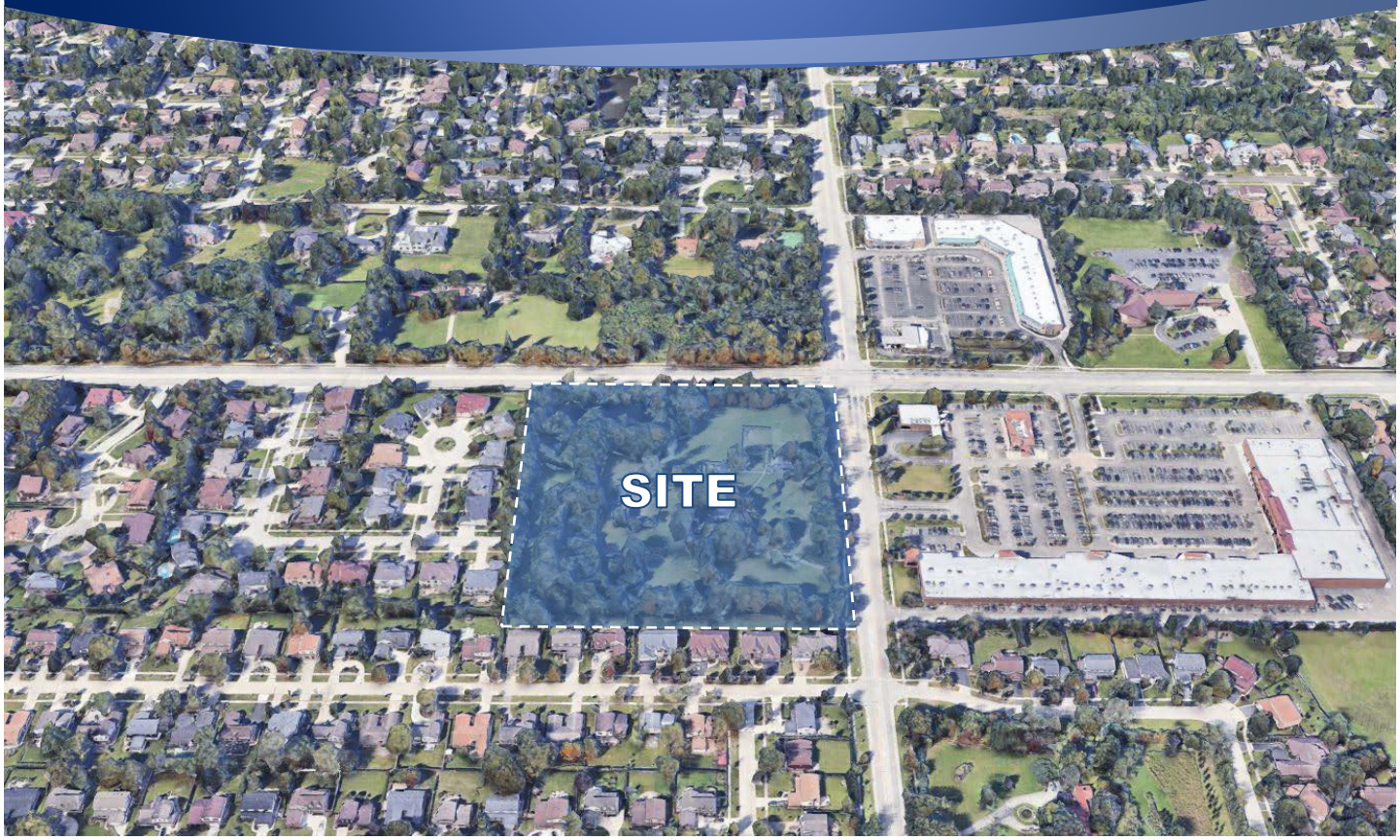
Traffic Impact Study
Proposed Retail Development
Glenview, Illinois



Prepared For:

GW PROPERTIES

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

July 24, 2019

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1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed retail development to be located in Glenview, Illinois. The site, which currently contains a single-family residence, is located in the southwest quadrant of the intersection of Willow Road with Pfingsten Road.

As proposed, the site will primarily be redeveloped with a retail development containing an approximately 35,000 square-foot grocery store and three commercial buildings totaling approximately 28,600 square-feet of retail/restaurant space. The southern portion of the site will be developed with six single family home lots.

Access to retail development will be provided via a full movement access drive off Willow Road and via a full movement access drive off Pfingsten Road that will be aligned opposite the existing full movement access drive serving Plaza Del Prado. Access to the single-family home lots will be provided via the extension of Charlie Court which has a full movement unsignalized intersection with Willow Road.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate the traffic generated by the proposed development.

Figure 1 shows the location of the site in relation to the area roadway system.

Figure 2 shows an aerial view of the site.

The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the development
- Traffic analyses for the weekday morning, evening and Saturday midday peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

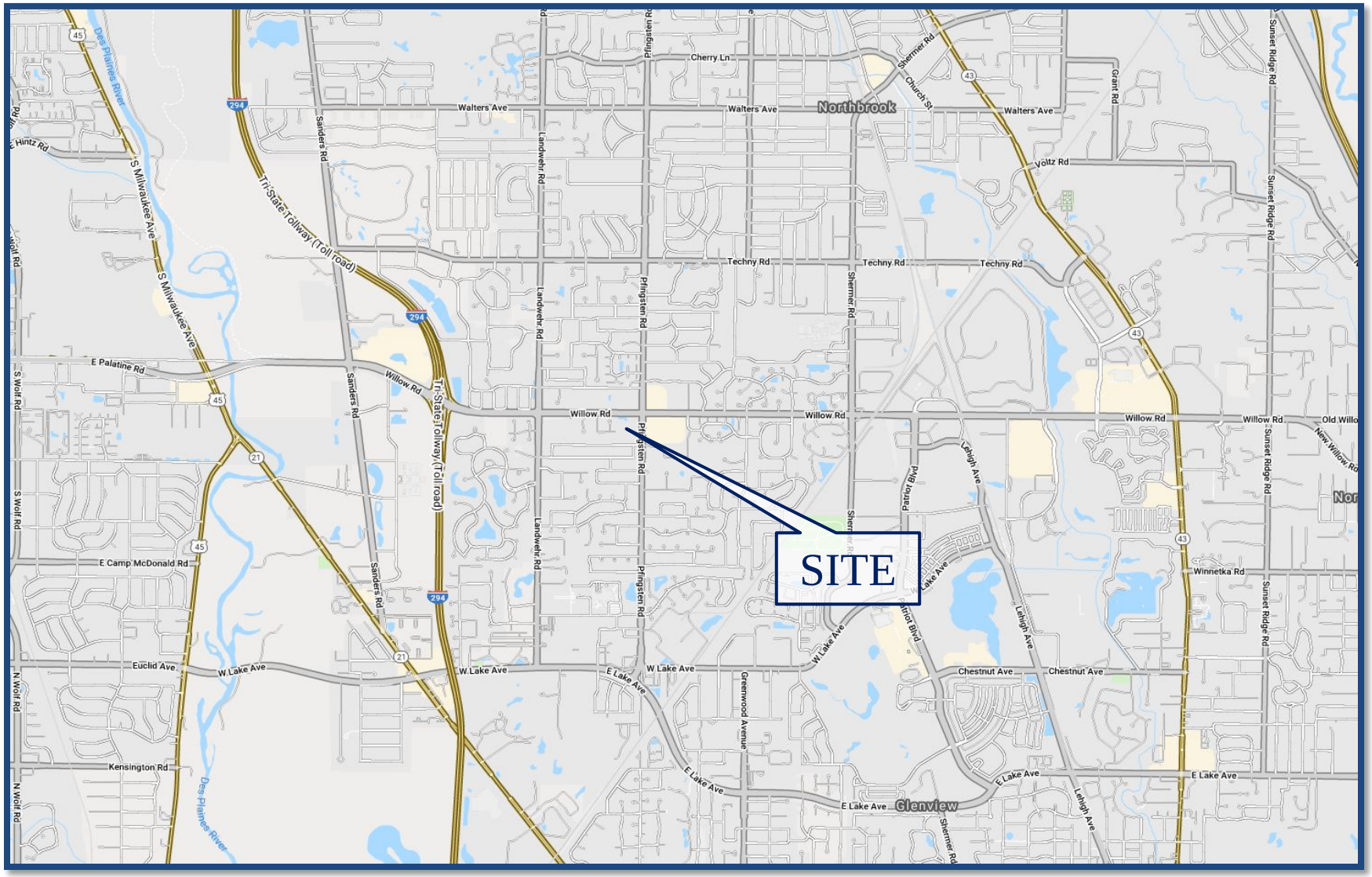
Traffic capacity analyses were conducted for the weekday morning and weekday evening peak hours for the following conditions:

1. Existing Conditions – Analyze the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.

2. Existing Plus Site Conditions – Analyze the capacity of the existing roadway system using existing peak hour traffic volumes combined with the traffic estimated to be generated by the full buildout of the proposed development.

3. No-Build Conditions – Analyze the capacity of the existing roadway system using existing peak hour traffic volumes including ambient traffic growth and traffic estimated to be generated by the proposed commercial development located in the northwest quadrant of the intersection of Willow Road with Pfingsten Road.

4. Projected Conditions – Analyze the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient traffic growth, other area developments and the traffic estimated to be generated by the full buildout of the proposed development.



Site Location **Figure 1**

Aerial View of Site Location **Figure 2**

2. Existing Conditions

Existing traffic and roadway conditions were documented based on field visits and traffic counts conducted by KLOA, Inc. The following provides a detailed description of the physical characteristics of the roadways including geometry and traffic control, adjacent land uses and peak hour traffic flows along area roadways.

Site Location

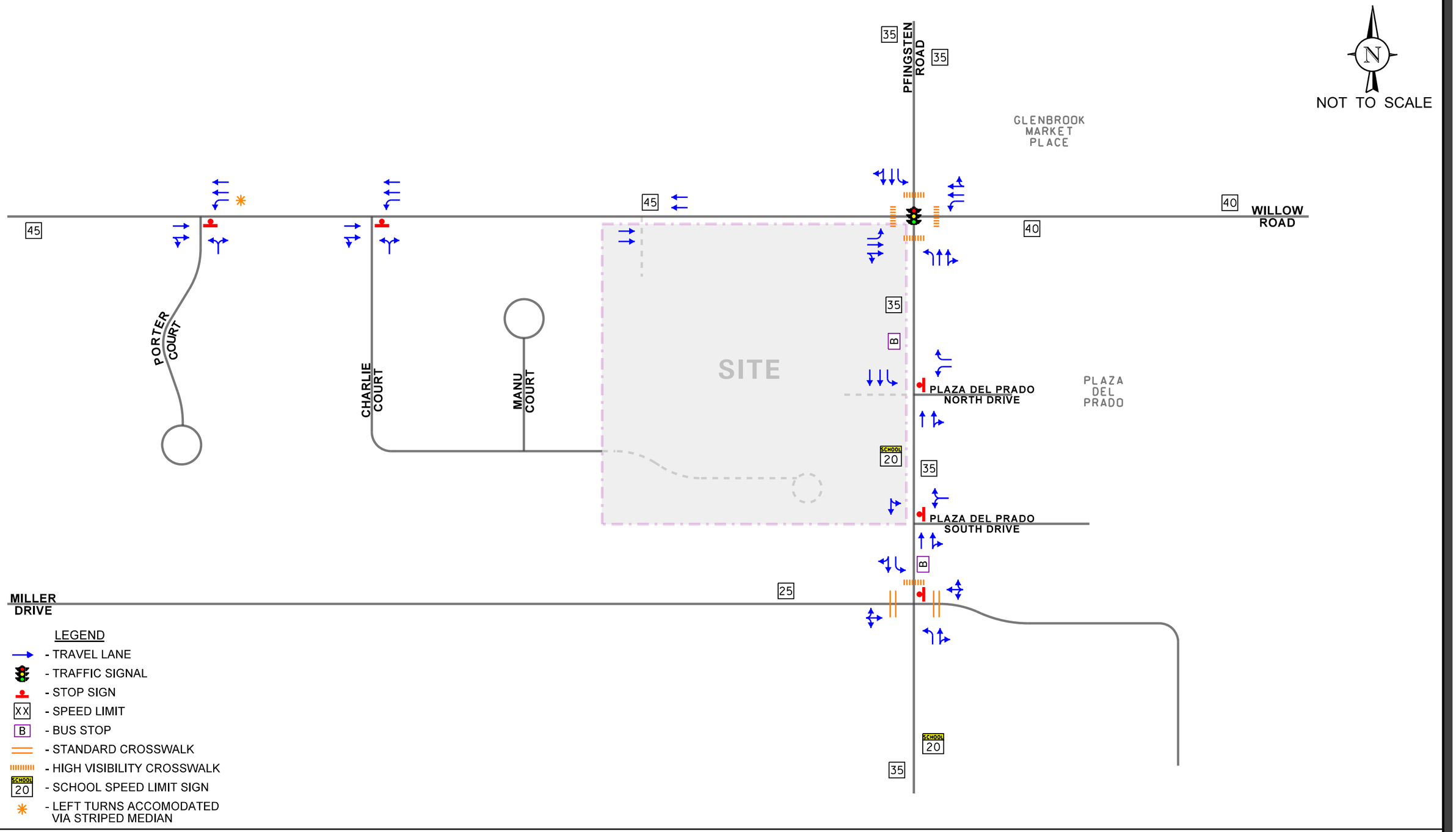
The site, which currently contains a single house, is bounded by Willow Road to the north, Pfingsten Road to the east, and single-family homes to the south and west. Land uses in the vicinity of the site are primarily residential and commercial and include the Glenbrook Market Place retail development in the northeast corner of Willow Road and Pfingsten Road, the Plaza Del Prado retail development in the southeast corner of Willow Road and Pfingsten Road, and single-family homes north, west, and south of the site. Additionally, Willowbrook Elementary School is located approximately one-half mile to the southeast, Henry Winkelman Elementary School is located approximately three-quarters of a mile to the southwest, Maple School and Glenbrook North High School are located approximately one mile to the northeast and Glenbrook South High School is located approximately one mile to the south.

Existing Roadway System Characteristics

The characteristics of the existing roadways that surround the proposed development are illustrated in **Figure 3** and described below.

Willow Road is an east-west, other principal arterial roadway that provides two through lanes in each direction and is generally divided by a striped median. At its signalized intersection with Pfingsten Road, Willow Road provides an exclusive left-turn lane, two through lanes, and a combined through/right-turn lane on the both approaches. At its unsignalized intersections with Porter Court and Charlie Court, Willow Road provides two though lanes in each direction. It should be noted that westbound left-turning vehicles at these intersections can be accommodated within the existing striped median. Willow Road is under the jurisdiction of the Illinois Department of Transportation (IDOT), is designated as a Strategic Regional Arterial (SRA) route and has a posted speed limit of 45 mph west of Pfingsten Road and 40 mph east of Pfingsten Road. According to IDOT, Willow Road had a 2018 Annual Average Daily Traffic (AADT) volume of 36,600 vehicles west of Pfingsten Road and 35,700 vehicles east of Pfingsten Road.

Pfingsten Road is a north-south, minor arterial roadway that primarily provides one lane in each direction. At its signalized intersection with Willow Road, Landwehr Road is widened to provide an exclusive left-turn lane, a through lane, and a combined through/right-turn lane on both approaches. It should be noted that between the Plaza Del Prado North Drive and Miller Drive, Pfingsten Road narrows to provide one through lane in each direction. At its unsignalized intersection with Miller Drive, Pfingsten Road provides an exclusive left-turn lane and a combined through/right-turn lane on both approaches. It should be noted that the north leg of this intersection provides a high visibility crosswalk with appropriate school crossing signage. Additionally, Pfingsten Road at Miller Drive has a school zone speed limit of 20 miles per hour on school days when children are present.



PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

EXISTING TRAFFIC VOLUMES

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Figure: 3

At its unsignalized intersection with the Plaza Del Prada North Drive, Pfingsten Road provides a combined through/right-turn lane and a through lane on the northbound approach and an exclusive left-turn lane and two through lanes on the southbound approach. Pfingsten Road is under the jurisdiction of IDOT, has a posted speed limit of 35 mph, and carries an AADT volume of 12,200 vehicles north of Willow Road and 11,600 vehicles south of Willow Road.

Miller Drive is an east-west local roadway that provides one lane in each direction. At its unsignalized intersection with Pfingsten Road, Miller Drive provides one lane on both approaches and is under stop sign control. Miller Drive is under the jurisdiction of the village of Glenview and has a posted speed limit of 25 mph.

Porter Court is a north-south local roadway that extends from Willow Road south to its terminus approximately 500 feet to the south. At its unsignalized intersection with Willow Road, Porter Court provides one inbound and one outbound lane and is under stop sign control. Porter Court is under the jurisdiction of the village of Glenview.

Charlie Court is a north-south local roadway that extends from Willow Road south and then east to its terminus approximately 950 feet to the south. At its unsignalized intersection with Willow Road, Porter Court provides one inbound and one outbound lane and is under stop sign control. Porter Court is under the jurisdiction of the village of Glenview. It should be noted that Charlie Court terminates with a stub road at the site's west property line.

Traffic Signal Interconnect

The intersection Willow Road with Pfingsten Road is part of a nine-signal interconnect system that extends along Willow Road from Sanders Road approximately 1.5 miles west to Patriot Boulevard approximately 1.33 miles east that includes the I-294 eastbound and westbound ramps. These signals are maintained by IDOT.

Willow Road with Pfingsten Road Intersection Improvements

It should be noted that the intersection of Willow Road with Pfingsten Road is included in the IDOT Fiscal Year 2019-2014 Highway Improvement Program. As proposed, the intersection will be modified/expanded to provide the following improvements:

- Exclusive eastbound and westbound exclusive right-turn lanes will be developed.
- The traffic signal will be modified to provide eastbound and westbound right-turn overlap phases.
- The eastbound left-turn lane storage will be extended by approximately 125 feet to provide a total of 285 feet.
- The southbound left-turn lane will be extended by approximately 135 feet to provide a total of 235 feet of storage.

As of July 2019, letting for the project is planned for early 2020 with construction of the project beginning in 2020. This intersection improvement will not only improve the capacity of the intersection but will also be a safety improvement as it will provide an exclusive lane for declaration of right-turning vehicles with right-turn overlap phases, and the entire traffic signal will be replaced and updated to meet current standards including the provision of one traffic signal head per lane. Additionally, the pedestrian facilities at this intersection will be updated to meet current standards including the restriping of the existing high visibility crosswalks and the provision of updated pedestrian countdown timers.

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period vehicle, pedestrian, and bicycle movement traffic counts on Tuesday, May 7, 2019 during the morning (7:00 to 9:00 A.M.) and the evening (4:00 to 6:00 P.M.) peak hour periods, and on Saturday, May 4, 2019 during the midday (12:00 to 2:00 P.M.) peak period at the following intersections:

- Willow Road with Pfingsten Road
- Willow Road with Porter Court
- Willow Road with Charlie Court
- Pfingsten Road with Miller Drive
- Pfingsten Road with the Plaza Del Prado access drives

The results of the traffic counts showed that the weekday morning peak hour of traffic occurs from 8:15 A.M. to 9:00 A.M., the weekday evening peak hour of traffic occurs from 4:30 P.M. to 5:30 P.M. and the Saturday midday peak hour occurs from 12:30 P.M. to 1:30 P.M. It should be noted that that the day the counts were conducted represents typical commuter traffic conditions consistent with IDOT requirements of traffic counts to be conducted on a Tuesday, Wednesday or Thursday. Furthermore, Willowbrook Elementary School, Henry Winkelman Elementary School, Maple School, Glenbrook North High School, Glenbrook South High School were all in session when the weekday traffic counts were conducted. **Figure 4** illustrates the existing peak hour traffic volumes. Copies of the traffic count summary sheets are included in the Appendix.

NOT TO SCALE

PFINGSTEN ROAD

WILLOW ROAD

MILLER DRIVE

PORTER COURT

CHARLIE COURT

MANU COURT

SITE

PLAZA DEL PRADO NORTH DRIVE

PLAZA DEL PRADO SOUTH DRIVE

1391 (1840) [1334]
1 (3) [3]

1385 (1841) [1338]
4 (9) [8]

1845 (1875) [1405]
1 (1) [2]

1844 (1875) [1404]
3 (1) [5]

2 (0) [1]
2 (1) [4]

7 (2) [4]
9 (6) [7]

85 (114) [101]
329 (435) [274]
238 (227) [282]

105 (146) [136]
1096 (1536) [1053]
73 (80) [117]

137 (162) [122]
1605 (1539) [1182]
111 (180) [107]

208 (200) [192]
393 (386) [284]
86 (106) [119]

456 (656) [415]
57 (39) [83]

119 (150) [208]
50 (110) [96]

568 (542) [387]
111 (107) [110]

18 (24) [25]
483 (735) [479]
4 (7) [7]

13 (6) [5]
0 (1) [0]
2 (7) [2]

30 (11) [8]
1 (1) [0]
17 (7) [11]

7 (12) [4]
647 (630) [480]
3 (6) [5]

501 (766) [508]
5 (0) [3]

2 (3) [4]
4 (0) [3]

677 (646) [493]
13 (1) [0]

PFINGSTEN ROAD @
PLAZA DEL PRADO SOUTH DRIVE

LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)
[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

EXISTING TRAFFIC VOLUMES

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Figure: 4

Crash Data Analysis

KLOA, Inc. obtained crash data[1] for the past five years (2013 to 2017) for the intersections of Willow Road with Pfingsten Road, Porter Court, and Manu Court as well the intersection of Pfingsten Road with Miller Drive. A review of the crash data revealed there were a total of two crashes at the intersection of Willow Road with Porter Court and two total crashes at the intersection of Pfingsten Road with Miller Drive of which one crash involved a pedestrian. **Tables 1** and **2** summarizes the crash data for the intersections of Willow Road with Pfingsten Road and Willow Road with Charlie Court, respectively.

Table 1
WILLOW ROAD WITH PFINGSTEN ROAD – CRASH SUMMARY

	Type of Crash Frequency							
Year	**Angle**	**Head On**	**Object**	**Rear End**	**Sideswipe**	**Turning**	**Other**	**Total**
2013	1	0	0	12	0	9	0	22
2014	0	0	0	11	0	8	0	19
2015	0	0	0	6	1	11	0	18
2016	0	0	0	9	1	12	0	22
2017	0	0	0	7	0	12	1	20
Total	**1**	**0**	**0**	**45**	**2**	**52**	**1**	**101**
Average	**<1.0**	**--**	**--**	**9.0**	**<1.0**	**10.4**	**<1.0**	**20.2**

Table 2
WILLOW ROAD WITH CHARLIE COURT – CRASH SUMMARY

	Type of Crash Frequency							
Year	**Angle**	**Head On**	**Object**	**Rear End**	**Sideswipe**	**Turning**	**Other**	**Total**
2013	0	0	0	1	0	0	0	1
2014	0	0	0	3	0	0	0	3
2015	0	0	0	1	0	0	0	1
2016	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**5**
Average	**--**	**--**	**--**	**1.0**	**--**	**--**	**--**	**1.0**

[1] IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in previous years since data prior to 2015 was physically located by bureau personnel.

3. Traffic Characteristics of the Proposed Development

To evaluate the impact of the subject development on the area roadway system, it was necessary to quantify the number of vehicle trips the site will generate during the respective three peak hours and then determine the directions from which the proposed traffic will approach and depart the site.

Proposed Site and Development Plan

As proposed, the site will be primarily redeveloped with a retail development containing an approximately 35,000 square-foot grocery story and three multi-tenant retail/restaurant buildings totaling approximately 28,600 square-feet. The southern portion of the site will be developed with six single family homes.

Based on information provided, it is expected that three restaurants with each occupying approximately 3,600 square-feet will be developed. As such, it is anticipated that there will be approximately 10,800 square-feet of restaurant space and 17,800 square-feet of general retail space. Furthermore, one of the restaurants will operate during breakfast and lunch hours only, another restaurant will operate during the lunch and dinner hours only, and the third restaurant will generally be open during the day.

Vehicle Access

Access to the proposed development will be provided via a full movement access drive off Willow Road located approximately 625 feet west of Pfingsten Road. This access drive should provide one inbound lane and two outbound lanes striped as an exclusive left-turn lane and an exclusive right-turn lane. It should be noted that this access drive has been located at the west end of the site to provide as much separation as possible between the proposed access drive and the signalized intersection of Willow Road with Pfingsten Road. Furthermore, an exclusive left-turn lane should be provided on Willow Road by restriping the existing median to provide approximately 225 feet of storage with 155 feet of taper creating a back-to-back left turn lane with the existing eastbound left-turn lane on Willow Road at Pfingsten Road.

The provision of a full movement access drive on Willow Road will be beneficial to the proposed development as it will allow vehicles destined to the west to exit directly on Willow Road in lieu of turning left from the site onto Pfingsten Road and then performing another left from Pfingsten Road onto Willow Road.

Access to the proposed development will also be provided via a full movement access drive off Pfingsten Road that will be aligned opposite of the access drive serving the Plaza Del Prado retail center located approximately 400 feet south of Willow Road. This access drive should provide one inbound lane and two outbound lanes striped as a shared left-turn/through lane and an exclusive right-turn lane.

As part of the proposed development, the existing median on Pfingsten Road should be restriped to provide an exclusive northbound left-turn lane. This turn lane can provide approximately 100 feet of storage with 130 feet of taper, creating a back-to-back left-turn lane with the southbound left-turn lane serving Miller Drive.

Access to the single-family homes will be provided via the extension of Charlie Court which has an unsignalized intersection with Willow Road as previously described.

Directional Distribution of Development Traffic

The directional distribution of how traffic will approach and depart the site was estimated based on the general travel patterns through the study area derived from the peak hour traffic volumes. **Figure 5** shows the established directional distribution for this development, in addition to the distances, measured in feet, between the study area intersections.

