff			20	$20+136+20+40$	= 216	50	50

TRIP GENERATION PROPOSED DEVELOPMENT – BUILD OUT

Land Use	Trips											
	Total				Enter				Exit			
	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding	Lodging	Quality Restaurant 5,000 SF	Quality Restaurant 6,500 SF	National Average Wedding
ITE#	320	931	931	NA	320	931	931	NA	320	931	931	NA
Time Period												
Weekday	101	419	545	216	50	210	272	108	51	209	273	108
	1065			216	532			108	533			108
Weekday PM Adj.	14	39	51	88	8	26	34	79	6	13	17	9
	104			88	68			79	36			9
Weekday PM Gen.	14	41	54	88	8	25	33	79	6	16	21	9
	109			88	66			79	43			9
Saturday	261	450	585	216	131	225	293	108	130	225	292	108
	1296			216	649			108	647			108
Saturday Peak	48	53	69	88	22	31	41	79	26	22	28	9
	48	122		88	22	72		79	26	50		9

Wedding event traffic generation entering during the peak hour is estimated to be of greater impact than ITE estimated generated traffic for known ITE uses. Wedding event traffic is used in the TIA. For site conversion to the individual uses, peak hour traffic will be similar as shown in the comparison above. Lodging Saturday peak hour traffic (before 11:00 and after 3:00 PM) does not occur during normal Saturday peak hours. Peak hour wedding trip estimation conservatively includes the wedding party and outside vendors though realistically these users will arrive before the peak hour for this facility. See attached published time line. Vendors include photographers, officiator, flower delivery, limo service, assistant coordinators, and additional deliveries. Pre wedding staff and vendors include; Manager, lodging staff, event set-up/breakdown staff, kitchen staff, wait staff, bartenders, valets, band or DJ, and wedding coordinator. While some of the staff duties will be performed by the same employee the generation estimate conservatively assumes that each duty is performed by a separate employee.

(5) ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION:

(a) Estimated Daily Trip Generation of Proposed Development -- Assuming One Access Point and Full Build out/Occupancy of Entire Tract: trips/day **216 Trips/Day or 108 VPD**

(b) Driveway Classification Based on Trip Generation and One Access Point: **Low Volume**

(6) TRANSPORTATION IMPACT STUDY REQUIRED?

☒ **X** No

☐ Yes, based on:

☐ 3,000 or more vehicle trips/day generated

☐ During any one-hour time period, 100 or more new (added) vehicle trips generated entering or 100 or more new (added) vehicle trips generated exiting development

☐ Other considerations as described below:

(7) TRAFFIC IMPACT ASSESSMENT REQUIRED? ☐ No ☒ **X** Yes

(If a TIS is required, the following sections of this checklist will be discussed at the TIS Scoping Meeting. The applicant may provide preliminary information.)

(8) TIS STUDY AREA: (Describe; attach map and/or diagram)

(a) Roadway and Study intersections:

Site driveways connecting to Grantham Road SR 2026, plus the adjacent intersection of Grantham Road SR 2026 and Gettysburg Pike.

(b) Land Use Context: **Urban with Suburban Overlays.**

(c) Known Congestion Areas: **None Known.**

(d) Known Safety Concerns: **To be requested from the Township as part of any TIA.**

(e) Known Environmental Constraints: **None Known.**

(f) Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.) **No major contributors known.**

(g) Transit Review (Current routes/stops). **Nearest route information to be included in any TIA.**

(9) STUDY AREA TYPE: Urban X Rural

(10) TIS ANALYSIS PERIODS AND TIMES:

(List periods and times. Normal analysis periods are existing conditions, 5 years in the future without development, and 5 years in the future with development. Normal analysis times for each period are the AM peak hour, the PM peak hour, and the peak hour of site-generated traffic.)

Peak Periods for the, 2019 Current Year, 2021 Opening Year with/without development scenarios as follows:

1. **Friday PM Peak Hour of the adjacent street between 3:30pm to 6:30pm**
2. **Saturday Peak Hour of the adjacent street between 11:00am to 2:00pm**

(11) TRAFFIC ADJUSTMENT FACTORS:

(a) Seasonal Adjustment: (Identify counts requiring adjustment and methodology) **None**

(b) Annual Base Traffic Growth: 0.74 %/yr. Source: PennDOT August 2019- July 2020

(c) Pass-By Trips: (Attach justification where required) **N/A**

<u>Land Use</u>	<u>%</u>	<u>Source</u>
-----------------	----------	---------------

(d) Captured Trips for Multi-Use Sites: **N/A**
(List % and manner of application. Attach justification where required.)