Development Traffic Generation

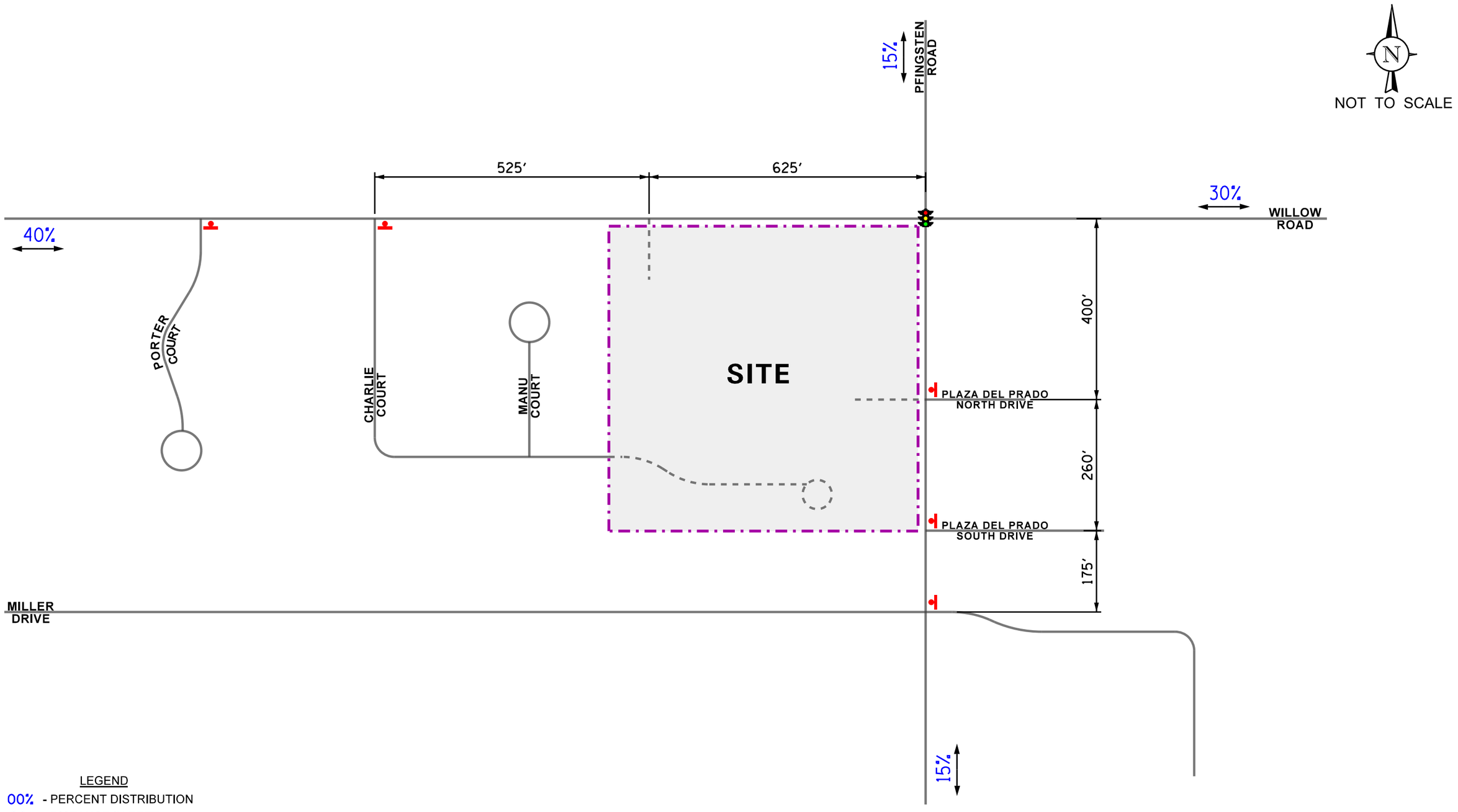
The estimate of vehicle traffic to be generated by the proposed development is based upon the proposed land use types and sizes. The vehicle trip generation for the overall development was calculated using data published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

It is important to note that surveys conducted by ITE have shown that approximately 35, 20 and 40 percent of trips made to grocery stores, retail uses, and restaurant uses, are diverted from the existing traffic on the roadway system. This is particularly true during the weekday morning and evening peak hours when traffic is diverted from the home-to-work and work-to-home trips. Such diverted trips are referred to as pass-by traffic. As such, these pass-by percentages were applied to the trips estimated to be generated by these uses.

Table 3 shows the estimated vehicle trip generation for the weekday morning, weekday evening, and Saturday midday peak hours. The ITE trip generation summary sheets are included in the Appendix.

Development Traffic Assignment

The estimated weekday morning, weekday evening and Saturday midday peak hour traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). **Figure 6** illustrates the traffic assignment of the new passenger vehicle trips and **Figure 7** illustrates the traffic assignment of the pass-by passenger vehicle trips.



PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

ESTIMATED DIRECTIONAL DISTRIBUTION

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Table 3
ESTIMATED PEAK HOUR VEHICLE TRIP GENERATION FOR PROPOSED RETAIL DEVELOPMENT

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
850	Supermarket (35,000 square-feet)	80	54	134	165	158	323	185	177	362
	35 Percent Pass-By Reduction	*-23*	*-23*	*-46*	*-57*	*-57*	*-114*	*-63*	*-63*	*-126*
820	Retail (17,800 square-feet)	11	6	17	33	35	68	42	39	81
	20 Percent Pass-By Reduction	*-2*	*-2*	*-4*	*-7*	*-7*	*-14*	*-8*	*-8*	*-16*
932	Breakfast Restaurant (3,600 square-feet)	20	16	3 6	--	--	--	20	20	40
932	Dinner Restaurant (3,600 square-feet)	--	--	--	22	13	35	20	20	40
932	General Restaurant (3,600 square-feet)	20	16	36	22	13	35	20	20	40
	Restaurant Subtotal	40	32	72	44	26	70	60	60	120
	45 Percent Pass-By Reduction	*-16*	*-16*	*-32*	*-16*	*-16*	*-32*	*-27*	*-27*	*-54*
210	Single Family Homes (6 Homes)	1	3	4	4	2	6	3	3	6
	Total New Trips	**91**	**54**	**145**	**166**	**141**	**307**	**192**	**181**	**373**
	Total Pass-By Trips	**41**	**41**	**82**	**80**	**80**	**160**	**98**	**98**	**196**
	Total Development Trips	**132**	**95**	**227**	**246**	**221**	**467**	**290**	**279**	**569**

1 – This restaurant will not be open for dinner
2 – This restaurant will not be open for breakfast
3 – This restaurant will generally be open during all of the peak hours

NOT TO SCALE

PFINGSTEN ROAD

WILLOW ROAD

MILLER DRIVE

PORTER COURT

CHARLIE COURT

MANU COURT

SITE

PLAZA DEL PRADO NORTH DRIVE

PLAZA DEL PRADO SOUTH DRIVE

20 (55) [66]
37 (64) [75]
19 (54) [65]
0 (3) [2]
36 (63) [74]
1 (1) [1]
1 (1) [1]
2 (1) [2]
7 (21) [24]
19 (37) [44]
2 (1) [2]
36 (63) [74]
12 (36) [43]
15 (39) [55]
6 (13) [15]
7 (13) [15]
13 (26) [30]
14 (25) [28]
4 (11) [19]
12 (29) [37]
1 (0) [1]
7 (19) [23]
4 (11) [13]
5 (14) [18]
21 (38) [43]
1 (0) [1]
16 (43) [53]
8 (21) [27]
14 (24) [28]
0 (1) [1]
9 (21) [28]
14 (25) [29]
14 (25) [29]
9 (21) [28]

PFINGSTEN ROAD @
PLAZA DEL PRADO SOUTH DRIVE

LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)
(00) - PM PEAK HOUR (4:30-5:30 PM)
[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

NEW SITE TRAFFIC ASSIGNMENT

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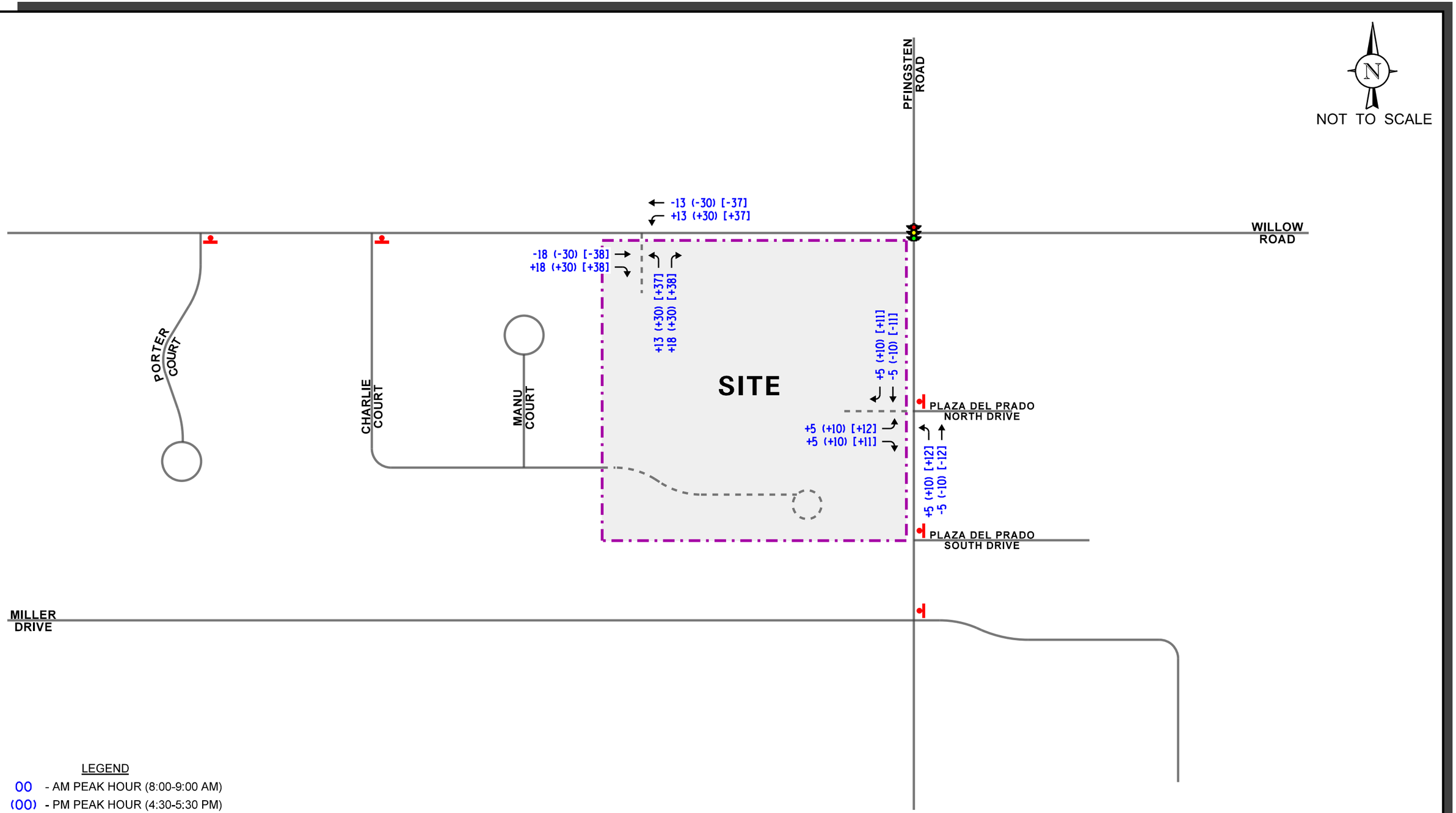
Job No: 19-114 Figure: 6



LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)

(00) - PM PEAK HOUR (4:30-5:30 PM)

[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

PASS-BY SITE TRAFFIC ASSIGNMENT

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Job No: 19-114 Figure: 7

4. Projected Traffic Conditions

The total projected traffic volumes take into consideration the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed subject development.

Existing Plus Site Conditions

The new and pass-by development-generated traffic (Figures 6 and 7) was added to the existing traffic volumes (Figure 4) to determine the existing plus site generated traffic volumes. **Figure 8** illustrates the Year 2025 total projected traffic volumes.

Year 2025 No-Build Traffic Conditions

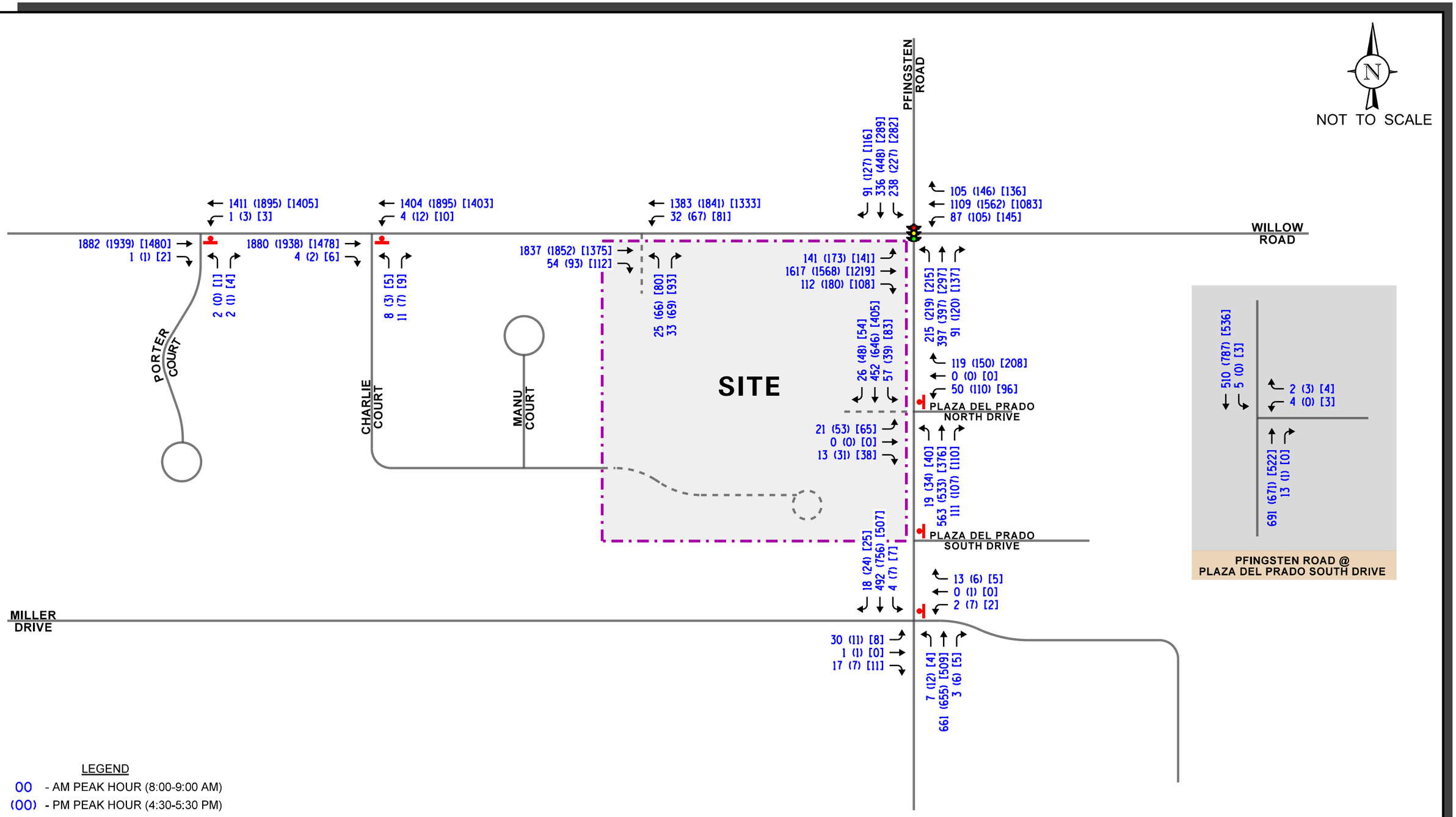
The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any planned development). Based on AADT projections provided by the Chicago Metropolitan Agency for Planning (CMAP), the existing traffic volumes are projected to increase by an annual compounded growth rate of approximately 0.4 percent per year. As such, traffic volumes were increased by 3.0 percent total (one-year buildout plus five years) to represent Year 2025 total projected conditions. A copy of the CMAP projections letter is included in the Appendix.

The no-build traffic conditions also take into consideration the traffic estimated to be generated by the proposed commercial development to be located in the northwest quadrant of the intersection of Willow Road with Pfingsten Road. Access to the development will be provided via a full movement access drive and a right-in/right-out access drive off both Willow Road and Pfingsten Road. It should be noted that the full movement access drive off Willow Road will be aligned opposite the proposed full movement access drive proposed as part of the subject development. As proposed, this development will contain a mix of uses that may include a day care facility, a gas station, restaurants and an automotive repair shop. The traffic that will be generated by this development was assigned to the roadway system in accordance with the previously described directional distribution and was added to the existing traffic volumes increased to reflect a regional growth factor to projected Year 2025 no-build traffic volumes.

Figure 9 illustrates the Year 2025 no-build traffic volumes.

Year 2025 Total Projected Traffic Conditions

The new and pass-by development-generated traffic (Figures 6 and 7) was added to the no-build traffic volumes (Figure 8) to determine the Year 2025 total projected traffic volumes. **Figure 10** illustrates the Year 2025 total projected traffic volumes.



LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)

(00) - PM PEAK HOUR (4:30-5:30 PM)

[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

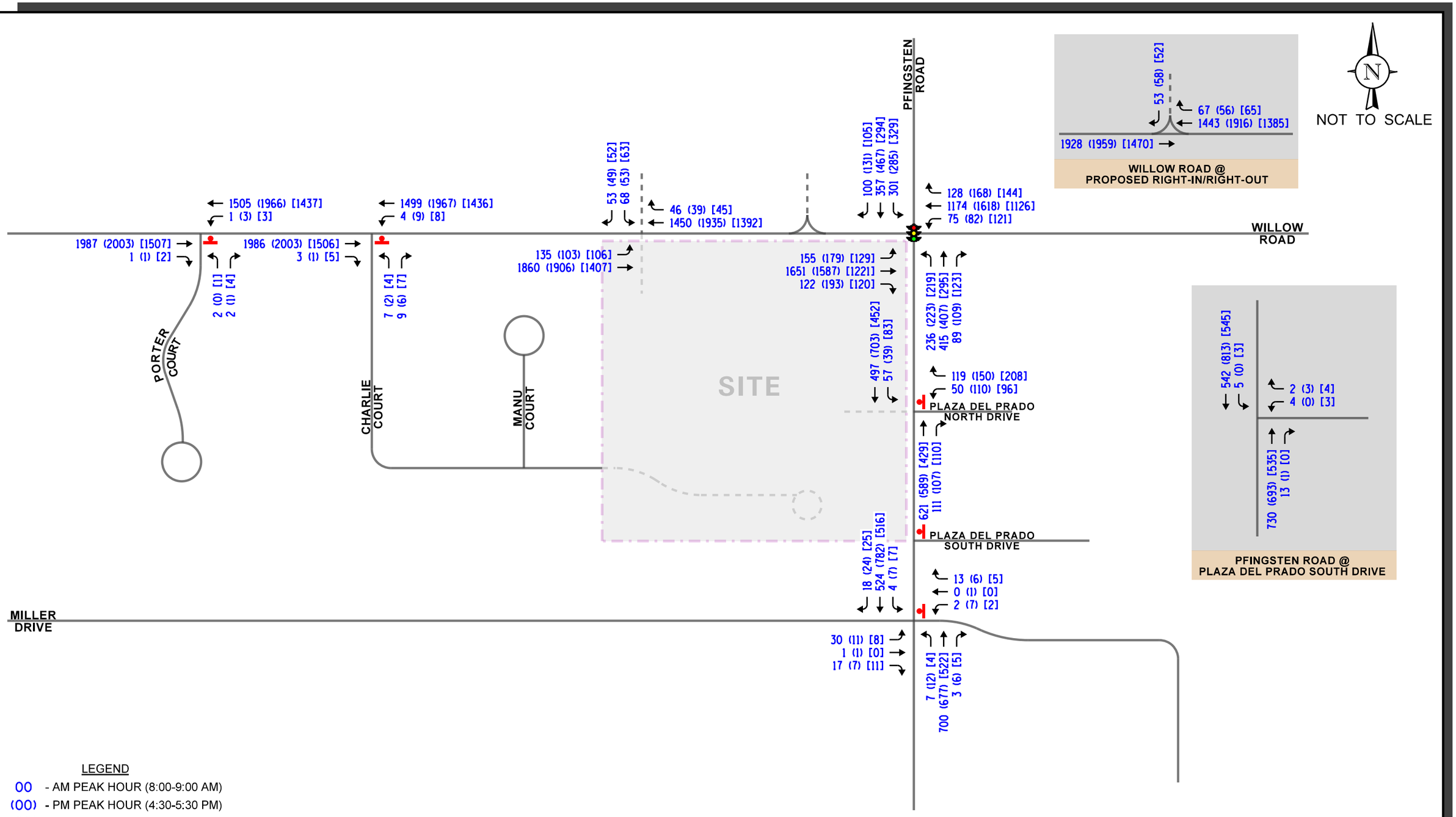
PFINGSTEN ROAD @ PLAZA DEL PRADO SOUTH DRIVE

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

EXISTING PLUS SITE-GENERATED TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 19-114 Figure: 8



LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)

(00) - PM PEAK HOUR (4:30-5:30 PM)

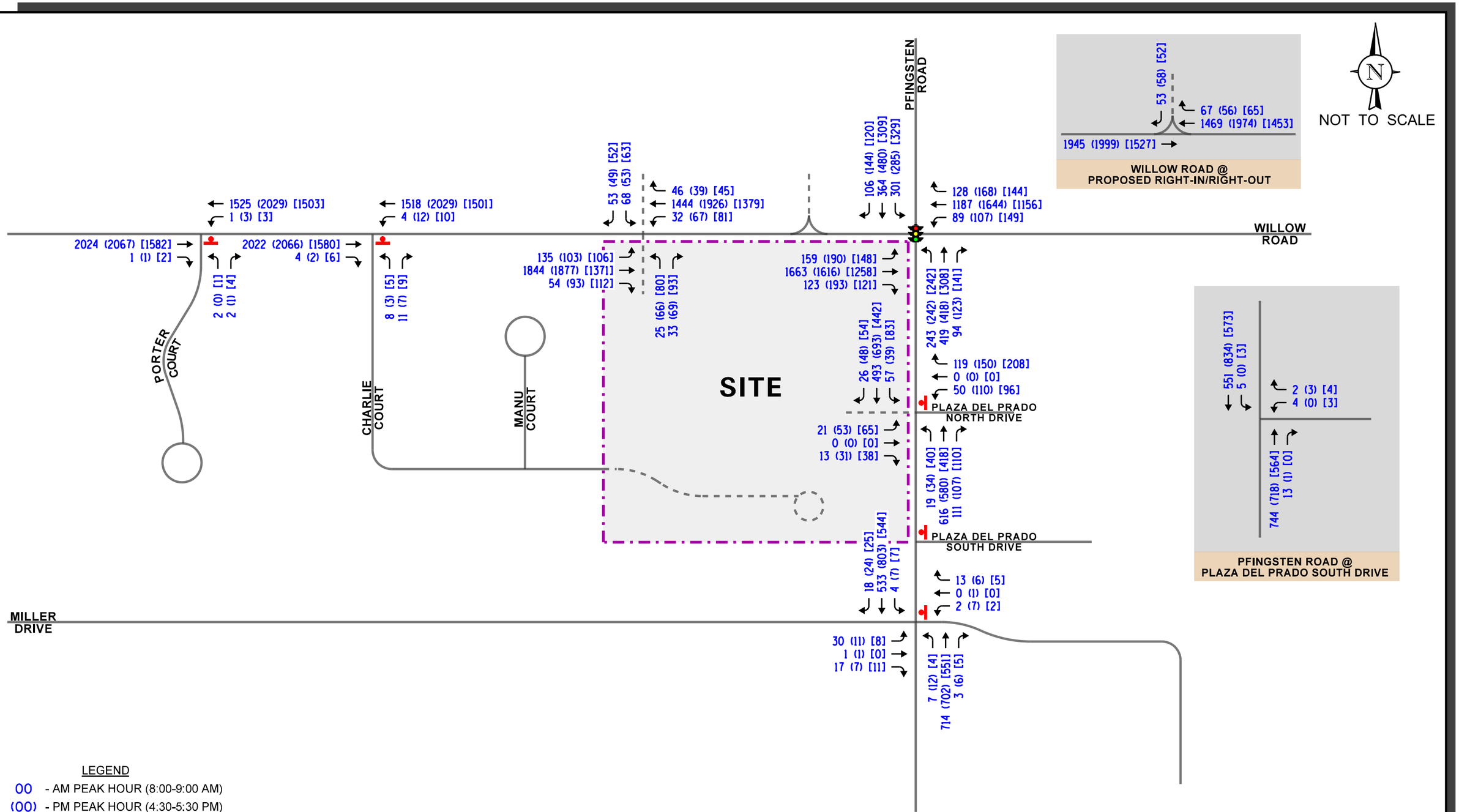
[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

YEAR 2025 NO BUILD TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 19-114 Figure: 9



LEGEND

00 - AM PEAK HOUR (8:00-9:00 AM)

(00) - PM PEAK HOUR (4:30-5:30 PM)

[00] - SATURDAY MIDDAY PEAK HOUR (12:30-1:30 PM)

PROPOSED RETAIL DEVELOPMENT
GLENVIEW, ILLINOIS

YEAR 2025 TOTAL PROJECTED TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 19-114 Figure: 10

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning, weekday evening and Saturday midday peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drives are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning, weekday evening and Saturday midday peak hours for the existing (Year 2019), existing plus site, no-build and Year 2025 total projected traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM), 6th Edition* and analyzed using the Synchro/SimTraffic 10 software. The analysis for the traffic-signal controlled intersections were accomplished using actual cycle lengths, phasings and offsets to determine the average overall vehicle delay and levels of service. Additionally, the signalized intersection of Willow Road with Pfingsten Road was also analyzed taking into consideration the proposed intersection improvements for the Year 2025 projected conditions.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing and total projected conditions are presented in **Tables 4** through **7**. A discussion of each intersection follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 4
CAPACITY ANALYSIS RESULTS – WILLOW ROAD WITH PFINGSTEN ROAD – SIGNALIZED

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour	Existing Traffic Volumes	C 20.9	D 44.7		C 23.4	C 30.3		D 47.2	E 78.3		E 69.2	E 64.4		D – 47.8
		D – 45.7			C – 29.9			E – 68.9			E – 66.1			
	Existing Plus Site Traffic Volumes	C 22.8	E 60.6		C 27.5	C 30.7		D 50.0	F 81.3		E 68.9	E 67.2		D – 53.6
		E – 57.7			C – 30.5			E – 71.7			E – 67.8			
	Existing Plus Site Traffic Volumes[1]	C 32.0	E 70.2	B 11.0	C 33.2	C 33.1	B 10.9	D 36.5	D 50.6		D 45.8	D 47.9		D – 49.3
		E – 63.8			C – 31.3			D – 46.3			D – 47.2			
	Year 2025 No-Build Traffic Volumes	D 36.1	E 55.9		C 24.2	C 34.5		E 60.0	F 88.6		F 124.7	E 77.4		E – 58.9
		D – 54.3			C – 34.0			E – 79.5			F – 96.2			
	Year 2025 Projected Traffic Volumes	D 38.6	E 72.0		C 27.1	D 35.2		E 62.6	F 93.1		F 125.2	F 83.3		E – 66.3
		E – 69.3			C – 34.8			F – 83.3			F – 99.6			
	Year 2025 Total Projected Traffic Volumes[1]	E 56.4	F 84.3	B 11.1	C 33.4	D 36.3	B 11.3	D 42.3	D 51.3		E 78.1	D 49.3		E – 57.7
		E – 77.4			C – 33.9			D – 48.4			E – 60.5			

Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns
1 – With IDOT's Proposed Intersection Improvements

Table 4 – Continued
CAPACITY ANALYSIS RESULTS – WILLOW ROAD WITH PFINGSTEN ROAD – SIGNALIZED

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Evening Peak Hour	Existing Traffic Volumes	E 70.3	D 52.8		C 27.0	E 56.4		E 68.6	F 116.0		E 60.6	F 93.5		E – 65.6
		D – 54.3			D – 55.1			F – 102.3			F – 83.9			
	Existing Plus Site Traffic Volumes	E 78.7	E 60.5		D 38.0	E 61.3		E 77.8	F 133.3		E 60.6	F 112.6		E – 74.5
		E – 62.2			E – 59.9			F – 116.7			F – 97.9			
	Existing Plus Site Traffic Volumes[1]	E 76.7	E 65.6	B 11.4	D 36.8	E 72.8	B 11.6	D 54.9	E 57.7		D 50.0	E 61.9		E – 61.9
		E – 61.5			E – 65.8			E – 56.8			E – 58.6			
	Year 2025 No-Build Traffic Volumes	F 86.2	E 63.0		C 27.6	E 77.0		F 80.9	F 155.0		F 88.4	F 125.7		F – 85.5
		E – 65.1			E – 74.8			F – 132.6			F – 113.7			
	Year 2025 Projected Traffic Volumes	F 101.1	E 72.6		D 38.8	F 82.9		F 99.6	F 176.8		F 88.4	F 142.6		F – 96.0
		E – 75.3			F – 80.4			F – 152.9			F – 125.6			
	Year 2025 Total Projected Traffic Volumes[1]	F 100.5	E 76.1	B 11.5	D 37.4	F 92.2	B 11.8	E 73.2	D 60.6		F 87.8	E 71.3		E – 75.2
		E – 72.2			F – 82.1			E – 64.5			E – 76.4			

Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns
1 – With IDOT's Proposed Intersection Improvements

Table 4 – Continued
CAPACITY ANALYSIS RESULTS – WILLOW ROAD WITH PFINGSTEN ROAD – SIGNALIZED

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Saturday Midday Peak Hour	Existing Traffic Volumes	C 20.2	C 32.4		C 29.9	C 29.6		C 32.6	E 59.3		D 47.5	D 49.7		D – 36.6
		C – 31.4			C – 29.6			D – 50.7			D – 48.8			
	Existing Plus Site Traffic Volumes	C 27.6	C 34.9		D 40.8	C 30.8		D 35.4	E 65.9		D 51.3	D 53.3		D – 39.8
		C – 34.2			C – 31.9			E – 55.8			D – 52.5			
	Existing Plus Site Traffic Volumes[1]	B 18.3	C 30.4	B 18.8	C 34.1	C 27.2	B 19.3	D 35.4	E 65.9		D 51.3	D 53.3		D – 36.2
		C – 28.4			C – 27.1			E – 55.8			D – 52.5			
	Year 2025 No-Build Traffic Volumes	C 29.5	C 34.7		C 31.2	C 32.2		D 35.6	E 65.1		E 71.1	D 52.9		D – 41.3
		C – 34.3			C – 32.1			D – 55.0			E – 61.1			
	Year 2025 Projected Traffic Volumes	C 36.4	D 38.0		D 41.9	C 33.9		D 40.4	E 74.4		E 74.7	E 58.7		D – 45.4
		D – 37.8			C – 34.7			E – 62.5			E – 65.6			
	Year 2025 Total Projected Traffic Volumes[1]	C 23.8	C 31.7	B 19.1	D 41.6	C 28.7	B 19.5	D 40.4	E 74.4		E 74.7	E 58.7		D – 40.9
		C – 30.0			C – 29.1			E – 62.5			E – 65.6			

Letter denotes Level of Service
Delay is measured in seconds.
L – Left Turns
T – Through
R – Right Turns
1 – With IDOT's Proposed Intersection Improvements

Table 5
CAPACITY ANALYSIS RESULTS
UNSIGNALIZED INTERSECTIONS – EXISTING CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Willow Road with Charlie Court						
• Northbound Approach	D	34.6	D	34.5	C	23.0
• Westbound Left Turns	C	16.3	C	19.3	B	13.2
Willow Road with Porter Court						
• Northbound Approach	D	34.5	C	20.5	C	19.1
• Westbound Left Turns	C	16.4	C	18.2	B	13.1
Pfingsten Road with Plaza Del Prado Northerly						
• Westbound Left Turns	D	27.1	E	42.1	D	26.5
• Westbound Right Turns	B	12.0	B	12.3	B	12.0
• Southbound Left Turns	A	9.3	A	9.1	A	8.8
Pfingsten Road with Plaza Del Prado Southerly Access Drive						
• Westbound Approach	C	20.9	B	12.8	C	15.1
• Southbound Left Turns	A	9.1	--	--	A	8.4
Pfingsten Road with Miller Drive						
• Eastbound Approach	D	29.0	E	35.6	C	17.6
• Westbound Approach	C	15.8	D	31.1	C	15.0
• Northbound Left Turns	A	8.5	A	9.3	A	8.9
• Southbound Left Turns	A	8.9	A	8.8	A	8.4

LOS = Level of Service
Delay is measured in seconds.

Table 6
CAPACITY ANALYSIS RESULTS
UNSIGNALIZED INTERSECTIONS – EXISTING PLUS SITE TRAFFIC VOLUMES

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Willow Road with Charlie Court						
• Northbound Approach	E	36.1	E	40.7	C	24.9
• Westbound Left Turns	C	16.7	C	20.4	B	13.8
Willow Road with Porter Court						
• Northbound Approach	E	35.8	C	21.4	C	20.2
• Westbound Left Turns	C	16.8	C	19.1	B	13.6
Pfingsten Road with Plaza Del Prado Northerly/Proposed Access Drive						
• Eastbound Left Turns	D	30.2	F	>60	F	50.6
• Eastbound Right Turns	A	9.9	B	11.0	B	10.0
• Westbound Left Turns	E	36.7	F	>60	E	44.0
• Westbound Right Turns	B	12.0	B	12.2	B	11.9
• Northbound Left Turns	A	8.4	A	9.3	A	8.4
• Southbound Left Turns	A	9.3	A	9.1	A	8.7
Pfingsten Road with Plaza Del Prado Southerly Access Drive						
• Westbound Approach	C	21.4	B	13.0	C	15.8
• Southbound Left Turns	A	9.1	--	--	A	8.5
Pfingsten Road with Miller Drive						
• Eastbound Approach	D	30.1	E	38.1	C	18.8
• Westbound Approach	C	16.2	D	33.2	C	15.0
• Northbound Left Turns	A	8.5	A	9.4	A	9.0
• Southbound Left Turns	A	9.0	A	8.9	A	8.5
Willow Road with Proposed Access Drives						
• Northbound Left Turns	F	>60	F	>60	F	>60
• Northbound Right Turns	C	21.9	D	26.9	C	19.8
• Westbound Left Turns	C	18.9	C	22.2	C	15.5

LOS = Level of Service
Delay is measured in seconds.

Table 7
CAPACITY ANALYSIS RESULTS
UNSIGNALIZED INTERSECTIONS – YEAR 2025 BASE (NO-BUILD) CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Willow Road with Charlie Court						
• Northbound Approach	E	40.7	E	39.6	D	25.3
• Westbound Left Turns	C	17.9	C	21.3	B	14.0
Willow Road with Porter Court						
• Northbound Approach	E	40.0	C	22.2	C	20.7
• Westbound Left Turns	C	18.0	C	20.1	B	13.9
Pfingsten Road with Plaza Del Prado Northerly						
• Westbound Left Turns	D	30.9	F	51.9	D	30.0
• Westbound Right Turns	B	12.4	B	12.6	B	12.3
• Southbound Left Turns	A	9.5	A	9.3	A	8.9
Pfingsten Road with Plaza Del Prado Southerly Access Drive						
• Westbound Approach	C	23.1	B	13.3	C	16.1
• Southbound Left Turns	A	9.3	--	--	A	8.6
Pfingsten Road with Miller Drive						
• Eastbound Approach	D	34.4	E	41.1	C	19.2
• Westbound Approach	C	17.1	E	35.8	C	16.0
• Northbound Left Turns	A	8.6	A	9.5	A	9.1
• Southbound Left Turns	A	9.1	A	9.0	A	8.5

LOS = Level of Service
Delay is measured in seconds.

Table 8
CAPACITY ANALYSIS RESULTS
UNSIGNALIZED INTERSECTIONS – YEAR 2025 TOTAL CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Willow Road with Charlie Court						
• Northbound Approach	E	42.5	E	47.9	D	27.6
• Westbound Left Turns	C	18.4	C	22.7	B	14.7
Willow Road with Porter Court						
• Northbound Approach	E	41.8	C	23.2	C	21.9
• Westbound Left Turns	C	18.5	C	21.1	B	14.5
Pfingsten Road with Plaza Del Prado Northerly/Proposed Access Drive						
• Eastbound Left Turns	D	34.2	F	>60	F	>60
• Eastbound Right Turns	B	10.0	B	11.2	B	10.1
• Westbound Left Turns	E	43.7	F	>60	F	54.4
• Westbound Right Turns	B	12.4	B	12.6	B	12.2
• Northbound Left Turns	A	8.6	A	9.5	A	8.6
• Southbound Left Turns	A	9.5	A	9.3	A	8.9
Pfingsten Road with Plaza Del Prado Southerly Access Drive						
• Westbound Approach	C	23.7	B	13.6	C	16.9
• Southbound Left Turns	A	9.3	--	--	A	8.6
Pfingsten Road with Miller Drive						
• Eastbound Approach	E	35.9	E	44.6	C	20.4
• Westbound Approach	C	17.4	E	37.8	C	16.9
• Northbound Left Turns	A	8.6	A	9.6	A	9.2
• Southbound Left Turns	A	9.2	A	9.1	A	8.6
Willow Road with Proposed Access Drives						
• Northbound Left Turns	F	>60	F	>60	F	>60
• Northbound Right Turns	C	22.1	D	27.4	C	19.7
• Westbound Left Turns	C	19.0	C	22.8	C	15.5
• Southbound Left Turns	F	>60	F	>60	F	>60
• Southbound Right Turns	C	17.7	C	24.8	C	16.9
• Eastbound Left Turns	C	17.3	D	26.6	C	15.5

LOS = Level of Service
Delay is measured in seconds.

Discussion and Recommendations

The following is an evaluation of the analyzed intersections based on the projected traffic volumes and the capacity analyses performed.

Willow Road with Pfingsten Road

The results of the capacity analysis indicate that overall this intersection currently operates at level of service (LOS) D during the weekday morning and Saturday midday peak hours and at LOS E during the weekday evening peak hour. It should be noted that the resulting level of service during the weekday evening peak hour is primarily due to the delays the northbound and southbound approaches experience which currently operate at LOS F. Furthermore, during the weekday morning peak hour, the northbound and southbound approaches currently operate at LOS E. These delays occur due to the long cycle length and limited amount of green time the northbound and southbound approaches receive during the peak hours.

Under existing plus site conditions, this intersection is projected to continue operating at LOS D during the weekday morning and Saturday midday peak hours and at LOS E during the weekday evening peak hour with moderate increases in delay of approximately six, three and nine seconds, respectively. The northbound and southbound approaches are projected to continue operating at LOS F during the weekday evening peak hour with increases in delay of approximately fourteen seconds.

As previously indicated, this intersection is included in the IDOT Fiscal Year 2019-2024 Highway Improvement Program with improvements that include the provision of eastbound and westbound exclusive right-turn lanes, eastbound and westbound right-turn overlap phases, extension of the eastbound left-turn lane storage to 285 feet, and the extension of the southbound left-turn lane storage to 235 feet of storage. Furthermore, these intersection improvements will not only improve the capacity of the intersection but will also be a safety improvement as it will provide an exclusive lane for declaration of right-turning vehicles with right-turn overlap phases, and the entire traffic signal will be replaced and updated to meet current standards including the provision of one traffic signal head per lane. Additionally, the pedestrian facilities at this intersection will be updated to meet current standards including the restriping of the existing high visibility crosswalks and the provision of updated pedestrian countdown timers.

With the proposed improvements, this intersection under existing plus site conditions overall is projected to continue operating at LOS D during the weekday morning and Saturday midday peak hour and at LOS E during the weekday evening peak hour with decreases in delay of approximately four, thirteen and four seconds, respectively. Compared to existing conditions, the existing plus site condition with associated intersection improvements are projected to operate at existing levels of service during the weekday morning, weekday evening and Saturday midday peak hours with an increase in delay of less than two seconds, a decrease in delay of approximately four seconds, and decrease in delay less than one second. Additionally, all of the approaches and movements are projected to operate at LOS E or better during the peak hours.

Under Year 2025 no-build conditions, this intersection overall is projected to operate at LOS E during the weekday morning peak hour, LOS F during the weekday evening peak hour and at LOS D during the Saturday midday peak hour with increases in delay of approximately eleven, twenty and five seconds, respectively. The level of service during the weekday evening peak hour is primarily attributed to the operations of the northbound and southbound approaches which are projected to continue operating at LOS F and the eastbound and westbound through volumes which are projected to operate at LOS E. During the weekday morning peak hour, the northbound approach is projected to continue operating at LOS E with increases in delay of approximately eleven seconds and the southbound approach is projected to operate at LOS F.

Under Year 2025 total projected conditions, this intersection overall is projected to continue operating at LOS E during the weekday morning peak hour, LOS F during the weekday evening peak hour and LOS D during the Saturday midday peak hour with increases in delay of approximately seven seconds, ten seconds and four seconds, respectively over no-build conditions. During the weekday evening peak hour, the northbound and southbound approaches are projected to continue operating at LOS F, the eastbound approach is projected to operate at LOS E and westbound approach is projected to operate on the threshold of LOS E/F. During the weekday morning peak hour, the northbound and southbound approaches are projected to operate at LOS F with increases in delay of approximately four seconds or less over no-build conditions and the eastbound approach is projected to operate at LOS E with increases in delay of approximately 14 second over no-build conditions. During the Saturday midday peak hour, the northbound and southbound approach are projected to operate at LOS E with increases in delay of approximately seven seconds or less over no-build conditions.

Overall the proposed development is only projected to increase the volume of traffic traversing this intersection by two, three and five percent during the weekday morning, weekday evening and Saturday midday peak hours, respectively. As can be seen from the existing plus site analyses, the resulting levels of service and increases in delay are primarily attributed to the background conditions. With the proposed improvements, this intersection under Year 2025 total projected conditions overall is projected to operate LOS E during the weekday morning and weekday evening hours and at LOS D during the Saturday midday peak hour with increases in delay of approximately ten seconds or less over existing conditions. Additionally, all of the approaches are projected to operate at LOS E or better during the peak hours with the exception of the westbound approach which is projected to operate on the threshold of LOS E/F during the weekday evening peak hour.

Willow Road with Charlie Court

The results of the capacity analysis indicate that the northbound approach currently operates at LOS D during the weekday morning and weekday evening peak hours and at LOS C during the Saturday midday peak hour. Westbound left-turning movements from Willow Road onto Charlie Court currently operate at LOS C during the weekday morning and weekday evening peak hours and at LOS B during the Saturday midday peak hour. Under existing plus site conditions, the northbound approach is projected to operate at LOS E during the weekday morning and weekday evening peak hours and at LOS C during the Saturday midday peak hour. The westbound left-turning movement is projected to continue operating at existing levels of service.

Under Year 2025 no-build conditions, the northbound approach is projected to operate at LOS E during the weekday morning and weekday evening peak hours and at LOS D during the Saturday midday peak hour. The westbound left-turning movements are projected to continue operating at existing levels of service.

Under Year 2025 total projected conditions, with the increase in traffic from the proposed six single family homes, the northbound approach is projected to continue operating at LOS E during the weekday morning and weekday evening peak hours and is projected to operate at LOS D during the Saturday midday peak hour with increases in delay of approximately two seconds, eight seconds and two seconds, respectively, over no-build conditions. Westbound left-turning movements onto Charlie Court are projected to continue operating at existing levels of service with increases in delay of approximately one second or less over no-build conditions and 95th percentile queues of one to two vehicles.

As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control improvements will be required.

Willow Road with Porter Court

The results of the capacity analysis indicate that the northbound approach currently operates at LOS D during the weekday morning, and at LOS C during the weekday evening and Saturday midday peak hours. Westbound left-turning movements from Willow Road onto Porter Court currently operate at LOS C during the weekday morning and weekday evening peak hours and at LOS B during the Saturday midday peak hour. Under existing plus site conditions, the northbound approach is projected to operate at LOS E during the weekday morning peak hour and at LOS C during the weekday evening and Saturday midday peak hours. The westbound left-turning movements are projected to continue operating at existing levels of service.

Under Year 2025 no-build conditions, the northbound approach is projected to operate at LOS E during the weekday morning peak hour and at LOS C during the weekday evening and Saturday midday peak hours. The westbound left-turning movements are projected to continue operating at existing levels of service.

Under Year 2025 total projected conditions, the northbound approach is projected to operate at LOS E during the weekday morning peak hour and at LOS C during the weekday evening and Saturday midday peak hours with increases in delay of less than two seconds over no-build conditions. The westbound left-turning movements are projected to continue operating at existing levels of service. Westbound left-turning movements onto Porter Court are projected to continue operating at existing levels of service with increases in delay of approximately three seconds or less over no-build conditions and 95th percentile queues of one to two vehicles.

As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control improvements will be required.

Pfingsten Road with Plaza Del Prado/Proposed Access Drive

The results of the capacity analysis indicate that outbound movements from the Plaza Del Prado access drive onto Pfingsten Road currently operate at LOS D or better during the peak hours with the exception of the westbound left-turning movement which operates at LOS E during the weekday evening peak hour.

Under existing plus site conditions, the westbound outbound right-turning movements are projected to operate at LOS B during the peak hours and the westbound outbound left-turning movements are projected to operate at LOS E during the weekday morning peak hour and at LOS F during the weekday evening and Saturday midday peak hour. Outbound right-turning movements from the proposed access drive onto Pfingsten Road are projected to operate at LOS B or better during the three peak hours and outbound left-turning movements are projected to operate at LOS D during the weekday morning and at LOS F during the weekday evening and Saturday midday peak hours. However, it is important to note that this level of service is expected for an access driveway that has an unsignalized intersection with a major roadway such as Pfingsten Road. It should be noted that "Do Not Block Driveway" signage is currently provided on Pfingsten Road facing south at the Plaza Del Prado access drive to help facilitate courtesy gaps in the Pfingsten Road traffic stream and this signage will also help facilitate courtesy gaps for outbound movements from the proposed access drive.

Under Year 2025 no-build conditions, outbound movements from the Plaza Del Prado access drive are projected to continue operating at existing levels of service during the peak hours with increases in delay of approximately four seconds or less with the exception of the westbound left-turning movement during the weekday evening peak hour which is projected to operate at LOS F during the weekday evening peak hour with increases in delay of approximately ten seconds.

Under Year 2025 total projected conditions, the westbound outbound right-turning movements are projected to operate at LOS B during all three peak hours and the westbound outbound left-turning movements are projected to operate at LOS E during the weekday morning peak hour and at LOS F during the weekday evening and Saturday midday peak hour.

Outbound right-turning movements from the proposed access drive onto Pfingsten Road are projected to operate at LOS B during the three peak hours and outbound left-turning movements are projected to operate at LOS D during the weekday morning and at LOS F during the weekday evening and Saturday midday peak hours.

As previously indicated, this level of service is expected for an access driveway that has an unsignalized intersection with a major roadway such as Pfingsten Road and that "Do Not Block Driveway" signage is currently provided on Pfingsten Road facing south at the Plaza Del Prado access drive to help facilitate courtesy gaps in the Pfingsten Road traffic stream. This signage will also help facilitate courtesy gaps for outbound movements from the proposed access drive.

In order to better accommodate northbound left-turning movements from Pfingsten Road onto the proposed access drive, the existing median on Pfingsten Road should be restriped to provide an exclusive northbound left-turn lane. This turn lane can provide approximately 100 feet of storage with 130 feet of taper, creating a back-to-back left-turn lane with the southbound left-turn lane serving Miller Drive. Under projected conditions, northbound left-turning movements are projected to operate at LOS A during the three peak hours with 95th percentile queues which can be accommodated within the 100 feet of storage proposed for the recommended left-turn lane.

When the projected traffic volumes are compared to the right-turn lane warrant guidelines published in Chapter 36 of the IDOT Bureau of Design and Environment (BDE) Manual, a southbound right-turn lane serving the proposed access drive is not warranted during the peak hours. Additionally, when the existing, no-build and total projected traffic volumes are compared to the peak hour traffic signal warrants (Warrant 3) published in the Manual on Uniform Traffic Control Devices (MUTCD) a traffic signal will not be warranted at this intersection during the peak hours.

As such, this access drive will be adequate in accommodating the traffic estimated to be generated by the proposed development and will ensure efficient and flexible access is provided.

Pfingsten Road with the Southerly Plaza Del Prado Access Drive

The results of the capacity analysis indicate that the westbound approach currently operates at LOS C during the weekday morning and Saturday midday peak hours and at LOS B during the weekday evening peak hour. Under existing plus site conditions, the westbound approach is projected to continue operating at existing levels of service during the peak hours with increases in delay of less than one second. Southbound left-turning movements are projected to continue operating at LOS A with increases in delay of less than one second and 95th percentile queues of one to two vehicles. Under Year 2025 no-build and total projected conditions, the westbound approach is projected to continue operating at existing levels of service during the peak hours with increases in delay of approximately three seconds or less over existing conditions. The southbound left-turning movements are projected to continue operating at LOS A during the peak hours with increases in delay of less than one second and 95th percentile queues of one to two vehicles. As such, this intersection has sufficient reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway or traffic control improvements will be required.

Pfingsten Road with Miller Drive

The results of the capacity analysis indicate that Miller Drive approaches at Pfingsten Road currently operate at LOS D or better during the peak hours with the exception of the eastbound approach during the weekday evening peak hour which operates at LOS E. Additionally, northbound and southbound left-turning movements onto Miller Drive currently operate at LOS A during all three peak hours. Under existing plus site conditions, the Miller Drive approaches are projected to continue operating at existing levels of service during the peak hours with increases in delay of less than three seconds

Under Year 2025 no-build conditions, the Miller Drive approaches and the northbound and southbound left-turning movements onto Miller Drive are projected to continue operating at existing levels of service during the peak hours with the exception of the westbound approach which is projected to operate on the threshold of LOS D/E during the weekday evening peak hour.

Under Year 2025 total projected conditions, the Miller Drive approaches are projected to continue operating at no-build levels of service during the peak hours with increases in delay of approximately three seconds or less over no-build conditions with the exception of the eastbound approach which is projected to operate on the threshold of LOS D/E during the weekday morning peak hour with increases in delay of approximately one second over no-build conditions. Northbound and southbound left-turning movements onto Miller Drive are projected to continue operating at LOS A during the peak hours with increases in delay of less than one second and 95th percentile queues of one to two vehicles which can be accommodated within the existing left-turn lane storage provided.

It should be noted that just north of this intersection, the southbound Pfingsten Road lanes merge into a single southbound lane and the merging of vehicles, due to its proximity to the existing high visibility crosswalk located on the north leg of the intersection, creates additional potential conflicts between vehicles and pedestrians crossing the roadway. As such, consideration should be given by the Village of Glenview in coordination with IDOT to extend the second southbound through lane through Miller Drive and have the lane drop occur between Miller Drive and Joanne Drive.

Willow Road with Proposed Access Drive

The results of the capacity analysis, which take into consideration the provision of the access drive on the north side of Willow Road that will serve a future commercial development, indicate that northbound right-turning movements from the proposed access drive onto Willow Road are projected to operate at LOS C during the weekday morning and Saturday midday peak hours and at LOS D during the weekday evening peak hour. Northbound left-turning movements are projected to operate at LOS F during the peak hours, which is expected for an access drive that has an unsignalized intersection with a major roadway such as Willow Road.

Additionally, due to the coordination of the traffic signals along Willow Road at Pfingsten Road and Landwehr Road, gaps are more readily available in the Willow Road traffic stream than the results of the capacity results indicated increasing opportunities for outbound traffic to enter the Willow Road traffic stream. Furthermore, the existing striped median along Willow Road allows for two-stage left-turning maneuvers which will further reduce the delays that will be experienced.

Westbound left-turning movements from Willow Road onto the proposed access drive are projected to operate at LOS C during the peak hours with 95th percentile queues of one to two vehicles. As previously indicated westbound left-turning movements from Willow Road onto the access drive will be accommodated via restriping the existing median on Willow Road. Taking into consideration the proposed Willow Road with Pfingsten Road intersection improvements (which call for extending the eastbound left-turn lane to provide 285 feet of storage and 144 feet of taper) a back-to-back westbound left-turn lane serving the proposed access drive can be provided with 115 feet of storage which can accommodate the projected 95th percentile queues.

Should the turning movements to/from the access drive prove to be difficult during the peak hours, consideration should be given to providing "Do Not Block Driveway" signage facing west at the proposed access drive. This signage will help facilitate courtesy gaps in the Willow Road traffic stream, allowing for more vehicles to ingress and egress the proposed access drive.

When the projected traffic volumes are compared to the right-turn lane warrants published in the IDOT BDE Manual, an eastbound right-turn lane on Willow Road at the proposed access drive is warranted during all three peak hours. However, the limited right of way available to the west precludes the ability to construct a right-turn lane west of the subject property.

Overall, this access drive will be adequate in accommodating the traffic estimated to be generated by the proposed development and will ensure flexible access is provided.

Proposed Access System Evaluation

Overall, the provision of a full movement access drive off Willow Road and a full movement access drive off Pfingsten Road will ensure that a flexible access system is provided and will reduce the volume of traffic traversing the signalized intersection of Willow Road with Pfingsten Road.

The proposed full movement access drive off Willow Road is located as far west on the site as feasible to increase the separation between the proposed access drive and the signalized intersection of Willow Road with Pfingsten Road. This location will allow for the restriping of Willow Road to provide an exclusive westbound left-turn lane and will limit the impact eastbound queueing on Willow Road at Pfingsten Road may have on the proposed access drive.

The proposed full movement access drive off Pfingsten Road will be aligned opposite the existing Plaza Del Prado full access drive. This location is ideal as it will maximize the distance between the proposed access drive and the signalized intersection of Willow Road with Pfingsten Road while eliminating left-turning conflicts that would occur between the existing and proposed access drives should they be constructed as offset approaches.

Both of the proposed full movement access drives on Willow Road and Pfingsten Road will be developed to meet IDOT's design criteria and will be designed to mitigate any potential conflicts given the following:

- They will provide two outbound lanes.
- Willow Road and Pfingsten Road will be restriped to provide exclusive left-turn lanes serving each access drive.
- Outbound turning movements will have adequate sight lines at both drives
- The access drives will be aligned opposite existing/proposed access drives on each roadway, where appropriate.

For the proposed development, the provision of two full movement access points will be beneficial to the development and area roadway network as they will reduce the number of vehicles traversing the intersection of Willow Road with Pfingsten Road and will reduce the traffic load experienced at a single access drive, particularly eastbound left-turning movements from the proposed access drive onto Pfingsten Road.

While left-turning movements from the proposed access drive onto Willow Road are projected to operate with increased delays during the peak hours, as previously indicated, this is expected for access driveways that have unsignalized intersections with major roadways such as Willow Road and is anticipated to occur during the weekday morning and weekday evening peak hour of commuter traffic. Off peak periods this turning movement will operate at better levels of service and lower delays when the volume of traffic traversing the adjacent roadway network is significantly less.

Restricting the access drive on Willow Road to three quarter or right-in/right-out, in addition to having a significant impact on the viability of the proposed development, will result in additional congestion and delays to both the intersection of Willow Road with Pfingsten Road and the proposed access drive off Pfingsten Road. The critical let-turning movements exiting the site onto Pfingsten Road and northbound left-turning movements from Pfingsten Road onto Willow Road will experience significant increases in delays with increased queueing and failing levels of service. Maintaining full access on Willow Road and Pfingsten Road, as indicated earlier, will increase access flexibility and ensure that efficient access is provided.