(e) Modal Split Reductions **N/A**

(f) Other Reductions **N/A**

(12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:
(Identify proposed developments with issued permits that need to be included.)

None proposed.

(13) TRIP DISTRIBUTION AND ASSIGNMENT:
(Describe; explain/justify; attach diagram and related information.)

**Use existing distribution along Grantham Road SR 2026 and Gettysburg Pike.
Include local data for trips attracted to the area.**

(14) Approval of Data Collection Elements and Methodologies :

Location

Period

Type

SR 2026 & Gettysburg Pike FRI 3:30-6:30PM / SAT 11:00AM-2:00PM

TM

WD = Weekday

TM = Turn Movement

ATR = Automatic Traffic Recorder

(15) CAPACITY/LOS ANALYSIS:

Location

Period

Type

Listed Below

FRI and SAT Peak

HCM 6 Synchro 10 software

Proposed site driveway Intersections

Adjacent intersection of Gettysburg Pike and Grantham Road SR 2026

(16) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:

(Projects programmed for construction or other developments with issued permits.)

None known.

(17) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:

(Required for all site access driveways; identify other locations)

Per CH 441 for proposed site driveway Intersections for passenger vehicles.

(b) Signal Warrant Analysis:

(Identify locations)

None proposed.

(c) Required Signal Phasing/Timing Modifications:

(Determine for all signalized intersections; specify methodology.)

None proposed.

(d) Traffic Signal Corridor/Network Analysis:

(Identify locations/methodology)

None proposed.

(e) Analysis of the Need for Turning Lanes:

(Identify locations/methodology)

The proposed site driveway intersections per Pub 46.

-
- (f) Turning Lane Lengths:
(Identify methodology to be used)

The proposed site driveway intersections per Pub 46.

- (g) Left Turn Signal Phasing Analysis:
(Identify locations/methodology)

None proposed.

- (h) Queuing Analysis:
(Identify locations/methodology)

Per PennDOT, queue analysis will include all signalized movements and all unsignalized minor movements. Include both 50th percentile (signalized only) and 95th percentile queues from Synchro (HCM6 methodology). Also provide 95th percentile queues using Synchro methodology for the signalized intersection. For through movements, consider the distance to the next major intersection as the available stacking distance. Note that mitigation will be required if queues that are shorter than the available stacking distance in the "baseline" grow to lengths that are longer than the available stacking distance in the "with development" scenario. Mitigation will also be required for queues that are longer than the available stacking distance in the "baseline" and are increased between the baseline and "with development" scenario

- (i) Gap Studies:
(Identify locations/methodology)

None proposed.

- (j) Crash Analysis:
(Identify locations)

A crash analysis will be provided as a separate appendix to the study. The most recent five years of crash data for each approach route will be included. Non-reportable crashes will be requested from the municipality.

- (k) Weaving Analysis:
(Identify locations)

None proposed.

- (l) Other Required Studies:
(Specify locations/methodology)

None proposed.

_____ Date: _____

_____ Date: _____

Date: _____

_____ Date: _____



Date: 08/04/2020

Subject: Highway Occupancy Permit Application No. 215708, Cycle No.1 - Returned For Revisions

To: Ashcombe Mansion Property LLC
1100 Grantham Road
Mechanicsburg, PA 17055

From: PennDOT Engineering District 8-0
2140 Herr Street
Harrisburg, PA 17103-1699

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Mazhar Malik, District Permit Manager, at (717) 787-8789.

Response Comments**Date:** 08/04/2020**Application Number:** 215708, Cycle No.1**Form Letter Notes**

- (1) * Upon resubmission, the applicants engineer should put together a response letter that includes each comment, describes how each comment has been addressed, and where each can be found in the report. A copy of these comments and any previously submitted reports should also be provided. This will help expedite the review.