On-Site Circulation and Parking

As proposed, the site will provide a total of 326 parking spaces of which 10 spaces will be accessible spaces. All of the parking spaces will be perpendicular and access to the parking spaces will be provided via two-way drive aisles. The majority of the parking spaces are located within the main centralized parking field which can be utilized by customers of the four proposed buildings. The Village of Glenview Zoning Code, the development is required to provide a total of 318 parking spaces as follows:

- Retail/Office – 148 spaces (one space per 300 square-feet)
- Fitness – 35 spaces (seven spaces per 1,000 square-feet)
- Restaurant – 135 spaces (one space per three seats)

Based on information published in the ITE *Parking Generation Manual*, 5th Edition, the development is projected to have a peak parking demand of 236 parking spaces on a weekday and a peak parking demand of 310 spaces on a Saturday with the following breakdown:

Weekday

- Grocery Store – 100 spaces (ratio of 2.86 spaces per 1,000 square-feet)
- Restaurant – 102 spaces (ratio of 9.44 spaces per 1,000 square-feet)
- Retail – 34 spaces (ratio of 1.95 spaces per 1,000 square-feet)

Saturday

- Grocery Store – 128 spaces (ratio of 3.65 spaces per 1,000 square-feet)
- Restaurant – 132 spaces (ratio of 12.28 spaces per 1,000 square-feet)
- Retail – 50 spaces (ratio of 2.91 spaces per 1,000 square-feet)

Table 9 summarizes the required parking for each used based on the Village of Glenview Zoning Code and information published in the ITE *Parking Generation Manual*, 5th Edition.

Table 9
SUMMARY OF PARKING REQUIREMENTS

Land-Use	Village of Glenview Zoning Code	ITE *Parking Generation Manual*, 5th Edition	
		Weekday	Saturday
Grocery Store	--	100 Spaces (2.86 per 1,000 s.f.)	128 Spaces (3.65 per 1,000 s.f.)
Restaurant	135 Spaces (1 space per 3 seats)	102 Spaces (9.44 per 1,000 s.f.)	132 Spaces (12.28 per 1,000 s.f.)
Retail	148 Spaces (1 space per 300 s.f.)	34 Spaces (1.95 per 1,000 s.f.)	50 Spaces (2.91 per 1,000 s.f.)
Fitness	35 Spaces (7 spaces per 1,000 s.f.)	--	--
Total	**318 Spaces**	**236 Spaces**	**310 Spaces**

As can be seen from Table 8, the proposed 326 parking spaces will be adequate in accommodating the peak parking demand for the proposed development. It should be noted that this parking demand is conservative as it assumes all uses will experience peak parking demand at the same time without taking into consideration the shared parking concept when the uses will have different peak parking characteristics. In order to ensure the parking within the main parking field is available for customers, employees should be required to utilize the 22 parking spaces located to the west side of the grocery store and the 68 parking spaces located along the southern frontage of the site.

Truck deliveries to the proposed grocery store will ingress the site via the proposed access drive on Willow Road and will egress the site via the proposed access drive on Pfingsten Road. The site plan included in the appendix illustrate the on-site circulation of trucks.

6. Conclusion

Based on existing conditions and the traffic capacity analyses for the full buildout of the development, the findings and recommendations of this study are outlined below.

- The volume of traffic estimated by the proposed retail development will be reduced due to the internal capture and pass-by trips.

- The planned improvements by IDOT for the intersection of Willow Road with Pfingsten Road scheduled for Year 2020, including provision of exclusive eastbound and westbound exclusive right-turn lanes, right-turn overlap phases, the extension of the eastbound and southbound exclusive left-turn lanes, and signal upgrades will result in capacity and safety improvements at the intersection.

- The results of the capacity analyses indicate that the existing roadway system, with IDOT's planned improvements to the signalized intersection of Willow Road with Pfingsten Road, will have sufficient reserve capacity to accommodate the traffic that will be generated by the proposed development.

- With the addition of site traffic only the intersection of Willow Road with Pfingsten Road will continue to operate at existing levels of service during the peak hours with moderate increases in delay. With the addition of site traffic only and the planned intersection improvements by IDOT, the intersection is projected to operate similarl to existing conditions or better.

- The proposed access system with full access drives on Willow Road and Pfingsten Road will be adequate in accommodating the traffic estimated to be generated by the proposed retail development, will ensure flexible access is provided and will reduce the volume of site generated traffic traversing the signalized intersection of Willow Road with Pfingsten Road

- Although northbound left-turning movements from the proposed access drive onto Willow Road will experience increased delays, this will generally only occur during the peak hours. Furthermore, these delays will likely be reduced by the additional gaps created by the two signalized intersections on Willow Road at Pfingsten Road and Landwehr Road.

- When the projected traffic volumes are compared to the right-turn lane warrant guidelines published in the IDOT BDE Manual an exclusive eastbound right-turn lane is warranted at proposed full movement access drive on Willow Road. However, the limited right of way available precludes the ability to construct a right-turn lane west of the subject property.

- In order to accommodate left-turning movements onto the site, the existing striped medians on Willow Road and Pfingsten Road should be restriped to provide exclusive left-turn lanes. The Willow Road left-turn lane can provide 115 feet of storage (taking into consideration the proposed Willow Road with Pfingsten Road intersection improvements) and the Pfingsten Road left-turn lane can provide 100 feet of storage. Both turn lanes can accommodate the projected 95th percentile queues.

- Access to the proposed six single family home lots will be provided via the extension of Charlie Court. The unsignalized intersection of Charlie Court with Willow Road has sufficient reserve capacity to accommodate the traffic projected to be generated by these homes.

- The proposed 326 parking spaces will be adequate in accommodating the estimated peak parking demand of the proposed development.

Appendix

Traffic Count Summary Sheets
Site Plan
ITE Trip Generation Summary Sheets
CMAP 2050 Projections Letter
Level of Service Criteria
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Pfingsten Road
Site Code:
Start Date: 05/04/2019

Turning Movement Data

Start Time	Willow Road Eastbound						Willow Road Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
12:00 PM	0	21	277	26	0	324	0	27	260	41	0	328	0	53	67	26	0	146	0	70	52	26	0	148	946
12:15 PM	0	23	291	20	1	334	0	26	234	42	0	302	0	53	71	26	0	150	0	54	66	17	0	137	923
12:30 PM	0	27	245	29	0	301	0	25	237	34	1	296	0	57	69	46	0	172	0	90	82	28	0	200	969
12:45 PM	0	22	320	23	0	365	1	24	269	34	1	328	0	39	73	33	0	145	0	72	66	19	0	157	995
Hourly Total	0	93	1133	98	1	1324	1	102	1000	151	2	1254	0	202	280	131	0	613	0	286	266	90	0	642	3833
1:00 PM	0	38	301	29	1	368	1	31	285	27	0	344	0	47	70	22	0	139	0	64	62	25	0	151	1002
1:15 PM	0	35	299	26	0	360	0	37	258	41	0	336	0	49	72	18	0	139	0	56	59	29	0	144	979
1:30 PM	0	25	247	34	0	306	0	41	295	31	0	367	0	52	55	29	0	136	0	72	71	15	0	158	967
1:45 PM	0	27	262	25	0	314	0	21	301	38	1	360	0	36	76	31	0	143	0	59	65	23	0	147	964
Hourly Total	0	125	1109	114	1	1348	1	130	1139	137	1	1407	0	184	273	100	0	557	0	251	257	92	0	600	3912
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	35	404	28	0	467	0	10	219	13	0	242	0	42	46	15	0	103	0	32	42	17	0	91	903
7:15 AM	0	27	371	20	0	418	0	16	285	18	0	319	0	59	88	29	1	176	0	53	39	15	0	107	1020
7:30 AM	0	22	376	27	0	425	0	32	302	22	0	356	0	43	71	34	1	148	0	55	47	24	0	126	1055
7:45 AM	0	32	377	19	0	428	0	31	245	36	0	312	0	59	80	33	0	172	0	64	84	28	0	176	1088
Hourly Total	0	116	1528	94	0	1738	0	89	1051	89	0	1229	0	203	285	111	2	599	0	204	212	84	0	500	4066
8:00 AM	0	33	408	26	0	467	0	17	257	22	0	296	0	60	87	29	0	176	0	70	76	18	0	164	1103
8:15 AM	0	42	370	32	0	444	0	20	281	28	0	329	0	43	111	23	0	177	0	56	80	18	0	154	1104
8:30 AM	0	32	395	24	0	451	0	21	269	31	0	321	0	60	100	16	0	176	0	55	86	27	0	168	1116
8:45 AM	0	30	431	29	0	490	0	15	284	24	0	323	0	45	95	18	0	158	0	57	78	22	0	157	1128
Hourly Total	0	137	1604	111	0	1852	0	73	1091	105	0	1269	0	208	393	86	0	687	0	238	320	85	0	643	4451
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	28	315	21	0	365	0	15	337	27	1	379	0	65	88	19	0	172	0	76	76	25	0	177	1093
4:15 PM	1	27	320	43	18	391	0	11	370	31	0	412	0	48	102	27	0	177	0	51	102	36	0	189	1169
4:30 PM	0	34	378	52	0	464	0	14	387	36	0	437	0	45	79	28	0	152	0	47	97	27	0	171	1224
4:45 PM	0	42	338	33	0	413	0	15	355	38	0	408	0	62	73	27	0	162	0	62	100	26	0	188	1171
Hourly Total	2	131	1351	149	18	1633	0	55	1449	132	1	1636	0	220	342	101	0	663	0	236	375	114	0	725	4657
5:00 PM	1	34	334	40	0	409	0	25	341	38	1	404	0	42	120	30	0	192	0	62	132	32	0	226	1231
5:15 PM	0	52	405	55	0	512	0	26	366	34	0	426	0	51	101	21	0	173	0	56	99	29	1	184	1295
5:30 PM	0	37	281	33	0	351	0	26	332	36	1	394	0	45	115	26	0	186	0	54	132	38	0	224	1155
5:45 PM	0	40	356	60	0	456	0	34	373	38	1	445	0	48	90	22	0	160	0	60	105	4	0	169	1230
Hourly Total	1	163	1376	188	0	1728	0	111	1412	146	3	1669	0	186	426	99	0	711	0	232	468	103	1	803	4911
Grand Total	3	765	8101	754	20	9623	2	560	7142	760	7	8464	0	1203	1999	628	2	3830	0	1447	1898	568	1	3913	25830
Approach %	0.0	7.9	84.2	7.8	-	-	0.0	6.6	84.4	9.0	-	-	0.0	31.4	52.2	16.4	-	-	0.0	37.0	48.5	14.5	-	-	-
Total %	0.0	3.0	31.4	2.9	-	37.3	0.0	2.2	27.7	2.9	-	32.8	0.0	4.7	7.7	2.4	-	14.8	0.0	5.6	7.3	2.2	-	15.1	-
Lights	3	748	7763	732	-	9246	2	539	6849	736	-	8126	0	1174	1962	596	-	3732	0	1406	1867	545	-	3818	24922
% Lights	100.0	97.8	95.8	97.1	-	96.1	100.0	96.3	95.9	96.8	-	96.0	-	97.6	98.1	94.9	-	97.4	-	97.2	98.4	96.0	-	97.6	96.5

Buses	0	1	36	4	-	41	0	11	31	8	-	50	0	8	9	21	-	38	0	20	9	4	-	33	162
% Buses	0.0	0.1	0.4	0.5	-	0.4	0.0	2.0	0.4	1.1	-	0.6	-	0.7	0.5	3.3	-	1.0	-	1.4	0.5	0.7	-	0.8	0.6
Single-Unit Trucks	0	12	186	9	-	207	0	6	127	7	-	140	0	11	12	8	-	31	0	14	14	12	-	40	418
% Single-Unit Trucks	0.0	1.6	2.3	1.2	-	2.2	0.0	1.1	1.8	0.9	-	1.7	-	0.9	0.6	1.3	-	0.8	-	1.0	0.7	2.1	-	1.0	1.6
Articulated Trucks	0	4	116	9	-	129	0	4	135	8	-	147	0	10	13	3	-	26	0	7	8	7	-	22	324
% Articulated Trucks	0.0	0.5	1.4	1.2	-	1.3	0.0	0.7	1.9	1.1	-	1.7	-	0.8	0.7	0.5	-	0.7	-	0.5	0.4	1.2	-	0.6	1.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	1	-	1	0	0	3	0	-	3	0	0	0	0	-	0	4
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.1	-	0.0	-	0.0	0.2	0.0	-	0.1	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	20	-	-	-	-	-	7	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Pfingsten Road
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Willow Road Eastbound						Willow Road Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
12:30 PM	0	27	245	29	0	301	0	25	237	34	1	296	0	57	69	46	0	172	0	90	82	28	0	200	969
12:45 PM	0	22	320	23	0	365	1	24	269	34	1	328	0	39	73	33	0	145	0	72	66	19	0	157	995
1:00 PM	0	38	301	29	1	368	1	31	285	27	0	344	0	47	70	22	0	139	0	64	62	25	0	151	1002
1:15 PM	0	35	299	26	0	360	0	37	258	41	0	336	0	49	72	18	0	139	0	56	59	29	0	144	979
Total	0	122	1165	107	1	1394	2	117	1049	136	2	1304	0	192	284	119	0	595	0	282	269	101	0	652	3945
Approach %	0.0	8.8	83.6	7.7	-	-	0.2	9.0	80.4	10.4	-	-	0.0	32.3	47.7	20.0	-	-	0.0	43.3	41.3	15.5	-	-	-
Total %	0.0	3.1	29.5	2.7	-	35.3	0.1	3.0	26.6	3.4	-	33.1	0.0	4.9	7.2	3.0	-	15.1	0.0	7.1	6.8	2.6	-	16.5	-
PHF	0.000	0.803	0.910	0.922	-	0.947	0.500	0.791	0.920	0.829	-	0.948	0.000	0.842	0.973	0.647	-	0.865	0.000	0.783	0.820	0.871	-	0.815	0.984
Lights	0	121	1130	105	-	1356	2	108	1023	132	-	1265	0	190	281	116	-	587	0	280	266	98	-	644	3852
% Lights	-	99.2	97.0	98.1	-	97.3	100.0	92.3	97.5	97.1	-	97.0	-	99.0	98.9	97.5	-	98.7	-	99.3	98.9	97.0	-	98.8	97.6
Buses	0	0	3	0	-	3	0	5	1	0	-	6	0	1	0	3	-	4	0	0	1	0	-	1	14
% Buses	-	0.0	0.3	0.0	-	0.2	0.0	4.3	0.1	0.0	-	0.5	-	0.5	0.0	2.5	-	0.7	-	0.0	0.4	0.0	-	0.2	0.4
Single-Unit Trucks	0	1	25	1	-	27	0	2	12	2	-	16	0	0	2	0	-	2	0	1	1	1	-	3	48
% Single-Unit Trucks	-	0.8	2.1	0.9	-	1.9	0.0	1.7	1.1	1.5	-	1.2	-	0.0	0.7	0.0	-	0.3	-	0.4	0.4	1.0	-	0.5	1.2
Articulated Trucks	0	0	7	1	-	8	0	2	13	2	-	17	0	1	0	0	-	1	0	1	1	2	-	4	30
% Articulated Trucks	-	0.0	0.6	0.9	-	0.6	0.0	1.7	1.2	1.5	-	1.3	-	0.5	0.0	0.0	-	0.2	-	0.4	0.4	2.0	-	0.6	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.4	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Pfingsten Road
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Willow Road Eastbound						Willow Road Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	0	33	408	26	0	467	0	17	257	22	0	296	0	60	87	29	0	176	0	70	76	18	0	164	1103
8:15 AM	0	42	370	32	0	444	0	20	281	28	0	329	0	43	111	23	0	177	0	56	80	18	0	154	1104
8:30 AM	0	32	395	24	0	451	0	21	269	31	0	321	0	60	100	16	0	176	0	55	86	27	0	168	1116
8:45 AM	0	30	431	29	0	490	0	15	284	24	0	323	0	45	95	18	0	158	0	57	78	22	0	157	1128
Total	0	137	1604	111	0	1852	0	73	1091	105	0	1269	0	208	393	86	0	687	0	238	320	85	0	643	4451
Approach %	0.0	7.4	86.6	6.0	-	-	0.0	5.8	86.0	8.3	-	-	0.0	30.3	57.2	12.5	-	-	0.0	37.0	49.8	13.2	-	-	-
Total %	0.0	3.1	36.0	2.5	-	41.6	0.0	1.6	24.5	2.4	-	28.5	0.0	4.7	8.8	1.9	-	15.4	0.0	5.3	7.2	1.9	-	14.4	-
PHF	0.000	0.815	0.930	0.867	-	0.945	0.000	0.869	0.960	0.847	-	0.964	0.000	0.867	0.885	0.741	-	0.970	0.000	0.850	0.930	0.787	-	0.957	0.986
Lights	0	130	1524	102	-	1756	0	70	1006	98	-	1174	0	200	386	81	-	667	0	222	312	81	-	615	4212
% Lights	-	94.9	95.0	91.9	-	94.8	-	95.9	92.2	93.3	-	92.5	-	96.2	98.2	94.2	-	97.1	-	93.3	97.5	95.3	-	95.6	94.6
Buses	0	0	8	2	-	10	0	1	5	2	-	8	0	0	0	2	-	2	0	12	1	3	-	16	36
% Buses	-	0.0	0.5	1.8	-	0.5	-	1.4	0.5	1.9	-	0.6	-	0.0	0.0	2.3	-	0.3	-	5.0	0.3	3.5	-	2.5	0.8
Single-Unit Trucks	0	6	43	3	-	52	0	0	42	1	-	43	0	4	5	3	-	12	0	2	5	1	-	8	115
% Single-Unit Trucks	-	4.4	2.7	2.7	-	2.8	-	0.0	3.8	1.0	-	3.4	-	1.9	1.3	3.5	-	1.7	-	0.8	1.6	1.2	-	1.2	2.6
Articulated Trucks	0	1	29	4	-	34	0	2	38	3	-	43	0	4	2	0	-	6	0	2	2	0	-	4	87
% Articulated Trucks	-	0.7	1.8	3.6	-	1.8	-	2.7	3.5	2.9	-	3.4	-	1.9	0.5	0.0	-	0.9	-	0.8	0.6	0.0	-	0.6	2.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	1.0	-	0.1	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Pfingsten Road
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Willow Road Eastbound						Willow Road Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	0	34	378	52	0	464	0	14	387	36	0	437	0	45	79	28	0	152	0	47	97	27	0	171	1224
4:45 PM	0	42	338	33	0	413	0	15	355	38	0	408	0	62	73	27	0	162	0	62	100	26	0	188	1171
5:00 PM	1	34	334	40	0	409	0	25	341	38	1	404	0	42	120	30	0	192	0	62	132	32	0	226	1231
5:15 PM	0	52	405	55	0	512	0	26	366	34	0	426	0	51	101	21	0	173	0	56	99	29	1	184	1295
Total	1	162	1455	180	0	1798	0	80	1449	146	1	1675	0	200	373	106	0	679	0	227	428	114	1	769	4921
Approach %	0.1	9.0	80.9	10.0	-	-	0.0	4.8	86.5	8.7	-	-	0.0	29.5	54.9	15.6	-	-	0.0	29.5	55.7	14.8	-	-	-
Total %	0.0	3.3	29.6	3.7	-	36.5	0.0	1.6	29.4	3.0	-	34.0	0.0	4.1	7.6	2.2	-	13.8	0.0	4.6	8.7	2.3	-	15.6	-
PHF	0.250	0.779	0.898	0.818	-	0.878	0.000	0.769	0.936	0.961	-	0.958	0.000	0.806	0.777	0.883	-	0.884	0.000	0.915	0.811	0.891	-	0.851	0.950
Lights	1	162	1393	178	-	1734	0	79	1399	143	-	1621	0	196	365	105	-	666	0	222	423	113	-	758	4779
% Lights	100.0	100.0	95.7	98.9	-	96.4	-	98.8	96.5	97.9	-	96.8	-	98.0	97.9	99.1	-	98.1	-	97.8	98.8	99.1	-	98.6	97.1
Buses	0	0	7	0	-	7	0	0	5	0	-	5	0	1	2	0	-	3	0	1	2	0	-	3	18
% Buses	0.0	0.0	0.5	0.0	-	0.4	-	0.0	0.3	0.0	-	0.3	-	0.5	0.5	0.0	-	0.4	-	0.4	0.5	0.0	-	0.4	0.4
Single-Unit Trucks	0	0	25	2	-	27	0	1	18	1	-	20	0	3	0	0	-	3	0	3	3	1	-	7	57
% Single-Unit Trucks	0.0	0.0	1.7	1.1	-	1.5	-	1.3	1.2	0.7	-	1.2	-	1.5	0.0	0.0	-	0.4	-	1.3	0.7	0.9	-	0.9	1.2
Articulated Trucks	0	0	30	0	-	30	0	0	27	2	-	29	0	0	6	1	-	7	0	1	0	0	-	1	67
% Articulated Trucks	0.0	0.0	2.1	0.0	-	1.7	-	0.0	1.9	1.4	-	1.7	-	0.0	1.6	0.9	-	1.0	-	0.4	0.0	0.0	-	0.1	1.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Rosemont, Illinois, United States 60018
(847)518-9990 bmay@kloainc.com

Count Name: Willow Road with Charlie Court
Site Code:
Start Date: 05/04/2019

Turning Movement Data

Start Time	Willow Road Eastbound					Willow Road Westbound					Charlie Court Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
12:00 PM	0	1	345	0	346	0	316	1	0	317	0	1	4	0	5	668
12:15 PM	0	0	297	0	297	0	347	1	0	348	0	1	1	0	2	647
12:30 PM	0	1	320	0	321	0	336	2	0	338	0	0	1	0	1	660
12:45 PM	0	3	310	0	313	0	344	2	0	346	0	0	1	0	1	660
Hourly Total	0	5	1272	0	1277	0	1343	6	0	1349	0	2	7	0	9	2635
1:00 PM	0	1	366	0	367	0	365	1	0	366	0	1	2	0	3	736
1:15 PM	0	3	342	0	345	0	359	0	0	359	0	3	3	4	6	710
1:30 PM	0	1	356	0	357	0	297	0	0	297	0	0	1	0	1	655
1:45 PM	0	1	357	0	358	0	329	3	0	332	0	0	2	0	2	692
Hourly Total	0	6	1421	0	1427	0	1350	4	0	1354	0	4	8	4	12	2793
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	1	272	0	273	0	481	0	0	481	0	0	1	0	1	755
7:15 AM	0	2	364	0	366	0	456	0	0	456	0	1	1	0	2	824
7:30 AM	0	1	364	0	365	0	461	1	0	462	0	1	4	0	5	832
7:45 AM	0	0	331	0	331	0	450	1	0	451	0	0	1	1	1	783
Hourly Total	0	4	1331	0	1335	0	1848	2	0	1850	0	2	7	1	9	3194
8:00 AM	0	0	340	0	340	0	467	0	0	467	0	3	1	0	4	811
8:15 AM	0	1	336	0	337	0	443	1	0	444	0	0	3	0	3	784
8:30 AM	0	2	354	0	356	0	463	2	0	465	0	3	2	1	5	826
8:45 AM	0	1	355	0	356	0	443	0	0	443	0	1	3	0	4	803
Hourly Total	0	4	1385	0	1389	0	1816	3	0	1819	0	7	9	1	16	3224
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	433	0	433	0	365	1	0	366	0	0	1	0	1	800
4:15 PM	0	3	472	0	475	0	408	1	0	409	0	1	1	0	2	886
4:30 PM	0	1	440	0	441	0	438	0	0	438	0	2	2	0	4	883
4:45 PM	0	3	432	0	435	0	442	0	0	442	0	0	2	1	2	879
Hourly Total	0	7	1777	0	1784	0	1653	2	0	1655	0	3	6	1	9	3448
5:00 PM	0	3	460	0	463	0	416	0	0	416	0	0	2	0	2	881
5:15 PM	0	2	509	0	511	0	517	1	0	518	0	0	0	1	0	1029
5:30 PM	0	0	450	0	450	0	379	1	0	380	0	0	2	0	2	832
5:45 PM	0	3	467	0	470	0	479	1	0	480	0	0	1	0	1	951
Hourly Total	0	8	1886	0	1894	0	1791	3	0	1794	0	0	5	1	5	3693
Grand Total	0	34	9072	0	9106	0	9801	20	0	9821	0	18	42	8	60	18987
Approach %	0.0	0.4	99.6	-	-	0.0	99.8	0.2	-	-	0.0	30.0	70.0	-	-	-
Total %	0.0	0.2	47.8	-	48.0	0.0	51.6	0.1	-	51.7	0.0	0.1	0.2	-	0.3	-
Lights	0	33	8735	-	8768	0	9392	19	-	9411	0	18	41	-	59	18238
% Lights	-	97.1	96.3	-	96.3	-	95.8	95.0	-	95.8	-	100.0	97.6	-	98.3	96.1
Buses	0	1	44	-	45	0	38	0	-	38	0	0	1	-	1	84

% Buses	-	2.9	0.5	-	0.5	-	0.4	0.0	-	0.4	-	0.0	2.4	-	1.7	0.4
Single-Unit Trucks	0	0	163	-	163	0	264	1	-	265	0	0	0	-	0	428
% Single-Unit Trucks	-	0.0	1.8	-	1.8	-	2.7	5.0	-	2.7	-	0.0	0.0	-	0.0	2.3
Articulated Trucks	0	0	130	-	130	0	107	0	-	107	0	0	0	-	0	237
% Articulated Trucks	-	0.0	1.4	-	1.4	-	1.1	0.0	-	1.1	-	0.0	0.0	-	0.0	1.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Count Name: Willow Road with Charlie Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Charlie Court Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
12:30 PM	0	1	320	0	321	0	336	2	0	338	0	0	1	0	1	660
12:45 PM	0	3	310	0	313	0	344	2	0	346	0	0	1	0	1	660
1:00 PM	0	1	366	0	367	0	365	1	0	366	0	1	2	0	3	736
1:15 PM	0	3	342	0	345	0	359	0	0	359	0	3	3	4	6	710
Total	0	8	1338	0	1346	0	1404	5	0	1409	0	4	7	4	11	2766
Approach %	0.0	0.6	99.4	-	-	0.0	99.6	0.4	-	-	0.0	36.4	63.6	-	-	-
Total %	0.0	0.3	48.4	-	48.7	0.0	50.8	0.2	-	50.9	0.0	0.1	0.3	-	0.4	-
PHF	0.000	0.667	0.914	-	0.917	0.000	0.962	0.625	-	0.962	0.000	0.333	0.583	-	0.458	0.940
Lights	0	8	1307	-	1315	0	1363	4	-	1367	0	4	7	-	11	2693
% Lights	-	100.0	97.7	-	97.7	-	97.1	80.0	-	97.0	-	100.0	100.0	-	100.0	97.4
Buses	0	0	2	-	2	0	3	0	-	3	0	0	0	-	0	5
% Buses	-	0.0	0.1	-	0.1	-	0.2	0.0	-	0.2	-	0.0	0.0	-	0.0	0.2
Single-Unit Trucks	0	0	16	-	16	0	32	1	-	33	0	0	0	-	0	49
% Single-Unit Trucks	-	0.0	1.2	-	1.2	-	2.3	20.0	-	2.3	-	0.0	0.0	-	0.0	1.8
Articulated Trucks	0	0	13	-	13	0	6	0	-	6	0	0	0	-	0	19
% Articulated Trucks	-	0.0	1.0	-	1.0	-	0.4	0.0	-	0.4	-	0.0	0.0	-	0.0	0.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Count Name: Willow Road with Charlie Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Charlie Court Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
8:00 AM	0	0	340	0	340	0	467	0	0	467	0	3	1	0	4	811
8:15 AM	0	1	336	0	337	0	443	1	0	444	0	0	3	0	3	784
8:30 AM	0	2	354	0	356	0	463	2	0	465	0	3	2	1	5	826
8:45 AM	0	1	355	0	356	0	443	0	0	443	0	1	3	0	4	803
Total	0	4	1385	0	1389	0	1816	3	0	1819	0	7	9	1	16	3224
Approach %	0.0	0.3	99.7	-	-	0.0	99.8	0.2	-	-	0.0	43.8	56.3	-	-	-
Total %	0.0	0.1	43.0	-	43.1	0.0	56.3	0.1	-	56.4	0.0	0.2	0.3	-	0.5	-
PHF	0.000	0.500	0.975	-	0.975	0.000	0.972	0.375	-	0.974	0.000	0.583	0.750	-	0.800	0.976
Lights	0	4	1293	-	1297	0	1696	3	-	1699	0	7	9	-	16	3012
% Lights	-	100.0	93.4	-	93.4	-	93.4	100.0	-	93.4	-	100.0	100.0	-	100.0	93.4
Buses	0	0	7	-	7	0	10	0	-	10	0	0	0	-	0	17
% Buses	-	0.0	0.5	-	0.5	-	0.6	0.0	-	0.5	-	0.0	0.0	-	0.0	0.5
Single-Unit Trucks	0	0	46	-	46	0	88	0	-	88	0	0	0	-	0	134
% Single-Unit Trucks	-	0.0	3.3	-	3.3	-	4.8	0.0	-	4.8	-	0.0	0.0	-	0.0	4.2
Articulated Trucks	0	0	39	-	39	0	22	0	-	22	0	0	0	-	0	61
% Articulated Trucks	-	0.0	2.8	-	2.8	-	1.2	0.0	-	1.2	-	0.0	0.0	-	0.0	1.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 bmay@kloainc.com