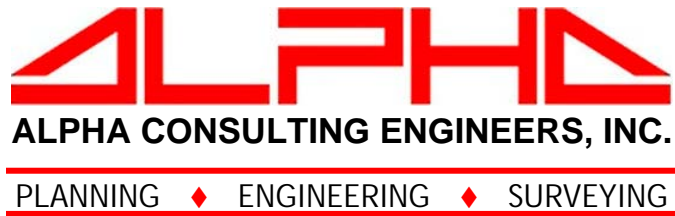
* Additional comments may follow upon subsequent review of the revised Transportation Impact Assessment (TIA). If you have any questions pertaining to the technical aspects of this review, please contact Mr. Eric Kinard of the District 8-0 Traffic Unit at (717) 787-9237.

Transportation Impact Study/Transportation Impact Assessment

- (1) Desirable sight distance for entering left turns from behind is not applicable and should be removed from Table 7.
- (2) The proposed driveway widths of 34 feet, as indicated in the recommendations, exceed the maximum width allowed for low volume driveways in accordance with Pennsylvania Code, Title 67, Transportation, Chapter 441.
- (3) PennDOT will only consider proposed access points meeting Safe Sight Distance (SSD) as listed in Tables 1 through 6 in 67 Pa Code, Chapter 441 unless it is impossible to achieve SSD at a point within the property frontage. Site Driveway 1 does meet Safe Stopping Sight Distance (SSSD) but will not be considered for issuance since SSD can be achieved along the property frontage at Site Driveway 2 which is less than 250 feet away.
- (4) Heavy vehicle percentages for proposed driveway movements should be based on ITE Trip Generation Manual data, if available. Otherwise 2% should be used.
- (5) The study shall describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2)
- (6) Provide traffic crash data and analyses for the study area intersections and key corridors for the most recent five years, summarizing any trends in the crash data. Include mitigation options if crash trends are present at an intersection or along a corridor. Note that crash history provided by the Department is confidential under 75 PA Code Section 3754. This material is only provided to official agencies that have responsibility in the highway transportation system and can only be used

by those agencies for traffic safety-related planning or research. Publication, reproduction, release or discussion of these materials, as well as the use of or reliance upon these materials for any purpose other than stated above, is expressly prohibited without the specific written consent of the Pennsylvania Department of Transportation. Do not include copies of crash reports in the study. Provide the copies under separate cover. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2)

- (7) Include a completed PennDOT M-950S (Driveway Sight Distance Measurements) form for each proposed access driveway to document and support the sight distance findings contained within the study. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2)
- (8) In the Executive Summary, identify the driveway classification for each driveway serving the proposed development. Provide the estimated ADT and backup calculations for each driveway.
- (9) To facilitate Department review, the Appendices should be electronically bookmarked / hyperlinked within the PDF.
- (10) Review and clarify the growth rates statement in the Introduction, Scope on page 6, and review road names and labels in Figure 1 on page 7. The SR # for Grantham Road is inconsistent.



September 2, 2020

Mr. Mazhar Malik
District Permits Manager
PennDOT District 8-0
2140 Herr Street
Harrisburg, PA 17103

RE: Highway Occupancy Permit
EPS Application #215708
Upper Allen Township, PA

Dear Mr. Malik:

Please find the following responses (in **bold** text) to review comments (in *italics*) dated August 4, 2020 for the above reference application. This letter has been attached to PennDOT's Electronic Permitting System as cycle 2 document 'A' (Exhibit **C2A**). Items previously submitted under cycle 1 include:

- Exhibit C1A – PennDOT form M-950AA executed,
- Exhibit C1B – Approved Final Scoping Application Package dated 2020-06-18,
- Exhibit C1C – Traffic Impact Assessment dated 2020-06-22.

General:

1. ** Upon resubmission, the applicants engineer should put together a response letter that includes each comment, describes how each comment has been addressed, and where each can be found in the report. A copy of these comments and any previously submitted reports should also be provided. This will help expedite the review. **This letter is provided to address this comment.***

** Additional comments may follow upon subsequent review of the revised Transportation Impact Assessment (TIA). If you have any questions pertaining to the technical aspects of*

this review, please contact Mr. Eric Kinard of the District 8-0 Traffic Unit at (717) 787-9237. Acknowledged.