Count Name: Willow Road with Charlie Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Charlie Court Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:30 PM	0	1	440	0	441	0	438	0	0	438	0	2	2	0	4	883
4:45 PM	0	3	432	0	435	0	442	0	0	442	0	0	2	1	2	879
5:00 PM	0	3	460	0	463	0	416	0	0	416	0	0	2	0	2	881
5:15 PM	0	2	509	0	511	0	517	1	0	518	0	0	0	1	0	1029
Total	0	9	1841	0	1850	0	1813	1	0	1814	0	2	6	2	8	3672
Approach %	0.0	0.5	99.5	-	-	0.0	99.9	0.1	-	-	0.0	25.0	75.0	-	-	-
Total %	0.0	0.2	50.1	-	50.4	0.0	49.4	0.0	-	49.4	0.0	0.1	0.2	-	0.2	-
PHF	0.000	0.750	0.904	-	0.905	0.000	0.877	0.250	-	0.875	0.000	0.250	0.750	-	0.500	0.892
Lights	0	9	1793	-	1802	0	1751	1	-	1752	0	2	6	-	8	3562
% Lights	-	100.0	97.4	-	97.4	-	96.6	100.0	-	96.6	-	100.0	100.0	-	100.0	97.0
Buses	0	0	7	-	7	0	6	0	-	6	0	0	0	-	0	13
% Buses	-	0.0	0.4	-	0.4	-	0.3	0.0	-	0.3	-	0.0	0.0	-	0.0	0.4
Single-Unit Trucks	0	0	21	-	21	0	31	0	-	31	0	0	0	-	0	52
% Single-Unit Trucks	-	0.0	1.1	-	1.1	-	1.7	0.0	-	1.7	-	0.0	0.0	-	0.0	1.4
Articulated Trucks	0	0	20	-	20	0	25	0	-	25	0	0	0	-	0	45
% Articulated Trucks	-	0.0	1.1	-	1.1	-	1.4	0.0	-	1.4	-	0.0	0.0	-	0.0	1.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Porter Court
Site Code:
Start Date: 05/04/2019

Turning Movement Data

Start Time	Willow Road Eastbound					Willow Road Westbound					Porter Court Northbound					Int. Total
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	
12:00 PM	0	313	1	0	314	0	1	357	0	358	0	0	0	0	0	672
12:15 PM	0	334	0	0	334	0	0	305	0	305	0	0	1	0	1	640
12:30 PM	0	332	1	0	333	0	1	319	0	320	0	0	1	0	1	654
12:45 PM	0	326	1	0	327	0	0	314	0	314	0	0	2	0	2	643
Hourly Total	0	1305	3	0	1308	0	2	1295	0	1297	0	0	4	0	4	2609
1:00 PM	0	363	0	0	363	0	1	362	0	363	0	1	0	0	1	727
1:15 PM	0	358	0	0	358	0	1	343	0	344	0	0	1	5	1	703
1:30 PM	0	293	0	0	293	0	2	349	0	351	0	0	0	0	0	644
1:45 PM	0	334	1	0	335	0	0	359	0	359	0	0	1	0	1	695
Hourly Total	0	1348	1	0	1349	0	4	1413	0	1417	0	1	2	5	3	2769
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	479	0	0	479	0	1	273	0	274	0	0	0	0	0	753
7:15 AM	0	451	1	0	452	0	0	369	0	369	0	1	1	0	2	823
7:30 AM	0	458	0	0	458	0	0	364	0	364	0	1	0	0	1	823
7:45 AM	0	454	0	0	454	0	0	328	0	328	0	0	1	0	1	783
Hourly Total	0	1842	1	0	1843	0	1	1334	0	1335	0	2	2	0	4	3182
8:00 AM	0	475	0	0	475	0	1	326	0	327	0	1	0	0	1	803
8:15 AM	0	444	1	0	445	0	0	337	0	337	0	0	1	0	1	783
8:30 AM	0	474	0	0	474	0	0	352	0	352	0	0	1	1	1	827
8:45 AM	0	452	0	0	452	0	0	354	0	354	0	1	0	0	1	807
Hourly Total	0	1845	1	0	1846	0	1	1369	0	1370	0	2	2	1	4	3220
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	385	0	0	385	0	0	388	0	388	0	1	1	0	2	775
4:15 PM	0	414	0	0	414	0	2	436	0	438	0	0	1	0	1	853
4:30 PM	0	454	0	0	454	0	1	421	0	422	0	0	0	0	0	876
4:45 PM	0	477	1	0	478	0	0	421	0	421	0	0	0	0	0	899
Hourly Total	0	1730	1	0	1731	0	3	1666	0	1669	0	1	2	0	3	3403
5:00 PM	0	415	0	0	415	0	1	453	0	454	0	0	1	0	1	870
5:15 PM	0	529	0	0	529	0	1	473	0	474	0	0	0	1	0	1003
5:30 PM	0	397	0	0	397	0	1	446	0	447	0	0	1	0	1	845
5:45 PM	0	473	1	0	474	0	1	465	0	466	0	0	0	0	0	940
Hourly Total	0	1814	1	0	1815	0	4	1837	0	1841	0	0	2	1	2	3658
Grand Total	0	9884	8	0	9892	0	15	8914	0	8929	0	6	14	7	20	18841
Approach %	0.0	99.9	0.1	-	-	0.0	0.2	99.8	-	-	0.0	30.0	70.0	-	-	-
Total %	0.0	52.5	0.0	-	52.5	0.0	0.1	47.3	-	47.4	0.0	0.0	0.1	-	0.1	-
Lights	0	9498	7	-	9505	0	15	8557	-	8572	0	5	14	-	19	18096
% Lights	-	96.1	87.5	-	96.1	-	100.0	96.0	-	96.0	-	83.3	100.0	-	95.0	96.0
Buses	0	41	1	-	42	0	0	40	-	40	0	1	0	-	1	83

% Buses	-	0.4	12.5	-	0.4	-	0.0	0.4	-	0.4	-	16.7	0.0	-	5.0	0.4
Single-Unit Trucks	0	216	0	-	216	0	0	171	-	171	0	0	0	-	0	387
% Single-Unit Trucks	-	2.2	0.0	-	2.2	-	0.0	1.9	-	1.9	-	0.0	0.0	-	0.0	2.1
Articulated Trucks	0	129	0	-	129	0	0	144	-	144	0	0	0	-	0	273
% Articulated Trucks	-	1.3	0.0	-	1.3	-	0.0	1.6	-	1.6	-	0.0	0.0	-	0.0	1.4
Bicycles on Road	0	0	0	-	0	0	0	2	-	2	0	0	0	-	0	2
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
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Count Name: Willow Road with Porter Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Porter Court Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
12:30 PM	0	332	1	0	333	0	1	319	0	320	0	0	1	0	1	654
12:45 PM	0	326	1	0	327	0	0	314	0	314	0	0	2	0	2	643
1:00 PM	0	363	0	0	363	0	1	362	0	363	0	1	0	0	1	727
1:15 PM	0	358	0	0	358	0	1	343	0	344	0	0	1	5	1	703
Total	0	1379	2	0	1381	0	3	1338	0	1341	0	1	4	5	5	2727
Approach %	0.0	99.9	0.1	-	-	0.0	0.2	99.8	-	-	0.0	20.0	80.0	-	-	-
Total %	0.0	50.6	0.1	-	50.6	0.0	0.1	49.1	-	49.2	0.0	0.0	0.1	-	0.2	-
PHF	0.000	0.950	0.500	-	0.951	0.000	0.750	0.924	-	0.924	0.000	0.250	0.500	-	0.625	0.938
Lights	0	1341	2	-	1343	0	3	1311	-	1314	0	1	4	-	5	2662
% Lights	-	97.2	100.0	-	97.2	-	100.0	98.0	-	98.0	-	100.0	100.0	-	100.0	97.6
Buses	0	3	0	-	3	0	0	2	-	2	0	0	0	-	0	5
% Buses	-	0.2	0.0	-	0.2	-	0.0	0.1	-	0.1	-	0.0	0.0	-	0.0	0.2
Single-Unit Trucks	0	27	0	-	27	0	0	13	-	13	0	0	0	-	0	40
% Single-Unit Trucks	-	2.0	0.0	-	2.0	-	0.0	1.0	-	1.0	-	0.0	0.0	-	0.0	1.5
Articulated Trucks	0	8	0	-	8	0	0	12	-	12	0	0	0	-	0	20
% Articulated Trucks	-	0.6	0.0	-	0.6	-	0.0	0.9	-	0.9	-	0.0	0.0	-	0.0	0.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Rosemont, Illinois, United States 60018
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Count Name: Willow Road with Porter Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Porter Court Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
8:00 AM	0	475	0	0	475	0	1	326	0	327	0	1	0	0	1	803
8:15 AM	0	444	1	0	445	0	0	337	0	337	0	0	1	0	1	783
8:30 AM	0	474	0	0	474	0	0	352	0	352	0	0	1	1	1	827
8:45 AM	0	452	0	0	452	0	0	354	0	354	0	1	0	0	1	807
Total	0	1845	1	0	1846	0	1	1369	0	1370	0	2	2	1	4	3220
Approach %	0.0	99.9	0.1	-	-	0.0	0.1	99.9	-	-	0.0	50.0	50.0	-	-	-
Total %	0.0	57.3	0.0	-	57.3	0.0	0.0	42.5	-	42.5	0.0	0.1	0.1	-	0.1	-
PHF	0.000	0.971	0.250	-	0.972	0.000	0.250	0.967	-	0.968	0.000	0.500	0.500	-	1.000	0.973
Lights	0	1744	1	-	1745	0	1	1291	-	1292	0	2	2	-	4	3041
% Lights	-	94.5	100.0	-	94.5	-	100.0	94.3	-	94.3	-	100.0	100.0	-	100.0	94.4
Buses	0	11	0	-	11	0	0	2	-	2	0	0	0	-	0	13
% Buses	-	0.6	0.0	-	0.6	-	0.0	0.1	-	0.1	-	0.0	0.0	-	0.0	0.4
Single-Unit Trucks	0	52	0	-	52	0	0	41	-	41	0	0	0	-	0	93
% Single-Unit Trucks	-	2.8	0.0	-	2.8	-	0.0	3.0	-	3.0	-	0.0	0.0	-	0.0	2.9
Articulated Trucks	0	38	0	-	38	0	0	35	-	35	0	0	0	-	0	73
% Articulated Trucks	-	2.1	0.0	-	2.1	-	0.0	2.6	-	2.6	-	0.0	0.0	-	0.0	2.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Willow Road with Porter Court
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Willow Road Eastbound					Willow Road Westbound					Porter Court Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:30 PM	0	454	0	0	454	0	1	421	0	422	0	0	0	0	0	876
4:45 PM	0	477	1	0	478	0	0	421	0	421	0	0	0	0	0	899
5:00 PM	0	415	0	0	415	0	1	453	0	454	0	0	1	0	1	870
5:15 PM	0	529	0	0	529	0	1	473	0	474	0	0	0	1	0	1003
Total	0	1875	1	0	1876	0	3	1768	0	1771	0	0	1	1	1	3648
Approach %	0.0	99.9	0.1	-	-	0.0	0.2	99.8	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	51.4	0.0	-	51.4	0.0	0.1	48.5	-	48.5	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.886	0.250	-	0.887	0.000	0.750	0.934	-	0.934	0.000	0.000	0.250	-	0.250	0.909
Lights	0	1814	1	-	1815	0	3	1701	-	1704	0	0	1	-	1	3520
% Lights	-	96.7	100.0	-	96.7	-	100.0	96.2	-	96.2	-	-	100.0	-	100.0	96.5
Buses	0	7	0	-	7	0	0	8	-	8	0	0	0	-	0	15
% Buses	-	0.4	0.0	-	0.4	-	0.0	0.5	-	0.5	-	-	0.0	-	0.0	0.4
Single-Unit Trucks	0	26	0	-	26	0	0	28	-	28	0	0	0	-	0	54
% Single-Unit Trucks	-	1.4	0.0	-	1.4	-	0.0	1.6	-	1.6	-	-	0.0	-	0.0	1.5
Articulated Trucks	0	28	0	-	28	0	0	31	-	31	0	0	0	-	0	59
% Articulated Trucks	-	1.5	0.0	-	1.5	-	0.0	1.8	-	1.8	-	-	0.0	-	0.0	1.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Pfingsten Road with Access Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Data

Start Time	Access Drive Westbound					Pfingsten Road Northbound					Pfingsten Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:00 PM	0	29	53	0	82	0	96	30	0	126	0	21	90	0	111	319
12:15 PM	0	24	50	0	74	0	112	28	0	140	1	17	95	0	113	327
12:30 PM	0	25	49	0	74	0	106	33	0	139	0	28	103	0	131	344
12:45 PM	0	19	53	1	72	0	92	26	0	118	0	27	90	0	117	307
Hourly Total	0	97	205	1	302	0	406	117	0	523	1	93	378	0	472	1297
1:00 PM	0	30	53	0	83	0	88	32	0	120	0	17	107	0	124	327
1:15 PM	0	22	53	0	75	0	95	19	0	114	0	11	112	0	123	312
1:30 PM	0	24	33	0	57	0	98	26	0	124	0	17	134	0	151	332
1:45 PM	0	25	35	1	60	0	99	20	0	119	0	12	94	0	106	285
Hourly Total	0	101	174	1	275	0	380	97	0	477	0	57	447	0	504	1256
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	12	23	0	35	0	81	15	1	96	0	9	69	0	78	209
7:15 AM	0	18	31	0	49	0	149	13	0	162	0	4	69	0	73	284
7:30 AM	0	9	19	0	28	0	141	24	0	165	0	4	104	0	108	301
7:45 AM	0	25	26	0	51	0	144	24	0	168	0	4	130	0	134	353
Hourly Total	0	64	99	0	163	0	515	76	1	591	0	21	372	0	393	1147
8:00 AM	0	4	27	0	31	0	143	26	0	169	0	10	108	0	118	318
8:15 AM	0	13	28	0	41	0	162	24	0	186	0	15	117	0	132	359
8:30 AM	0	16	33	0	49	0	134	33	0	167	0	16	120	0	136	352
8:45 AM	0	17	31	0	48	0	126	28	0	154	0	16	111	0	127	329
Hourly Total	0	50	119	0	169	0	565	111	0	676	0	57	456	0	513	1358
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	26	48	2	74	0	118	26	0	144	0	11	101	1	112	330
4:15 PM	0	21	35	0	56	0	128	29	0	157	0	19	128	0	147	360
4:30 PM	0	34	41	0	75	0	125	25	0	150	0	10	153	0	163	388
4:45 PM	0	21	30	0	51	0	133	25	0	158	0	6	143	0	149	358
Hourly Total	0	102	154	2	256	0	504	105	0	609	0	46	525	1	571	1436
5:00 PM	0	23	36	1	59	0	146	28	0	174	0	9	182	0	191	424
5:15 PM	0	32	43	0	75	0	128	29	0	157	0	14	171	0	185	417
5:30 PM	0	21	34	0	55	0	137	32	0	169	0	13	174	0	187	411
5:45 PM	0	20	43	0	63	0	120	20	0	140	0	14	175	0	189	392
Hourly Total	0	96	156	1	252	0	531	109	0	640	0	50	702	0	752	1644
Grand Total	0	510	907	5	1417	0	2901	615	1	3516	1	324	2880	1	3205	8138
Approach %	0.0	36.0	64.0	-	-	0.0	82.5	17.5	-	-	0.0	10.1	89.9	-	-	-
Total %	0.0	6.3	11.1	-	17.4	0.0	35.6	7.6	-	43.2	0.0	4.0	35.4	-	39.4	-
Lights	0	503	896	-	1399	0	2817	609	-	3426	1	324	2810	-	3135	7960
% Lights	-	98.6	98.8	-	98.7	-	97.1	99.0	-	97.4	100.0	100.0	97.6	-	97.8	97.8
Buses	0	3	0	-	3	0	42	2	-	44	0	0	24	-	24	71

% Buses	-	0.6	0.0	-	0.2	-	1.4	0.3	-	1.3	0.0	0.0	0.8	-	0.7	0.9
Single-Unit Trucks	0	3	11	-	14	0	21	4	-	25	0	0	26	-	26	65
% Single-Unit Trucks	-	0.6	1.2	-	1.0	-	0.7	0.7	-	0.7	0.0	0.0	0.9	-	0.8	0.8
Articulated Trucks	0	1	0	-	1	0	18	0	-	18	0	0	18	-	18	37
% Articulated Trucks	-	0.2	0.0	-	0.1	-	0.6	0.0	-	0.5	0.0	0.0	0.6	-	0.6	0.5
Bicycles on Road	0	0	0	-	0	0	3	0	-	3	0	0	2	-	2	5
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.1	0.0	-	0.1	0.0	0.0	0.1	-	0.1	0.1
Pedestrians	-	-	-	5	-	-	-	-	1	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Pfingsten Road with Access Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Access Drive Westbound					Pfingsten Road Northbound					Pfingsten Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:30 PM	0	25	49	0	74	0	106	33	0	139	0	28	103	0	131	344
12:45 PM	0	19	53	1	72	0	92	26	0	118	0	27	90	0	117	307
1:00 PM	0	30	53	0	83	0	88	32	0	120	0	17	107	0	124	327
1:15 PM	0	22	53	0	75	0	95	19	0	114	0	11	112	0	123	312
Total	0	96	208	1	304	0	381	110	0	491	0	83	412	0	495	1290
Approach %	0.0	31.6	68.4	-	-	0.0	77.6	22.4	-	-	0.0	16.8	83.2	-	-	-
Total %	0.0	7.4	16.1	-	23.6	0.0	29.5	8.5	-	38.1	0.0	6.4	31.9	-	38.4	-
PHF	0.000	0.800	0.981	-	0.916	0.000	0.899	0.833	-	0.883	0.000	0.741	0.920	-	0.945	0.938
Lights	0	95	206	-	301	0	372	110	-	482	0	83	400	-	483	1266
% Lights	-	99.0	99.0	-	99.0	-	97.6	100.0	-	98.2	-	100.0	97.1	-	97.6	98.1
Buses	0	0	0	-	0	0	4	0	-	4	0	0	6	-	6	10
% Buses	-	0.0	0.0	-	0.0	-	1.0	0.0	-	0.8	-	0.0	1.5	-	1.2	0.8
Single-Unit Trucks	0	0	2	-	2	0	3	0	-	3	0	0	3	-	3	8
% Single-Unit Trucks	-	0.0	1.0	-	0.7	-	0.8	0.0	-	0.6	-	0.0	0.7	-	0.6	0.6
Articulated Trucks	0	1	0	-	1	0	1	0	-	1	0	0	2	-	2	4
% Articulated Trucks	-	1.0	0.0	-	0.3	-	0.3	0.0	-	0.2	-	0.0	0.5	-	0.4	0.3
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	0	0	1	-	1	2
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.3	0.0	-	0.2	-	0.0	0.2	-	0.2	0.2
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: Pfingsten Road with Access Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Access Drive Westbound					Pfingsten Road Northbound					Pfingsten Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
8:00 AM	0	4	27	0	31	0	143	26	0	169	0	10	108	0	118	318
8:15 AM	0	13	28	0	41	0	162	24	0	186	0	15	117	0	132	359
8:30 AM	0	16	33	0	49	0	134	33	0	167	0	16	120	0	136	352
8:45 AM	0	17	31	0	48	0	126	28	0	154	0	16	111	0	127	329
Total	0	50	119	0	169	0	565	111	0	676	0	57	456	0	513	1358
Approach %	0.0	29.6	70.4	-	-	0.0	83.6	16.4	-	-	0.0	11.1	88.9	-	-	-
Total %	0.0	3.7	8.8	-	12.4	0.0	41.6	8.2	-	49.8	0.0	4.2	33.6	-	37.8	-
PHF	0.000	0.735	0.902	-	0.862	0.000	0.872	0.841	-	0.909	0.000	0.891	0.950	-	0.943	0.946
Lights	0	48	116	-	164	0	549	110	-	659	0	57	437	-	494	1317
% Lights	-	96.0	97.5	-	97.0	-	97.2	99.1	-	97.5	-	100.0	95.8	-	96.3	97.0
Buses	0	1	0	-	1	0	2	0	-	2	0	0	4	-	4	7
% Buses	-	2.0	0.0	-	0.6	-	0.4	0.0	-	0.3	-	0.0	0.9	-	0.8	0.5
Single-Unit Trucks	0	1	3	-	4	0	9	1	-	10	0	0	6	-	6	20
% Single-Unit Trucks	-	2.0	2.5	-	2.4	-	1.6	0.9	-	1.5	-	0.0	1.3	-	1.2	1.5
Articulated Trucks	0	0	0	-	0	0	5	0	-	5	0	0	9	-	9	14
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.9	0.0	-	0.7	-	0.0	2.0	-	1.8	1.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: Pfingsten Road with Access Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Access Drive Westbound					Pfingsten Road Northbound					Pfingsten Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:30 PM	0	34	41	0	75	0	125	25	0	150	0	10	153	0	163	388
4:45 PM	0	21	30	0	51	0	133	25	0	158	0	6	143	0	149	358
5:00 PM	0	23	36	1	59	0	146	28	0	174	0	9	182	0	191	424
5:15 PM	0	32	43	0	75	0	128	29	0	157	0	14	171	0	185	417
Total	0	110	150	1	260	0	532	107	0	639	0	39	649	0	688	1587
Approach %	0.0	42.3	57.7	-	-	0.0	83.3	16.7	-	-	0.0	5.7	94.3	-	-	-
Total %	0.0	6.9	9.5	-	16.4	0.0	33.5	6.7	-	40.3	0.0	2.5	40.9	-	43.4	-
PHF	0.000	0.809	0.872	-	0.867	0.000	0.911	0.922	-	0.918	0.000	0.696	0.891	-	0.901	0.936
Lights	0	109	150	-	259	0	520	105	-	625	0	39	641	-	680	1564
% Lights	-	99.1	100.0	-	99.6	-	97.7	98.1	-	97.8	-	100.0	98.8	-	98.8	98.6
Buses	0	1	0	-	1	0	5	1	-	6	0	0	2	-	2	9
% Buses	-	0.9	0.0	-	0.4	-	0.9	0.9	-	0.9	-	0.0	0.3	-	0.3	0.6
Single-Unit Trucks	0	0	0	-	0	0	2	1	-	3	0	0	5	-	5	8
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	0.4	0.9	-	0.5	-	0.0	0.8	-	0.7	0.5
Articulated Trucks	0	0	0	-	0	0	5	0	-	5	0	0	1	-	1	6
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.9	0.0	-	0.8	-	0.0	0.2	-	0.1	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

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Count Name: Pfingsten Road with Miller Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Data

Start Time	Miller Drive Eastbound						Miller Drive Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
12:00 PM	0	3	0	4	0	7	0	0	0	2	1	2	0	2	123	0	0	125	0	1	109	7	1	117	251
12:15 PM	0	3	0	1	0	4	0	1	0	2	6	3	0	2	133	0	0	135	0	1	110	8	2	119	261
12:30 PM	0	1	0	4	0	5	0	0	0	2	0	2	0	3	134	0	0	137	0	2	117	6	1	125	269
12:45 PM	0	3	0	2	0	5	0	2	0	1	1	3	0	0	113	0	0	113	0	2	104	4	0	110	231
Hourly Total	0	10	0	11	0	21	0	3	0	7	8	10	0	7	503	0	0	510	0	6	440	25	4	471	1012
1:00 PM	0	4	0	4	3	8	0	0	0	2	0	2	0	0	114	3	0	117	0	1	130	7	3	138	265
1:15 PM	0	0	0	1	0	1	0	0	0	0	1	0	0	1	113	2	1	116	0	2	126	8	1	136	253
1:30 PM	0	4	0	3	0	7	0	0	0	3	0	3	0	3	116	2	0	121	0	1	140	16	1	157	288
1:45 PM	0	5	0	1	0	6	0	1	0	2	1	3	0	1	112	0	0	113	0	2	106	8	0	116	238
Hourly Total	0	13	0	9	3	22	0	1	0	7	2	8	0	5	455	7	1	467	0	6	502	39	5	547	1044
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	0	4	0	2	0	6	0	0	0	0	1	0	0	0	92	0	0	92	0	0	80	1	0	81	179
7:15 AM	0	13	0	4	0	17	0	0	0	0	0	0	0	1	152	0	0	153	0	0	81	3	0	84	254
7:30 AM	0	6	2	5	0	13	0	1	0	4	0	5	0	2	157	0	0	159	0	0	115	3	0	118	295
7:45 AM	0	11	0	10	0	21	0	2	1	0	0	3	0	1	160	0	0	161	0	0	155	4	0	159	344
Hourly Total	0	34	2	21	0	57	0	3	1	4	1	8	0	4	561	0	0	565	0	0	431	11	0	442	1072
8:00 AM	0	8	0	9	0	17	0	1	0	3	1	4	0	3	160	0	0	163	0	1	108	3	0	112	296
8:15 AM	0	9	0	3	0	12	0	1	0	6	0	7	0	1	173	0	0	174	0	2	121	5	0	128	321
8:30 AM	0	5	1	2	0	8	0	0	0	4	0	4	0	2	157	2	0	161	0	0	132	5	0	137	310
8:45 AM	0	8	0	3	0	11	0	0	0	0	0	0	0	1	157	1	0	159	0	1	118	5	0	124	294
Hourly Total	0	30	1	17	0	48	0	2	0	13	1	15	0	7	647	3	0	657	0	4	479	18	0	501	1221
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	4	0	2	0	6	0	0	0	1	1	1	0	4	138	1	0	143	0	1	120	5	0	126	276
4:15 PM	0	3	0	0	19	3	0	1	0	1	2	2	1	4	155	2	0	162	0	1	148	6	0	155	322
4:30 PM	0	3	1	1	0	5	0	1	0	1	0	2	0	5	147	0	0	152	0	0	180	8	0	188	347
4:45 PM	0	4	0	1	1	5	0	1	1	1	0	3	0	2	156	4	0	162	0	3	165	3	0	171	341
Hourly Total	0	14	1	4	20	19	0	3	1	4	3	8	1	15	596	7	0	619	0	5	613	22	0	640	1286
5:00 PM	0	3	0	3	0	6	0	3	0	2	0	5	0	2	171	0	0	173	0	2	198	5	0	205	389
5:15 PM	0	1	0	2	1	3	0	2	0	2	0	4	0	3	156	2	0	161	1	2	192	8	0	203	371
5:30 PM	0	4	1	2	1	7	0	2	0	1	0	3	0	2	165	2	0	169	0	2	179	5	0	186	365
5:45 PM	0	4	0	3	0	7	0	0	0	0	0	0	0	6	137	1	0	144	0	0	195	4	0	199	350
Hourly Total	0	12	1	10	2	23	0	7	0	5	0	12	0	13	629	5	0	647	1	6	764	22	0	793	1475
Grand Total	0	113	5	72	25	190	0	19	2	40	15	61	1	51	3391	22	1	3465	1	27	3229	137	9	3394	7110
Approach %	0.0	59.5	2.6	37.9	-	-	0.0	31.1	3.3	65.6	-	-	0.0	1.5	97.9	0.6	-	-	0.0	0.8	95.1	4.0	-	-	-
Total %	0.0	1.6	0.1	1.0	-	2.7	0.0	0.3	0.0	0.6	-	0.9	0.0	0.7	47.7	0.3	-	48.7	0.0	0.4	45.4	1.9	-	47.7	-
Lights	0	110	3	70	-	183	0	17	2	38	-	57	1	49	3302	21	-	3373	1	27	3148	136	-	3312	6925
% Lights	-	97.3	60.0	97.2	-	96.3	-	89.5	100.0	95.0	-	93.4	100.0	96.1	97.4	95.5	-	97.3	100.0	100.0	97.5	99.3	-	97.6	97.4

Buses	0	0	1	2	-	3	0	0	0	1	-	1	0	0	43	0	-	43	0	0	27	0	-	27	74
% Buses	-	0.0	20.0	2.8	-	1.6	-	0.0	0.0	2.5	-	1.6	0.0	0.0	1.3	0.0	-	1.2	0.0	0.0	0.8	0.0	-	0.8	1.0
Single-Unit Trucks	0	0	1	0	-	1	0	1	0	1	-	2	0	1	22	0	-	23	0	0	32	1	-	33	59
% Single-Unit Trucks	-	0.0	20.0	0.0	-	0.5	-	5.3	0.0	2.5	-	3.3	0.0	2.0	0.6	0.0	-	0.7	0.0	0.0	1.0	0.7	-	1.0	0.8
Articulated Trucks	0	3	0	0	-	3	0	0	0	0	-	0	0	1	21	1	-	23	0	0	21	0	-	21	47
% Articulated Trucks	-	2.7	0.0	0.0	-	1.6	-	0.0	0.0	0.0	-	0.0	0.0	2.0	0.6	4.5	-	0.7	0.0	0.0	0.7	0.0	-	0.6	0.7
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	3	0	-	3	0	0	1	0	-	1	5
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	5.3	0.0	0.0	-	1.6	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	25	-	-	-	-	-	15	-	-	-	-	-	1	-	-	-	-	-	9	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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Count Name: Pfingsten Road with Miller Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Miller Drive Eastbound						Miller Drive Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
12:30 PM	0	1	0	4	0	5	0	0	0	2	0	2	0	3	134	0	0	137	0	2	117	6	1	125	269
12:45 PM	0	3	0	2	0	5	0	2	0	1	1	3	0	0	113	0	0	113	0	2	104	4	0	110	231
1:00 PM	0	4	0	4	3	8	0	0	0	2	0	2	0	0	114	3	0	117	0	1	130	7	3	138	265
1:15 PM	0	0	0	1	0	1	0	0	0	0	1	0	0	1	113	2	1	116	0	2	126	8	1	136	253
Total	0	8	0	11	3	19	0	2	0	5	2	7	0	4	474	5	1	483	0	7	477	25	5	509	1018
Approach %	0.0	42.1	0.0	57.9	-	-	0.0	28.6	0.0	71.4	-	-	0.0	0.8	98.1	1.0	-	-	0.0	1.4	93.7	4.9	-	-	-
Total %	0.0	0.8	0.0	1.1	-	1.9	0.0	0.2	0.0	0.5	-	0.7	0.0	0.4	46.6	0.5	-	47.4	0.0	0.7	46.9	2.5	-	50.0	-
PHF	0.000	0.500	0.000	0.688	-	0.594	0.000	0.250	0.000	0.625	-	0.583	0.000	0.333	0.884	0.417	-	0.881	0.000	0.875	0.917	0.781	-	0.922	0.946
Lights	0	7	0	11	-	18	0	2	0	5	-	7	0	3	468	5	-	476	0	7	468	25	-	500	1001
% Lights	-	87.5	-	100.0	-	94.7	-	100.0	-	100.0	-	100.0	-	75.0	98.7	100.0	-	98.6	-	100.0	98.1	100.0	-	98.2	98.3
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	4	0	-	4	0	0	6	0	-	6	10
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.8	0.0	-	0.8	-	0.0	1.3	0.0	-	1.2	1.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	3	0	-	3	4
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	0.0	0.6	0.0	-	0.6	0.4
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Articulated Trucks	-	12.5	-	0.0	-	5.3	-	0.0	-	0.0	-	0.0	-	25.0	0.0	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Pfingsten Road with Miller Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Miller Drive Eastbound						Miller Drive Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	0	8	0	9	0	17	0	1	0	3	1	4	0	3	160	0	0	163	0	1	108	3	0	112	296
8:15 AM	0	9	0	3	0	12	0	1	0	6	0	7	0	1	173	0	0	174	0	2	121	5	0	128	321
8:30 AM	0	5	1	2	0	8	0	0	0	4	0	4	0	2	157	2	0	161	0	0	132	5	0	137	310
8:45 AM	0	8	0	3	0	11	0	0	0	0	0	0	0	1	157	1	0	159	0	1	118	5	0	124	294
Total	0	30	1	17	0	48	0	2	0	13	1	15	0	7	647	3	0	657	0	4	479	18	0	501	1221
Approach %	0.0	62.5	2.1	35.4	-	-	0.0	13.3	0.0	86.7	-	-	0.0	1.1	98.5	0.5	-	-	0.0	0.8	95.6	3.6	-	-	-
Total %	0.0	2.5	0.1	1.4	-	3.9	0.0	0.2	0.0	1.1	-	1.2	0.0	0.6	53.0	0.2	-	53.8	0.0	0.3	39.2	1.5	-	41.0	-
PHF	0.000	0.833	0.250	0.472	-	0.706	0.000	0.500	0.000	0.542	-	0.536	0.000	0.583	0.935	0.375	-	0.944	0.000	0.500	0.907	0.900	-	0.914	0.951
Lights	0	30	0	16	-	46	0	2	0	12	-	14	0	7	630	3	-	640	0	4	454	17	-	475	1175
% Lights	-	100.0	0.0	94.1	-	95.8	-	100.0	-	92.3	-	93.3	-	100.0	97.4	100.0	-	97.4	-	100.0	94.8	94.4	-	94.8	96.2
Buses	0	0	0	1	-	1	0	0	0	0	-	0	0	0	2	0	-	2	0	0	5	0	-	5	8
% Buses	-	0.0	0.0	5.9	-	2.1	-	0.0	-	0.0	-	0.0	-	0.0	0.3	0.0	-	0.3	-	0.0	1.0	0.0	-	1.0	0.7
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	1	-	1	0	0	9	0	-	9	0	0	10	1	-	11	22
% Single-Unit Trucks	-	0.0	100.0	0.0	-	2.1	-	0.0	-	7.7	-	6.7	-	0.0	1.4	0.0	-	1.4	-	0.0	2.1	5.6	-	2.2	1.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	6	0	-	6	0	0	10	0	-	10	16
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.9	0.0	-	0.9	-	0.0	2.1	0.0	-	2.0	1.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

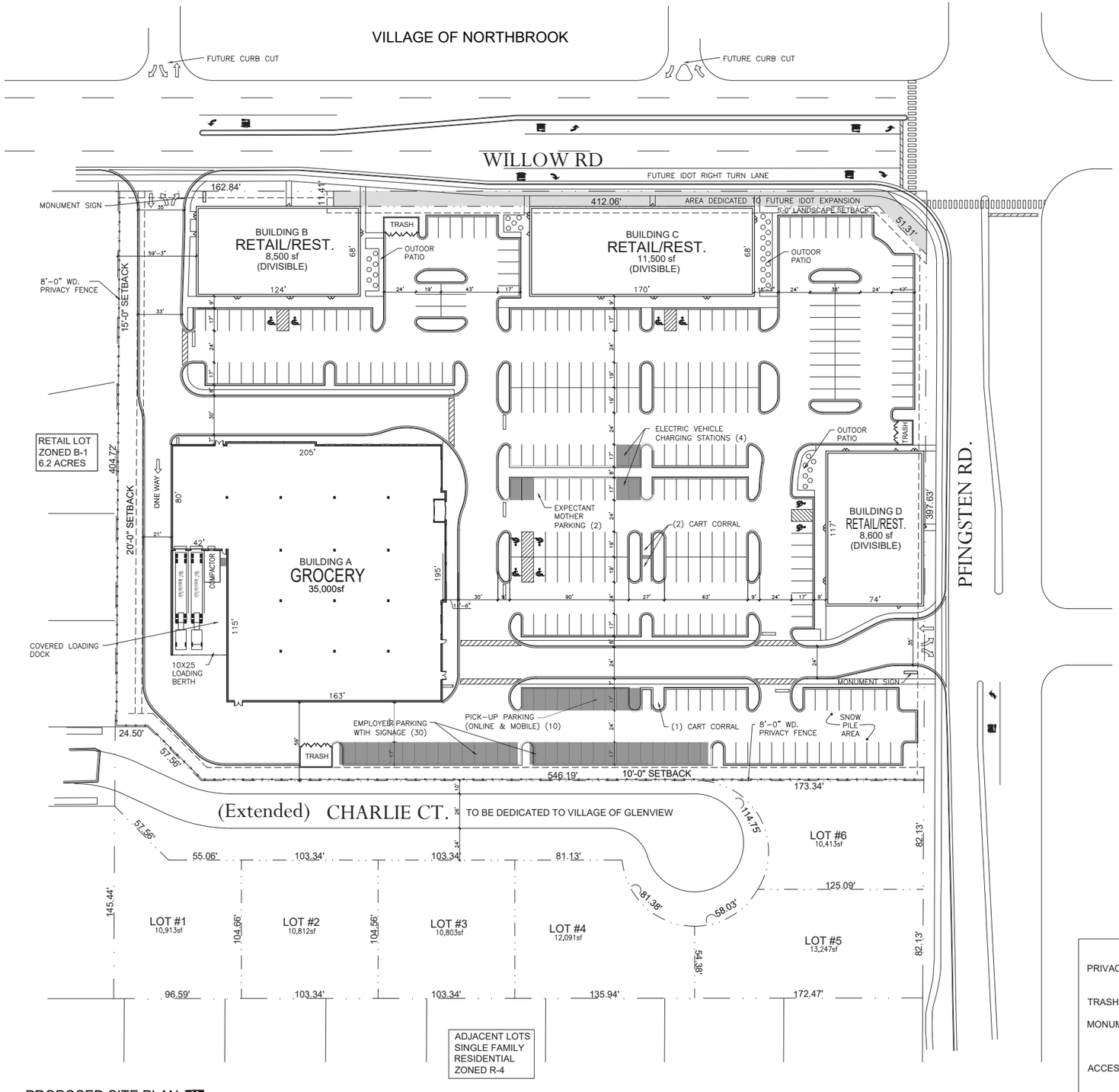
Rosemont, Illinois, United States 60018
(847)518-9990

Count Name: Pfingsten Road with Miller Drive
Site Code:
Start Date: 05/04/2019

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Miller Drive Eastbound						Miller Drive Westbound						Pfingsten Road Northbound						Pfingsten Road Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	0	3	1	1	0	5	0	1	0	1	0	2	0	5	147	0	0	152	0	0	180	8	0	188	347
4:45 PM	0	4	0	1	1	5	0	1	1	1	0	3	0	2	156	4	0	162	0	3	165	3	0	171	341
5:00 PM	0	3	0	3	0	6	0	3	0	2	0	5	0	2	171	0	0	173	0	2	198	5	0	205	389
5:15 PM	0	1	0	2	1	3	0	2	0	2	0	4	0	3	156	2	0	161	1	2	192	8	0	203	371
Total	0	11	1	7	2	19	0	7	1	6	0	14	0	12	630	6	0	648	1	7	735	24	0	767	1448
Approach %	0.0	57.9	5.3	36.8	-	-	0.0	50.0	7.1	42.9	-	-	0.0	1.9	97.2	0.9	-	-	0.1	0.9	95.8	3.1	-	-	-
Total %	0.0	0.8	0.1	0.5	-	1.3	0.0	0.5	0.1	0.4	-	1.0	0.0	0.8	43.5	0.4	-	44.8	0.1	0.5	50.8	1.7	-	53.0	-
PHF	0.000	0.688	0.250	0.583	-	0.792	0.000	0.583	0.250	0.750	-	0.700	0.000	0.600	0.921	0.375	-	0.936	0.250	0.583	0.928	0.750	-	0.935	0.931
Lights	0	9	1	7	-	17	0	6	1	6	-	13	0	12	618	5	-	635	1	7	725	24	-	757	1422
% Lights	-	81.8	100.0	100.0	-	89.5	-	85.7	100.0	100.0	-	92.9	-	100.0	98.1	83.3	-	98.0	100.0	100.0	98.6	100.0	-	98.7	98.2
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	6	0	-	6	0	0	3	0	-	3	9
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	1.0	0.0	-	0.9	0.0	0.0	0.4	0.0	-	0.4	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	1	0	-	1	0	0	6	0	-	6	8
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	14.3	0.0	0.0	-	7.1	-	0.0	0.2	0.0	-	0.2	0.0	0.0	0.8	0.0	-	0.8	0.6
Articulated Trucks	0	2	0	0	-	2	0	0	0	0	-	0	0	0	5	1	-	6	0	0	1	0	-	1	9
% Articulated Trucks	-	18.2	0.0	0.0	-	10.5	-	0.0	0.0	0.0	-	0.0	-	0.0	0.8	16.7	-	0.9	0.0	0.0	0.1	0.0	-	0.1	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site Plan



PROPOSED SITE PLAN
SCALE: 1" = 40'-0"

ZONING DATA

ZONING	B-1 & R-4
RETAIL PARCEL B-1	6.2 ACRES
RESIDENTIAL PARCEL R-4	2.37 ACRES
TOTAL:	8.57 ACRES
TOTAL SQUARE FEET (COMMERCIAL)	63,600
FAR / LOT COVERAGE (COMMERCIAL ONLY)	23.6%
BUILDING HEIGHT (SINGLE STORY)	20'-0" - 32'-0"
PARKING CALCS:	
ESTIMATED PARKING AREAS	
RETAIL/OFFICE	45,600 Sq. Ft.
FITNESS	5,000 Sq. Ft.
RESTAURANT	369 SEATS (13,000 Sq. Ft.)
PARKING SPACES REQUIRED	
RETAIL/OFFICE	152 (@1:300)
FITNESS	35 (@7:1000)
RESTAURANT	123 (@3 PER SEAT)
PARKING REQUIRED	310 SPACES
PARKING PROVIDED:	313 + 10 H.A. = 318
ACCESSIBLE REQUIRED	8
ACCESSIBLE PROVIDED	10
LOADING AREAS	1
PIN#	04-20-201-006
PROPOSED LOTS	1 RETAIL 6 RESIDENTIAL 1 R.O.W.
TOTAL # OF LOTS	8

ADJACENT LOTS LAND USE

NORTH EAST	GLENBROOK MARKET PLACE ZONED B-2
EAST	PLAZA DEL PRADO SHOPPING CENTER ZONED B-2
SOUTH	RESIDENTIAL ZONED R-4
WEST	RESIDENTIAL ZONED R-4
NORTH	C-2 (COMMERCIAL IN NORTHBROOK)

PLAN NOTES

PRIVACY FENCE:	ON PERIMETER TO BE VISION SCREENING 8'-0" TALL WOOD PANELED
TRASH ENCLOSURES	6'-0" TALL MASONRY WITH METAL FRAMED GATE
MONUMENT SIGN	MATCH MULTI- TENANT MONUMENT SIGN AT ENTRANCES ON WILLOW AND PFINGSTEN. 4 SIDE MONUMENT SIGN AT NORTHEAST CORNER
ACCESS	PFINGSTEN ACCESS TO ALIGN WITH PLAZA DEL PRADO, PER COMPREHENSIVE PLAN

SITE PLAN

GW PROPERTIES - PROPOSED DEVELOPMENT
SWC WILLOW RD & PFINGSTEN RD
GLENVIEW, ILLINOIS 60062

DESIGN STUDIO 24, LLC.
ARCHITECTS PLANNERS
DESIGNERS
2211 N. ELSTON AVE., CHICAGO IL 60614
Tel: 847.885.8300
Fax: 847.885.7751

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STATEMENT OF COMPLIANCE

I have prepared, or caused to be prepared under my supervision, the attached plans and specifications and state that, to the best of my knowledge and belief and to the extent of my contractural obligation, they are in compliance with the Codes and Ordinances of Glenview, Illinois

STATEMENT OF COMPLIANCE

I have prepared, or caused to be prepared under my supervision, the attached plans and specifications and state that, to the best of my knowledge and belief and to the extent of my contractural obligation, they are in compliance with the Environmental Barriers Act [II Rev Stat 1985, ch 111 1/2, pars 3711 et seq as ammended] and the Illinois Accessibility Code, 71 Il, Adm, Code 400.

DATE	06.20.19
REVISIONS	
06.20.19	ISSUE FOR PLAN COMMISSION
07.01.19	ISSUE FOR LEASE
07.22.19	REVISED PER VILLAGE
SCALE	1" = 40'-0"
DRAWN BY:	Neal Vander Wilt

MARK T. DiGANCI
REG. ARCHITECT

LICENSE EXPIRES: 11.30.2020

ST1

ITE Trip Generation Summary Sheets

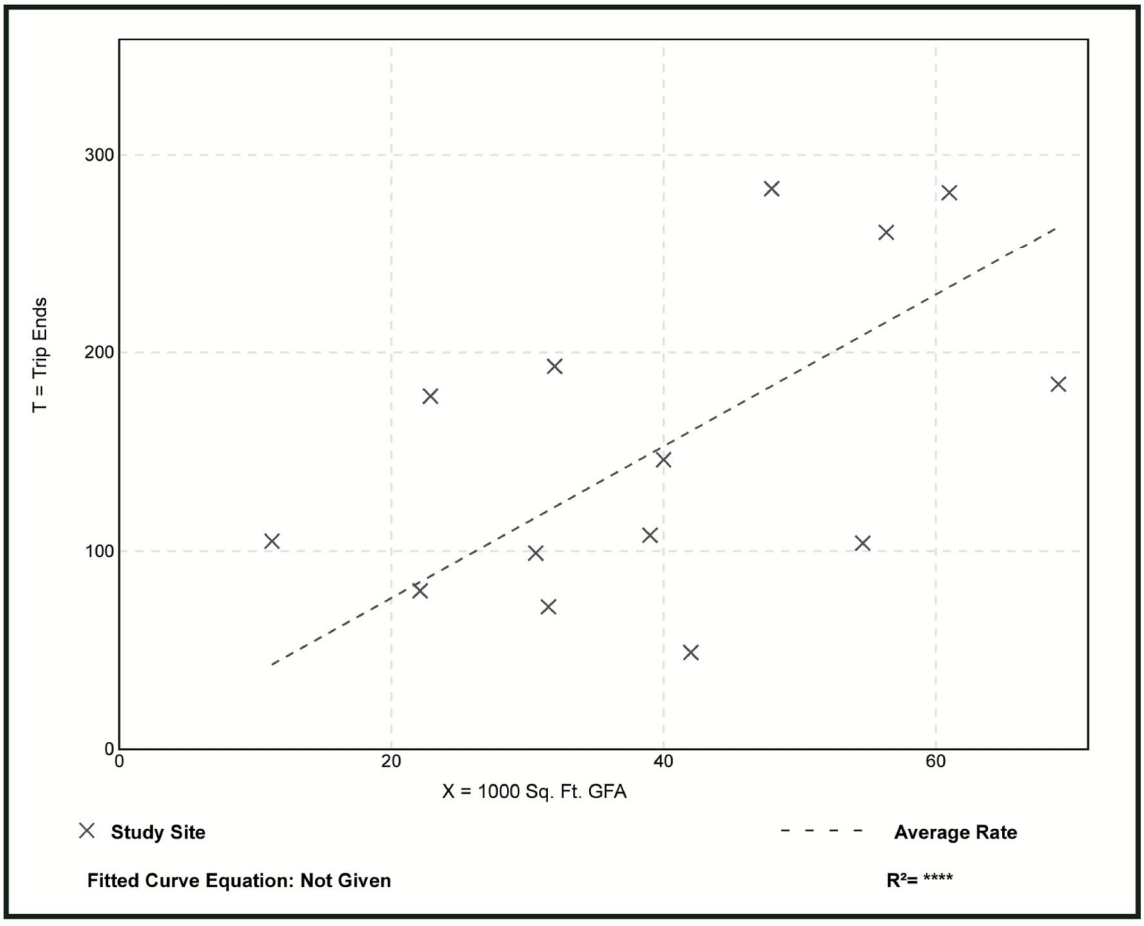
Supermarket
(850)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	14
1000 Sq. Ft. GFA:	40
Directional Distribution:	60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.82	1.17 - 9.35	1.89

Data Plot and Equation



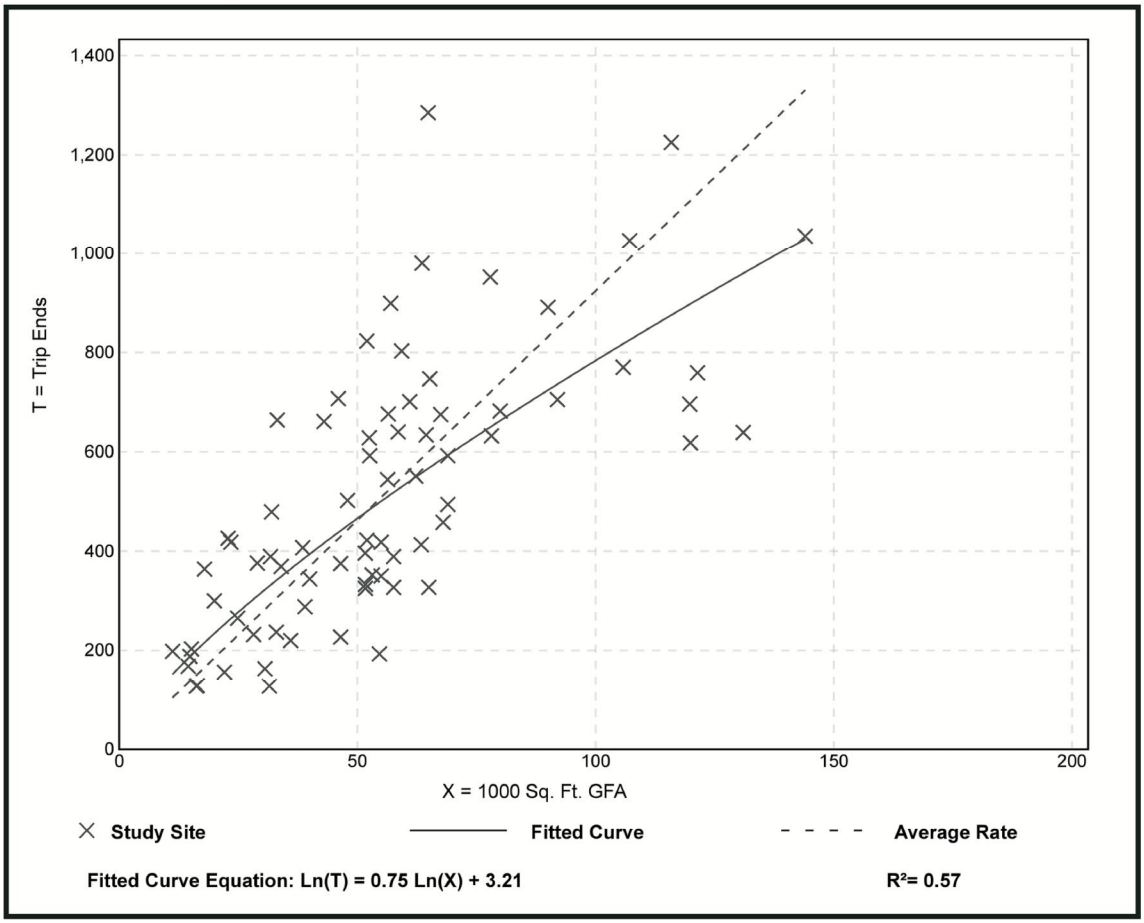
Supermarket
(850)

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:	73
1000 Sq. Ft. GFA:	55
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.24	3.53 - 20.30	3.69

Data Plot and Equation



Supermarket
(850)

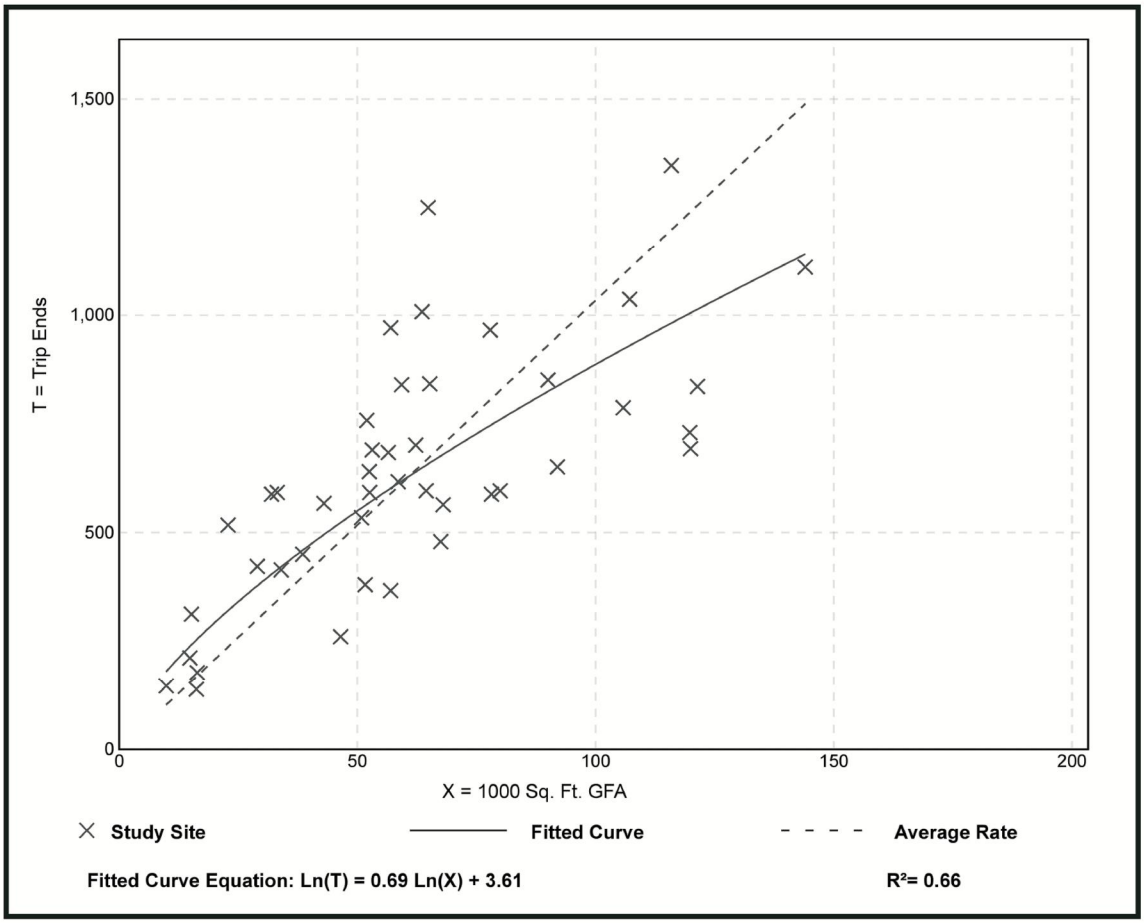
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 43
1000 Sq. Ft. GFA: 62
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.34	5.59 - 22.61	3.80