Transportation Impact Study/Transportation Impact Assessment

1. *Desirable sight distance for entering left turns from behind is not applicable and should be removed from Table 7. **The desirable sight distance for entering left turns from behind has been removed as requested.***
2. *The proposed driveway widths of 34 feet, as indicated in the recommendations, exceed the maximum width allowed for low volume driveways in accordance with Pennsylvania Code, Title 67, Transportation, Chapter 441. **The recommendation section has been revised.***
3. *PennDOT will only consider proposed access points meeting Safe Sight Distance (SSD) as listed in Tables 1 through 6 in 67 Pa Code, Chapter 441 unless it is impossible to achieve SSD at a point within the property frontage. Site Driveway 1 does meet Safe Stopping Sight Distance (SSSD) but will not be considered for issuance since SSD can be achieved along the property frontage at Site Driveway 2 which is less than 250 feet away. **During the scoping application process PennDOT stated that two site driveways were acceptable. A third site driveway was removed as a result of that acceptance. Trees and vegetation along the opposite side of the roadway, located on Township property, shall be removed to meet the SSD criteria listed in Tables 1 through 6 in 67 Pa Code, Chapter 441. Table 7 has been revised accordingly.***
4. *Heavy vehicle percentages for proposed driveway movements should be based on ITE Trip Generation Manual data, if available. Otherwise 2% should be used. **Analysis of proposed driveway movements for site driveway 1 used a heavy vehicle percentage of 2%. Per discussion with PennDOT on August 17, 2020 the heavy vehicle percentages for the existing driveway (site driveway 2) has been revised to 2%. Please see the HCM worksheet section of the revised report attached as exhibit C2B.***
5. *The study shall describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2) **Text has been added to the multimodal transportation section of the study to describe the noted transportation accommodations.***
6. *Provide traffic crash data and analyses for the study area intersections and key corridors for the most recent five years, summarizing any trends in the crash data. Include mitigation options if crash trends are present at an intersection or along a corridor. Note that crash history provided by the Department is confidential under 75 PA Code Section*

3754. This material is only provided to official agencies that have responsibility in the highway transportation system and can only be used by those agencies for traffic safety-related planning or research. Publication, reproduction, release or discussion of these materials, as well as the use of or reliance upon these materials for any purpose other than stated above, is expressly prohibited without the specific written consent of the Pennsylvania Department of Transportation. Do not include copies of crash reports in the study. Provide the copies under separate cover. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2) **The crash analysis is included as exhibit C2C.**

7. *Include a completed PennDOT M-950S (Driveway Sight Distance Measurements) form for each proposed access driveway to document and support the sight distance findings contained within the study. (Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, Step 2)* **PennDOT form M-950S is included as exhibit C2D.**
8. *In the Executive Summary, identify the driveway classification for each driveway serving the proposed development. Provide the estimated ADT and backup calculations for each driveway.* **The requested information has been added to the study.**
9. *To facilitate Department review, the Appendices should be electronically bookmarked / hyperlinked within the PDF.* **The PDF has been revised to include hyperlinks to the tables and figures.**
10. *Review and clarify the growth rates statement in the Introduction, Scope on page 6, and review road names and labels in Figure 1 on page 7. The SR # for Grantham Road is inconsistent.* **The introduction section has been reviewed and clarified. Figure 1 has been revised.**

If you have any further questions or comments, please contact our office.

Sincerely,



Mark E. Allen, P.L.S., P.E.

Ashcombe PennDOT submission

Mark Allen <mallen@alphacei.com>

Thu 9/10/2020 8:26 AM

To: Jennifer Boyer <jboyer@uatwp.org>

Jennifer Boyer

Community Development Director/Planner

Upper Allen Township

Jen,

Please find attached a copy of the revised TIA (via drop box) submitted to PennDOT this week.

Let us know if you need a paper copy.

<https://www.dropbox.com/s/kq13i9wsknydqgz/C2B%20Ashcombe%20TIA%202020-08-20.pdf?dl=0>

Thank you.

Mark Allen PLS, PE

ALPHA CONSULTING ENGINEERS, INC.

115 LIMEKILN ROAD P.O. BOX 'G'

NEW CUMBERLAND, PA. 17070

OFFICE 717-770-2500

FAX 717-770-2400

mallen@alphacei.com



Date: 09/25/2020

Subject: Highway Occupancy Permit Application No. 215708, Cycle No.2 - Returned For Revisions

To: Ashcombe Mansion Property LLC
1100 Grantham Road
Mechanicsburg, PA 17055

From: PennDOT Engineering District 8-0
2140 Herr Street
Harrisburg, PA 17103-1699

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Mazhar Malik, District Permit Manager, at (717) 787-8789.