Data Plot and Equation



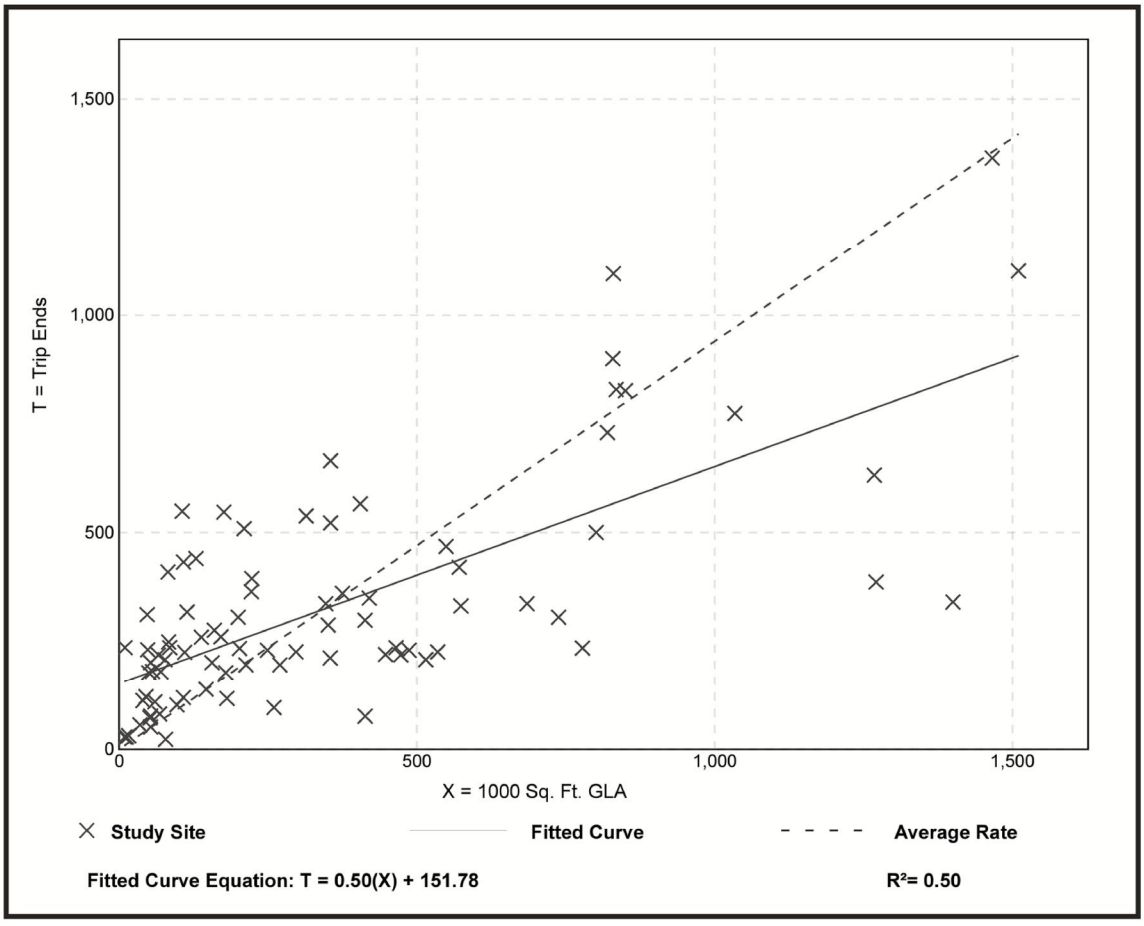
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 84
1000 Sq. Ft. GLA: 351
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



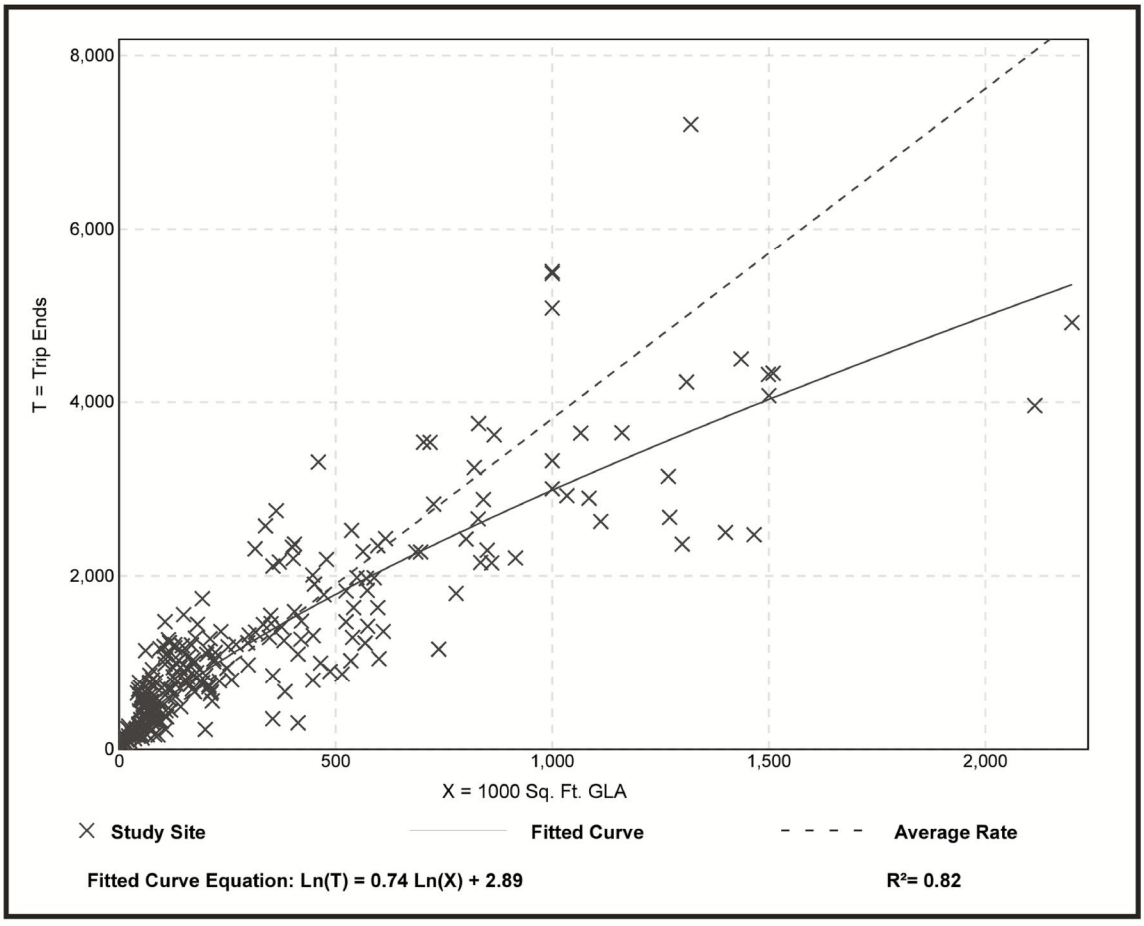
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
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: 261
1000 Sq. Ft. GLA: 327
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



Shopping Center
(820)

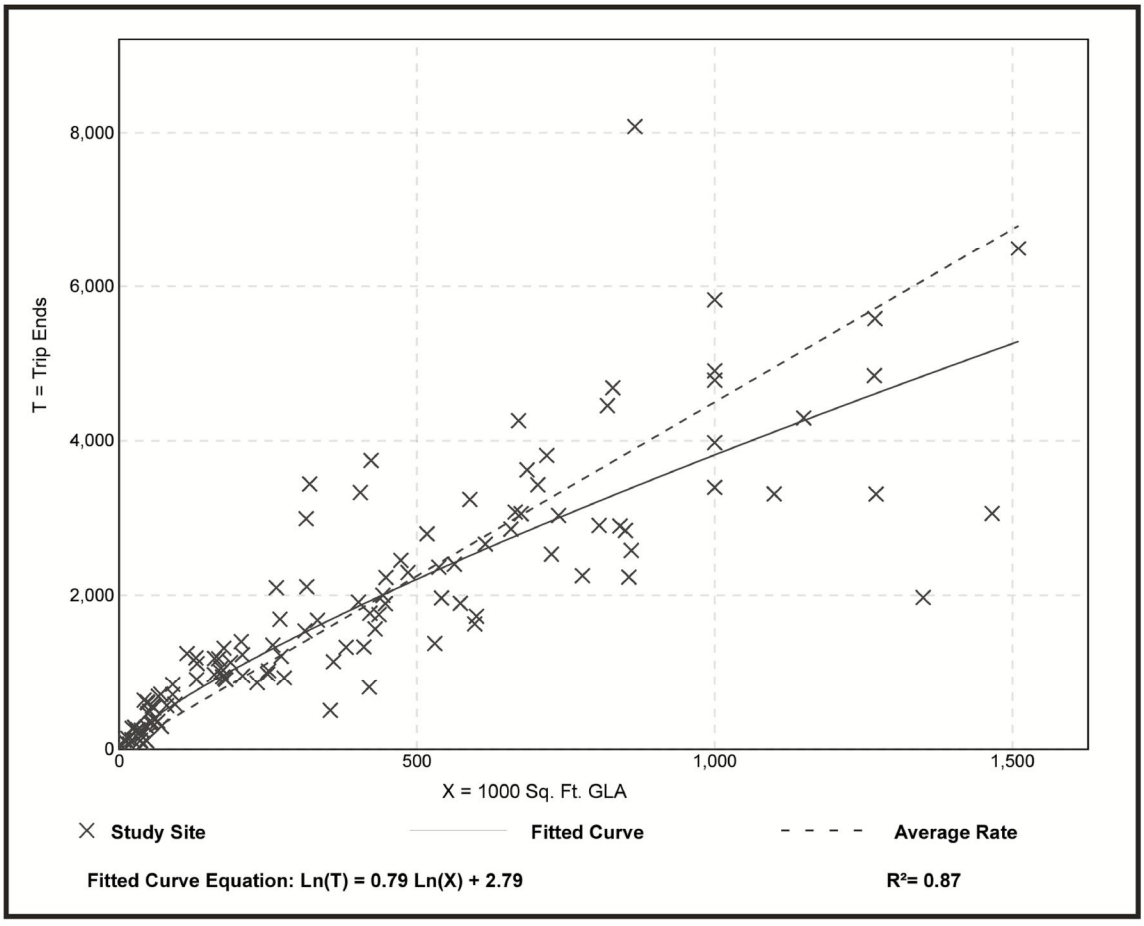
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 119
1000 Sq. Ft. GLA: 416
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.50	1.42 - 15.10	1.88

Data Plot and Equation



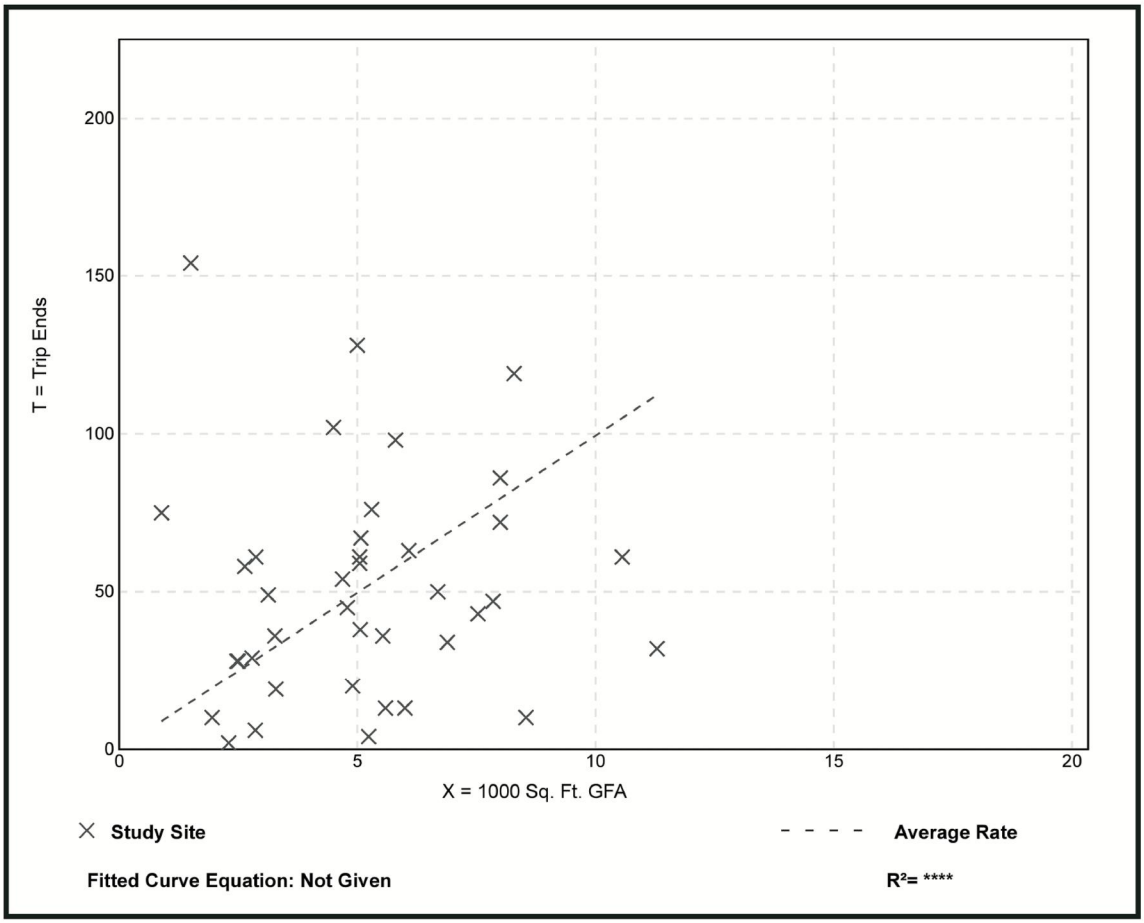
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	39
1000 Sq. Ft. GFA:	5
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.94	0.76 - 102.39	11.33

Data Plot and Equation



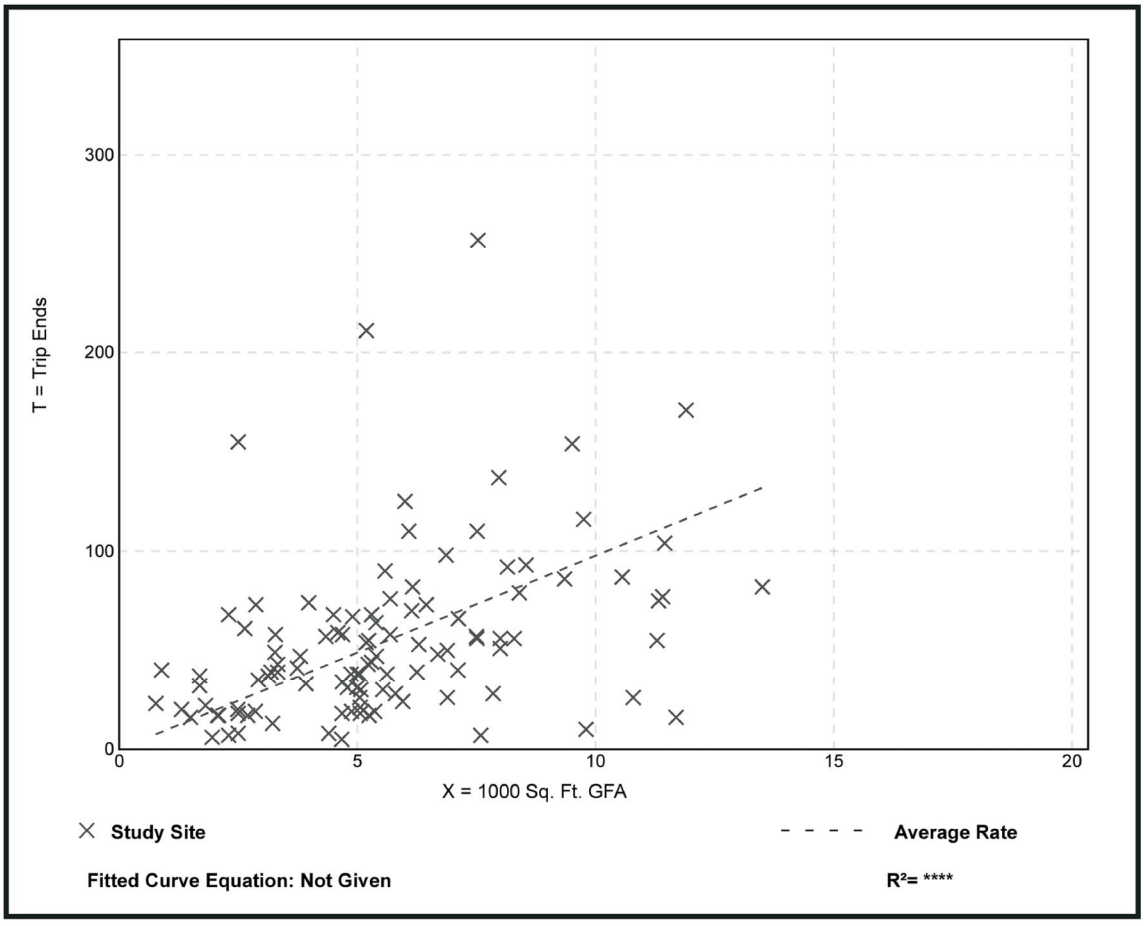
High-Turnover (Sit-Down) Restaurant
(932)

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: 107
1000 Sq. Ft. GFA: 6
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.77	0.92 - 62.00	7.37

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

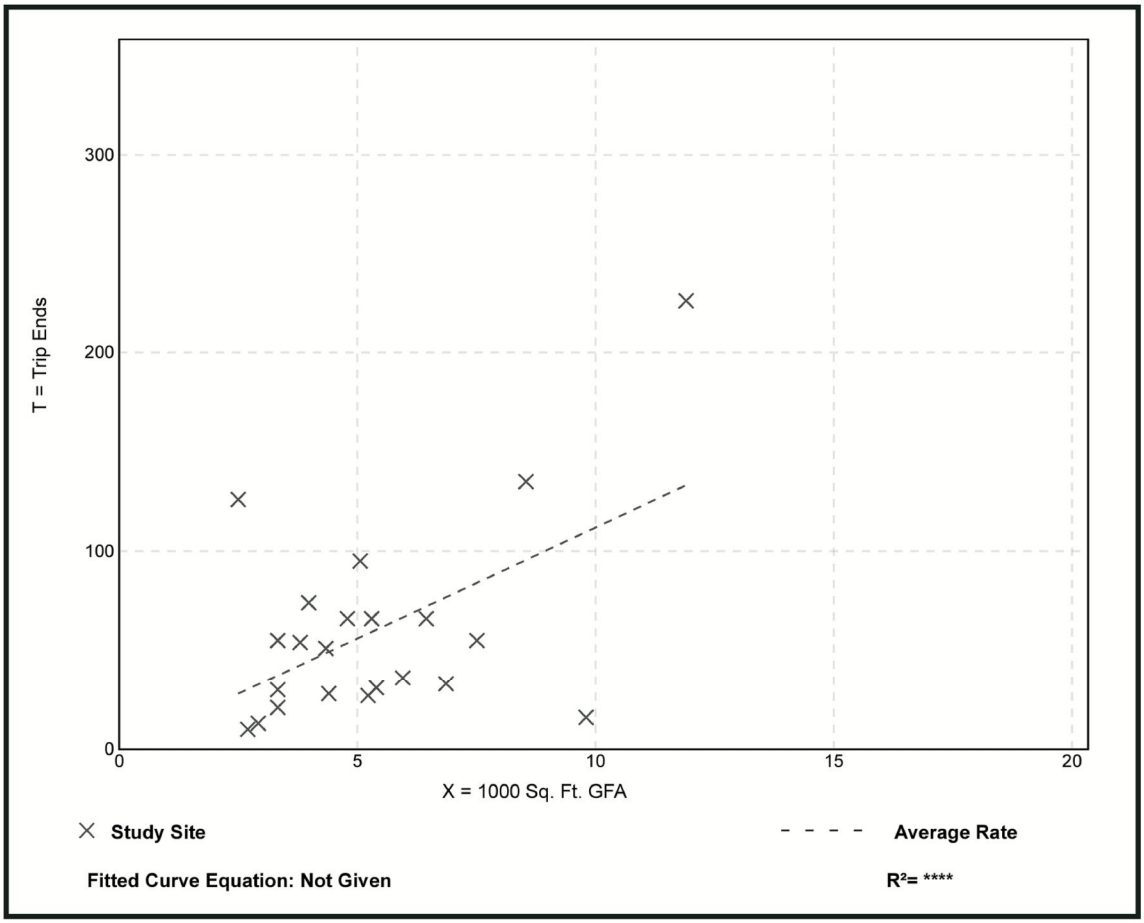
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.19	1.63 - 50.40	8.30

Data Plot and Equation



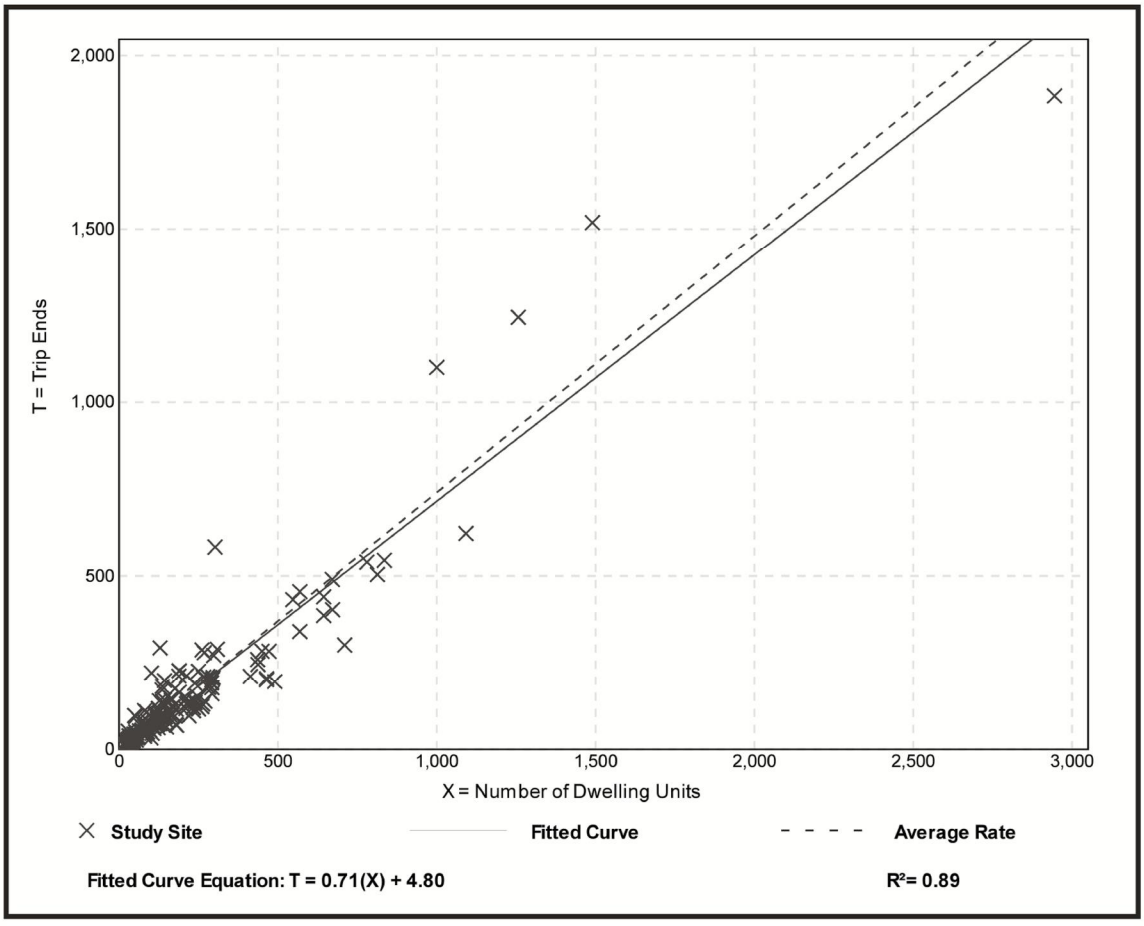
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



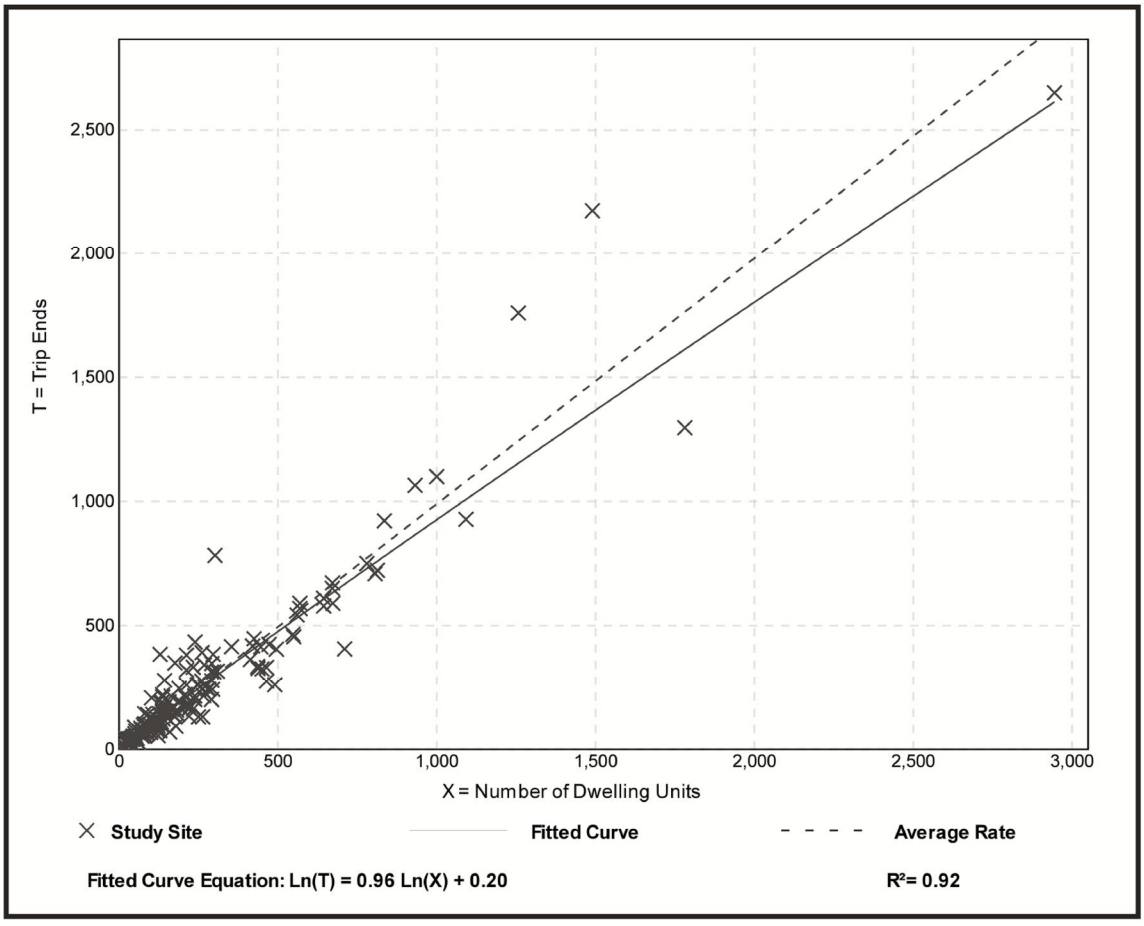
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
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: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing
(210)