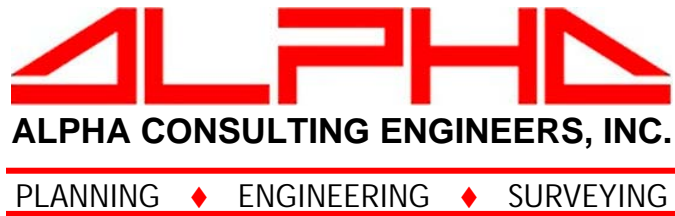
Response Comments**Date:** 09/25/2020**Application Number:** 215708, Cycle No.2**Form Letter Notes**

- (1) Upon resubmission, the applicants engineer should prepare a letter that describes how each comment has been addressed and where each can be found in the report. A copy of these comments and any previously submitted reports should also be provided. This will help expedite the review.

Additional comments may follow upon subsequent review of the revised Transportation Impact Assessment (TIA). If you have any questions pertaining to the technical aspects of this review, please contact Mr. Eric Kinard of the District 8-0 Traffic Unit at (717) 787-9237.

Transportation Impact Study/Transportation Impact Assessment

- (1) Revise the Executive Summary, Sight Distance Analysis, and Recommended Improvements sections of the report to indicate that desirable sight distance will be met with removal of trees and vegetation along the opposite side of the roadway (located on Township property).
- (2) Revise page 25 of the report to indicate that the recommended improvements are anticipated to be constructed at the same time as the site work construction, approximately fall of 2020 to match the Executive Summary.
- (3) To facilitate Department review, the Appendices should be electronically bookmarked / hyperlinked within the PDF.



September 28, 2020

Mr. Mazhar Malik
District Permits Manager
PennDOT District 8-0
2140 Herr Street
Harrisburg, PA 17103

RE: Highway Occupancy Permit
EPS Application #215708
Upper Allen Township, PA

Dear Mr. Malik:

Please find the following responses (in **bold** text) to review comments (in *italics*) received September 25, 2020 for the above referenced application. This letter has been attached to PennDOT's Electronic Permitting System as cycle 3 document 'A' (Exhibit **C3A**). Items previously submitted under cycles 1 and 2 include:

- Exhibit C1A – PennDOT form M-950AA executed,
- Exhibit C1B – Approved Final Scoping Application Package dated 2020-06-18,
- Exhibit C1C – Traffic Impact Assessment dated 2020-06-22.

- Exhibit C2A – Response to PennDOT Comments dated 2020-08-02,
- Exhibit C2B – Traffic Impact Assessment dated 2020-08-20,
- Exhibit C2C – Traffic Impact Assessment Appendix B,
- Exhibit C2D – PennDOT Form M-950SS,
- Exhibit C2E – Synchro Files.

General:

1. * *Upon resubmission, the applicants engineer should put together a response letter that includes each comment, describes how each comment has been addressed, and where*

*each can be found in the report. A copy of these comments and any previously submitted reports should also be provided. This will help expedite the review. **This letter is provided to address this comment.***

** Additional comments may follow upon subsequent review of the revised Transportation Impact Assessment (TIA). If you have any questions pertaining to the technical aspects of this review, please contact Mr. Eric Kinard of the District 8-0 Traffic Unit at (717) 787-9237. **Acknowledged.***

Transportation Impact Study/Transportation Impact Assessment

1. *Revise the Executive Summary, Sight Distance Analysis, and Recommended Improvements sections of the report to indicate that desirable sight distance will be met with removal of trees and vegetation along the opposite side of the roadway (located on Township property). **The requested text has been added to the noted sections of the study.***
2. *Revise page 25 of the report to indicate that the recommended improvements are anticipated to be constructed at the same time as the site work construction, approximately fall of 2020 to match the Executive Summary. **Page 25 has been revised to match the text in the Executive Summary (Spring 2021).***
3. *To facilitate Department review, the Appendices should be electronically bookmarked / hyperlinked within the PDF. **Bookmarks / hyperlinks are included within the PDF document.***

If you have any further questions or comments, please contact our office.

Sincerely,



Mark E. Allen, P.L.S., P.E.