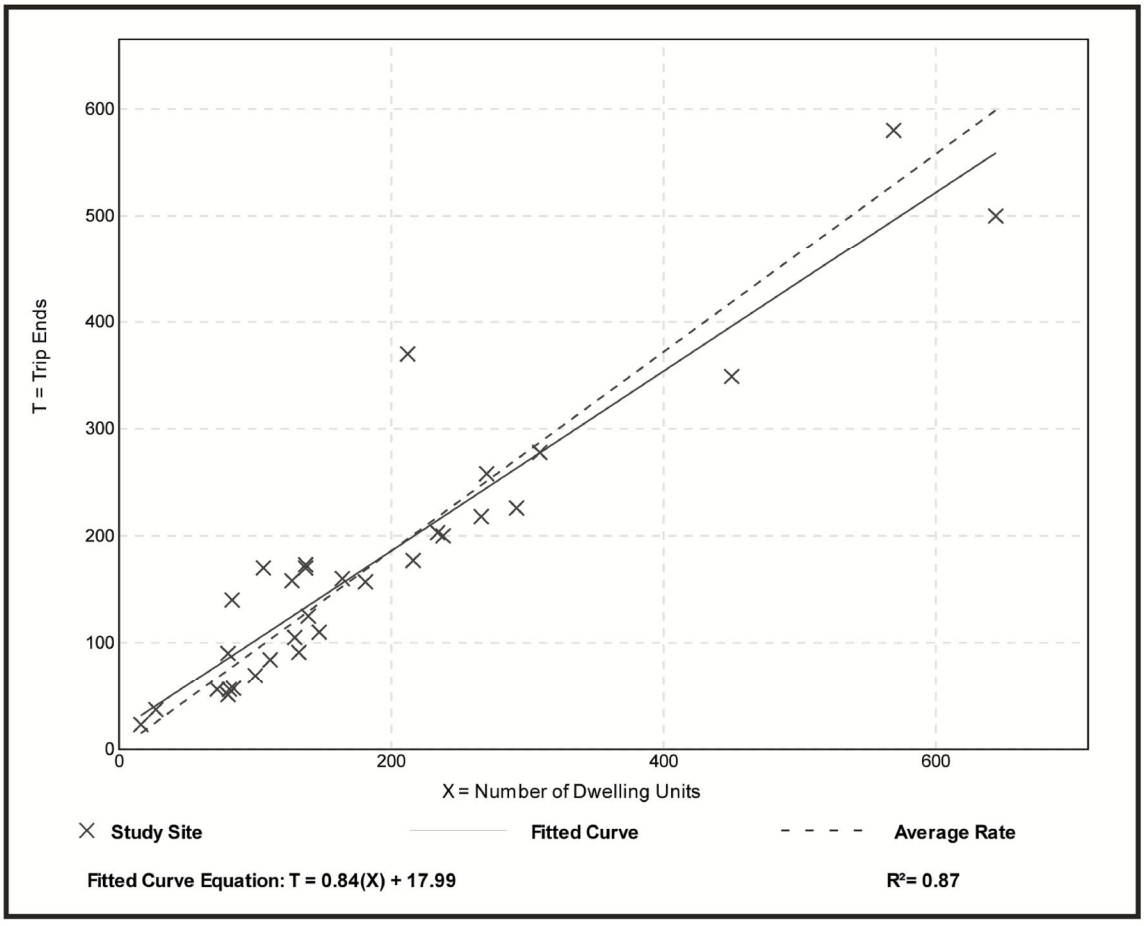
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 31
Avg. Num. of Dwelling Units: 188
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.64 - 1.75	0.26

Data Plot and Equation



CMAP 2050 Projections Letter

Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

May 17, 2019

Elise Purguette
Consultant
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: ***Willow Road @ Pfingsten Road***
IDOT

Dear Ms. Purguette:

In response to a request made on your behalf and dated May 16, 2019, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current Volumes	Year 2050 ADT
Willow Rd west of Pfingsten Rd	36,600	40,600
Willow Rd east of Pfingsten Rd	35,700	39,600
Pfingsten Rd north of Willow Rd	12,200	14,500
Pfingsten Rd south of Willow Rd	11,600	13,800

Traffic projections are developed using existing ADT data provided in the request letter and the results from the March 2019 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Quigley (IDOT)
S:\AdminGroups\ResearchAnalysis\2019_ForecastsTraffic\Glenview\ck-80-19\ck-80-19.docx

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

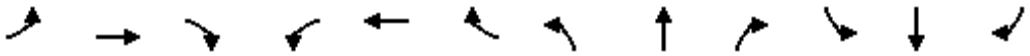
Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0

Unsignalized Intersections	
Level of Service	Average Total Delay (SEC/VEH)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Reports

Weekday Morning Peak Hour – Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	1605	111	73	1096	105	208	393	86	238	329	85
Future Volume (vph)	137	1605	111	73	1096	105	208	393	86	238	329	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.990			0.987			0.973			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3397	0	1736	3301	0	1736	3420	0	1687	3383	0
Flt Permitted	0.115			0.062			0.283			0.193		
Satd. Flow (perm)	208	3397	0	113	3301	0	517	3420	0	343	3383	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	1751	0	74	1225	0	212	489	0	243	423	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	17.0	67.0		17.0	67.0		21.0	26.0		20.0	25.0	
Total Split (%)	13.1%	51.5%		13.1%	51.5%		16.2%	20.0%		15.4%	19.2%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	79.6	68.5		74.9	64.5		38.5	20.1		39.4	20.7	
Actuated g/C Ratio	0.61	0.53		0.58	0.50		0.30	0.15		0.30	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.57	0.98		0.45	0.75		0.70	0.92		0.89	0.79	
Control Delay	20.9	47.7		23.4	30.3		47.2	78.3		69.2	64.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.9	47.7		23.4	30.3		47.2	78.3		69.2	64.4	
LOS	C	D		C	C		D	E		E	E	
Approach Delay		45.7			29.9			68.9			66.1	
Approach LOS		D			C			E			E	
Queue Length 50th (ft)	46	~761		23	422		137	216		161	185	
Queue Length 95th (ft)	82	#984		59	543		209	#321		#306	#270	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	285	1789		237	1636		323	530		274	537	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.98		0.31	0.75		0.66	0.92		0.89	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 47.8		Intersection LOS: D	
Intersection Capacity Utilization 95.4%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	119	568	111	57	456
Future Vol, veh/h	50	119	568	111	57	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	3	1	0	4
Mvmt Flow	53	125	598	117	60	480

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1017	358	0	0	715	0
Stage 1	657	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.88	6.96	-	-	4.1	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.33	-	-	2.2	-
Pot Cap-1 Maneuver	230	636	-	-	895	-
Stage 1	472	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	636	-	-	895	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	215	636	895	-
HCM Lane V/C Ratio	-	-	0.245	0.197	0.067	-
HCM Control Delay (s)	-	-	27.1	12	9.3	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.7	0.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1	17	2	0	13	7	647	3	4	483	18
Future Vol, veh/h	30	1	17	2	0	13	7	647	3	4	483	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	100	6	0	0	8	0	3	0	0	5	6
Mvmt Flow	32	1	18	2	0	14	7	681	3	4	508	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1230	1224	518	1232	1232	683	527	0	0	684	0	0
Stage 1	526	526	-	697	697	-	-	-	-	-	-	-
Stage 2	704	698	-	535	535	-	-	-	-	-	-	-
Critical Hdwy	7.1	7.5	6.26	7.1	6.5	6.28	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.9	3.354	3.5	4	3.372	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	156	118	550	155	179	439	1050	-	-	919	-	-
Stage 1	539	398	-	435	446	-	-	-	-	-	-	-
Stage 2	431	323	-	533	527	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	117	550	148	177	439	1050	-	-	919	-	-
Mov Cap-2 Maneuver	150	117	-	148	177	-	-	-	-	-	-	-
Stage 1	535	396	-	432	443	-	-	-	-	-	-	-
Stage 2	415	321	-	512	525	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29	15.8	0.1	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1050	-	-	200	348	919	-	-
HCM Lane V/C Ratio	0.007	-	-	0.253	0.045	0.005	-	-
HCM Control Delay (s)	8.5	-	-	29	15.8	8.9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	2	677	13	5	501
Future Vol, veh/h	4	2	677	13	5	501
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	0	0	5
Mvmt Flow	4	2	713	14	5	527

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1257	720	0	0	727	0
Stage 1	720	-	-	-	-	-
Stage 2	537	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	191	431	-	-	886	-
Stage 1	486	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	431	-	-	886	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	233	886	-
HCM Lane V/C Ratio	-	-	0.027	0.006	-
HCM Control Delay (s)	-	-	20.9	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1844	3	4	1385	7	9
Future Vol, veh/h	1844	3	4	1385	7	9
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	1882	3	4	1413	7	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1886	0	2600	944
Stage 1	-	-	-	-	1885	-
Stage 2	-	-	-	-	715	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	322	-	21	267
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	451	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	322	-	21	267
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	451	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	34.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	138	-	-	322	-
HCM Lane V/C Ratio	0.118	-	-	0.013	-
HCM Control Delay (s)	34.6	-	-	16.3	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1845	1	1	1391	2	2
Future Vol, veh/h	1845	1	1	1391	2	2
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	0	6	0	0
Mvmt Flow	1902	1	1	1434	2	2

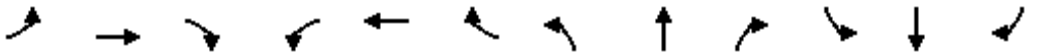
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1904	0	2623	953
Stage 1	-	-	-	-	1904	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	317	-	20	263
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	317	-	20	263
Mov Cap-2 Maneuver	-	-	-	-	83	-
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	34.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	126	-	-	317	-
HCM Lane V/C Ratio	0.033	-	-	0.003	-
HCM Control Delay (s)	34.5	-	-	16.4	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Capacity Analysis Summary Reports

Weekday Evening Peak Hour – Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1539	180	80	1536	146	200	386	106	227	435	114
Future Volume (vph)	162	1539	180	80	1536	146	200	386	106	227	435	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00			1.00		1.00		
Frt		0.984			0.987			0.968			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3426	0	1787	3428	0	1770	3423	0	1770	3463	0
Flt Permitted	0.056			0.058			0.211			0.178		
Satd. Flow (perm)	106	3426	0	109	3428	0	393	3423	0	331	3463	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	1809	0	84	1771	0	211	518	0	239	578	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	14.0	75.0		14.0	75.0		18.0	24.0		22.0	28.0	
Total Split (%)	10.4%	55.6%		10.4%	55.6%		13.3%	17.8%		16.3%	20.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	84.2	71.4		79.8	69.2		35.5	19.0		42.2	22.5	
Actuated g/C Ratio	0.62	0.53		0.59	0.51		0.26	0.14		0.31	0.17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.88	1.00		0.51	1.01		0.86	1.07		0.83	1.00	
Control Delay	70.3	52.8		27.0	56.4		68.6	116.0		60.6	93.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.3	52.8		27.0	56.4		68.6	116.0		60.6	93.5	
LOS	E	D		C	E		E	F		E	F	
Approach Delay		54.3			55.1			102.3			83.9	
Approach LOS		D			E			F			F	
Queue Length 50th (ft)	95	804		27	~822		144	~277		166	~283	
Queue Length 95th (ft)	#232	#1032		72	#995		#264	#394		#278	#404	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	198	1811		196	1756		252	482		301	577	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.86	1.00		0.43	1.01		0.84	1.07		0.79	1.00	

Intersection Summary	
Area Type:	Other
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 65.6	Intersection LOS: E
Intersection Capacity Utilization 99.9%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	110	150	542	107	39	656
Future Vol, veh/h	110	150	542	107	39	656
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	2	2	0	2
Mvmt Flow	117	160	577	114	41	698

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1066	347	0	0	692	0
Stage 1	635	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.82	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	219	655	-	-	912	-
Stage 1	493	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	654	-	-	911	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	209	654	911	-
HCM Lane V/C Ratio	-	-	0.56	0.244	0.046	-
HCM Control Delay (s)	-	-	42.1	12.3	9.1	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	3	1	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	7	7	1	6	12	630	6	7	735	24
Future Vol, veh/h	11	1	7	7	1	6	12	630	6	7	735	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	18	0	0	14	0	0	0	2	17	0	2	0
Mvmt Flow	11	1	7	7	1	6	12	643	6	7	750	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1450	1449	762	1450	1458	646	774	0	0	649	0	0
Stage 1	776	776	-	670	670	-	-	-	-	-	-	-
Stage 2	674	673	-	780	788	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	100	132	408	102	131	475	851	-	-	947	-	-
Stage 1	367	410	-	427	459	-	-	-	-	-	-	-
Stage 2	419	457	-	371	405	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	97	129	408	98	128	475	851	-	-	947	-	-
Mov Cap-2 Maneuver	97	129	-	98	128	-	-	-	-	-	-	-
Stage 1	362	407	-	421	453	-	-	-	-	-	-	-
Stage 2	407	451	-	361	402	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.6	31.1	0.2	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	851	-	-	137	152	947	-	-
HCM Lane V/C Ratio	0.014	-	-	0.142	0.094	0.008	-	-
HCM Control Delay (s)	9.3	-	-	35.6	31.1	8.8	-	-
HCM Lane LOS	A	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	646	1	0	766
Future Vol, veh/h	0	3	646	1	0	766
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	3	659	1	0	782

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1442	660	0	0	660	0
Stage 1	660	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	147	467	-	-	938	-
Stage 1	518	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	147	467	-	-	938	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	938	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	12.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1875	1	9	1841	2	6
Future Vol, veh/h	1875	1	9	1841	2	6
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	2107	1	10	2069	2	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2110	0	3165	1056
Stage 1	-	-	-	-	2110	-
Stage 2	-	-	-	-	1055	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	263	-	8	225
Stage 1	-	-	-	-	81	-
Stage 2	-	-	-	-	301	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	262	-	8	225
Mov Cap-2 Maneuver	-	-	-	-	58	-
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	301	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	34.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	131	-	-	262	-
HCM Lane V/C Ratio	0.069	-	-	0.039	-
HCM Control Delay (s)	34.5	-	-	19.3	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1875	1	3	1840	0	1
Future Vol, veh/h	1875	1	3	1840	0	1
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	4	0	0
Mvmt Flow	2060	1	3	2022	0	1

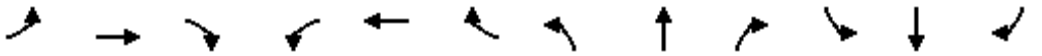
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2062	0	3079	1032
Stage 1	-	-	-	-	2062	-
Stage 2	-	-	-	-	1017	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	275	-	10	233
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	315	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	275	-	10	233
Mov Cap-2 Maneuver	-	-	-	-	64	-
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	315	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	275	-
HCM Lane V/C Ratio	0.005	-	-	0.012	-
HCM Control Delay (s)	20.5	-	-	18.2	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Capacity Analysis Summary Reports

Saturday Midday Peak Hour – Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1182	107	117	1053	136	192	284	119	282	274	101
Future Volume (vph)	122	1182	107	117	1053	136	192	284	119	282	274	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.988			0.983			0.956			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3466	0	1671	3445	0	1787	3382	0	1787	3401	0
Flt Permitted	0.107			0.080			0.420			0.266		
Satd. Flow (perm)	201	3466	0	141	3445	0	790	3382	0	500	3401	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	1315	0	119	1213	0	196	411	0	288	383	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0		13.0	55.0		20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%		11.8%	50.0%		18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	61.0	50.0		61.0	50.1		32.7	16.5		36.9	18.7	
Actuated g/C Ratio	0.55	0.45		0.55	0.46		0.30	0.15		0.34	0.17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.53	0.83		0.61	0.77		0.55	0.81		0.81	0.66	
Control Delay	20.2	32.4		29.9	29.6		32.6	59.3		47.5	49.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	32.4		29.9	29.6		32.6	59.3		47.5	49.7	
LOS	C	C		C	C		C	E		D	D	
Approach Delay		31.4			29.6			50.7			48.8	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	37	421		35	371		100	150		156	135	
Queue Length 95th (ft)	72	525		92	467		161	#229		#270	#203	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	250	1576		211	1567		404	506		360	579	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.83		0.56	0.77		0.49	0.81		0.80	0.66	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 36.6		Intersection LOS: D	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	96	208	387	110	83	415
Future Vol, veh/h	96	208	387	110	83	415
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	1	2	0	0	3
Mvmt Flow	102	221	412	117	88	441

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	869	266	0	0	530	0
Stage 1	472	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.1	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.2	-
Pot Cap-1 Maneuver	293	735	-	-	1048	-
Stage 1	597	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	268	734	-	-	1047	-
Mov Cap-2 Maneuver	268	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	651	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	268	734	1047	-
HCM Lane V/C Ratio	-	-	0.381	0.301	0.084	-
HCM Control Delay (s)	-	-	26.5	12	8.8	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.7	1.3	0.3	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	11	2	0	5	4	480	5	7	479	25
Future Vol, veh/h	8	0	11	2	0	5	4	480	5	7	479	25
Conflicting Peds, #/hr	5	0	1	1	0	5	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	13	0	0	0	0	0	25	1	0	0	2	0
Mvmt Flow	8	0	12	2	0	5	4	505	5	7	504	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1057	1054	521	1056	1065	515	533	0	0	512	0	0
Stage 1	534	534	-	518	518	-	-	-	-	-	-	-
Stage 2	523	520	-	538	547	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.5	6.2	7.1	6.5	6.2	4.35	-	-	4.1	-	-
Critical Hdwy Stg 1	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4	3.3	3.5	4	3.3	2.425	-	-	2.2	-	-
Pot Cap-1 Maneuver	193	228	559	205	224	564	928	-	-	1064	-	-
Stage 1	510	528	-	544	536	-	-	-	-	-	-	-
Stage 2	518	535	-	531	521	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	224	557	198	220	560	925	-	-	1062	-	-
Mov Cap-2 Maneuver	188	224	-	198	220	-	-	-	-	-	-	-
Stage 1	506	523	-	541	533	-	-	-	-	-	-	-
Stage 2	508	532	-	516	516	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.6	15	0.1	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	925	-	-	305	368	1062	-	-
HCM Lane V/C Ratio	0.005	-	-	0.066	0.02	0.007	-	-
HCM Control Delay (s)	8.9	-	-	17.6	15	8.4	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	493	0	3	508
Future Vol, veh/h	3	4	493	0	3	508
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	3	4	519	0	3	535

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1061	520	0	0	520	0
Stage 1	520	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	250	560	-	-	1056	-
Stage 1	601	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	249	559	-	-	1055	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	365	1055	-
HCM Lane V/C Ratio	-	-	0.02	0.003	-
HCM Control Delay (s)	-	-	15.1	8.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1404	5	8	1338	4	7
Future Vol, veh/h	1404	5	8	1338	4	7
Conflicting Peds, #/hr	0	4	4	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	20	0	2	0	0
Mvmt Flow	1494	5	9	1423	4	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1503	0	2231	754
Stage 1	-	-	-	-	1501	-
Stage 2	-	-	-	-	730	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	452	-	37	356
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	443	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	450	-	36	355
Mov Cap-2 Maneuver	-	-	-	-	124	-
Stage 1	-	-	-	-	170	-
Stage 2	-	-	-	-	443	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	23
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	212	-	-	450	-
HCM Lane V/C Ratio	0.055	-	-	0.019	-
HCM Control Delay (s)	23	-	-	13.2	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1405	2	3	1339	1	4
Future Vol, veh/h	1405	2	3	1339	1	4
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	1495	2	3	1424	1	4

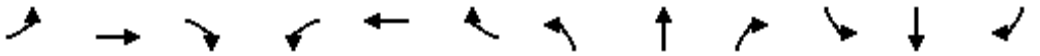
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1502	0	2219	754
Stage 1	-	-	-	-	1501	-
Stage 2	-	-	-	-	718	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	452	-	38	356
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	450	-	38	354
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	261	-	-	450	-
HCM Lane V/C Ratio	0.02	-	-	0.007	-
HCM Control Delay (s)	19.1	-	-	13.1	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Capacity Analysis Summary Reports

Weekday Morning Peak Hour
Existing Plus Site Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1617	112	87	1109	105	215	397	91	238	336	91
Future Volume (vph)	141	1617	112	87	1109	105	215	397	91	238	336	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.990			0.987			0.972			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3397	0	1736	3301	0	1736	3415	0	1687	3379	0
Flt Permitted	0.113			0.062			0.256			0.196		
Satd. Flow (perm)	204	3397	0	113	3301	0	468	3415	0	348	3379	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1764	0	89	1239	0	219	498	0	243	436	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	17.0	67.0		17.0	67.0		21.0	26.0		20.0	25.0	
Total Split (%)	13.1%	51.5%		13.1%	51.5%		16.2%	20.0%		15.4%	19.2%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	78.5	65.8		75.5	64.3		38.8	20.2		39.2	20.4	
Actuated g/C Ratio	0.60	0.51		0.58	0.49		0.30	0.16		0.30	0.16	

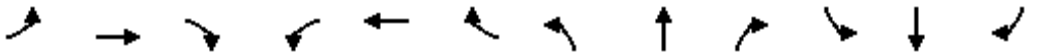
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.60	1.03		0.51	0.76		0.74	0.94		0.89	0.82	
Control Delay	22.8	60.6		27.5	30.7		50.0	81.3		68.9	67.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.8	60.6		27.5	30.7		50.0	81.3		68.9	67.2	
LOS	C	E		C	C		D	F		E	E	
Approach Delay		57.7			30.5			71.7			67.8	
Approach LOS		E			C			E			E	
Queue Length 50th (ft)	48	~825		28	431		142	221		161	192	
Queue Length 95th (ft)	91	#1014		77	553		215	#331		#305	#283	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	282	1720		237	1633		315	529		274	530	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.51	1.03		0.38	0.76		0.70	0.94		0.89	0.82	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 53.6		Intersection LOS: D	
Intersection Capacity Utilization 96.8%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



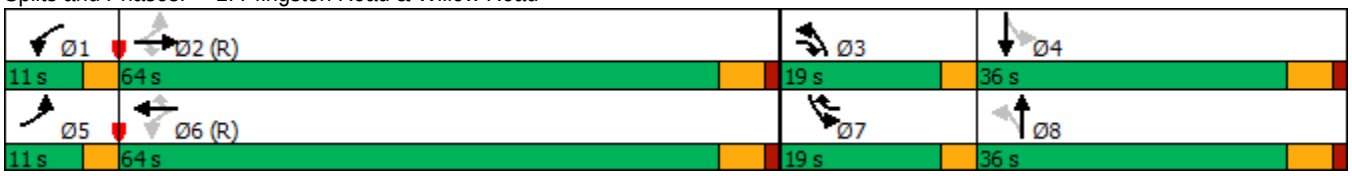
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1617	112	87	1109	105	215	397	91	238	336	91
Future Volume (vph)	141	1617	112	87	1109	105	215	397	91	238	336	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor						0.99						
Frt			0.850			0.850		0.972			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1495	1736	3343	1524	1736	3415	0	1687	3379	0
Flt Permitted	0.128			0.067			0.358			0.280		
Satd. Flow (perm)	232	3438	1495	122	3343	1505	654	3415	0	497	3379	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1650	114	89	1132	107	219	498	0	243	436	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	6.5	6.5	21.0	6.5	6.5	21.0		6.5	21.0	
Total Split (s)	11.0	64.0	19.0	11.0	64.0	19.0	19.0	36.0		19.0	36.0	
Total Split (%)	8.5%	49.2%	14.6%	8.5%	49.2%	14.6%	14.6%	27.7%		14.6%	27.7%	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	3.5	3.5	6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Act Effct Green (s)	69.9	59.7	80.3	69.1	59.3	77.0	45.9	28.8		47.1	29.4	
Actuated g/C Ratio	0.54	0.46	0.62	0.53	0.46	0.59	0.35	0.22		0.36	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.68	1.04	0.12	0.58	0.74	0.12	0.62	0.66		0.76	0.57	
Control Delay	32.0	70.2	11.0	33.2	33.1	10.9	36.5	50.6		45.8	47.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	32.0	70.2	11.0	33.2	33.1	10.9	36.5	50.6		45.8	47.9	
LOS	C	E	B	C	C	B	D	D		D	D	
Approach Delay		63.8			31.3			46.3			47.2	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	57	~813	38	34	413	36	126	200		143	172	
Queue Length 95th (ft)	#108	#953	65	80	501	62	192	261		#230	227	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	212	1579	934	158	1525	897	364	788		323	782	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.68	1.04	0.12	0.56	0.74	0.12	0.60	0.63		0.75	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 49.3 Intersection LOS: D
Intersection Capacity Utilization 93.2% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	13	50	0	119	19	563	111	57	452	26
Future Vol, veh/h	21	0	13	50	0	119	19	563	111	57	452	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	4	0	3	0	3	1	0	4	0
Mvmt Flow	22	0	14	53	0	125	20	593	117	60	476	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	947	1360	252	1050	1315	355	503	0	0	710	0	0
Stage 1	610	610	-	692	692	-	-	-	-	-	-	-
Stage 2	337	750	-	358	623	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.58	6.5	6.96	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.58	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.58	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.54	4	3.33	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	219	150	754	179	159	638	1072	-	-	899	-	-
Stage 1	453	488	-	396	448	-	-	-	-	-	-	-
Stage 2	656	422	-	627	481	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	137	754	165	145	638	1072	-	-	899	-	-
Mov Cap-2 Maneuver	165	137	-	165	145	-	-	-	-	-	-	-
Stage 1	444	455	-	388	439	-	-	-	-	-	-	-
Stage 2	517	414	-	575	449	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.4	19.3	0.2	1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1072	-	-	165	754	165	638	899	-	-
HCM Lane V/C Ratio	0.019	-	-	0.134	0.018	0.319	0.196	0.067	-	-
HCM Control Delay (s)	8.4	-	-	30.2	9.9	36.7	12	9.3	-	-
HCM Lane LOS	A	-	-	D	A	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	1.3	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1	17	2	0	13	7	661	3	4	492	18
Future Vol, veh/h	30	1	17	2	0	13	7	661	3	4	492	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	100	6	0	0	8	0	3	0	0	5	6
Mvmt Flow	32	1	18	2	0	14	7	696	3	4	518	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1255	1249	528	1257	1257	698	537	0	0	699	0	0
Stage 1	536	536	-	712	712	-	-	-	-	-	-	-
Stage 2	719	713	-	545	545	-	-	-	-	-	-	-
Critical Hdwy	7.1	7.5	6.26	7.1	6.5	6.28	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.9	3.354	3.5	4	3.372	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	150	113	543	149	173	430	1041	-	-	907	-	-
Stage 1	532	393	-	427	439	-	-	-	-	-	-	-
Stage 2	423	317	-	526	522	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	112	543	142	171	430	1041	-	-	907	-	-
Mov Cap-2 Maneuver	144	112	-	142	171	-	-	-	-	-	-	-
Stage 1	528	391	-	424	436	-	-	-	-	-	-	-
Stage 2	407	315	-	505	520	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.1	16.2	0.1	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1041	-	-	193	338	907	-	-
HCM Lane V/C Ratio	0.007	-	-	0.262	0.047	0.005	-	-
HCM Control Delay (s)	8.5	-	-	30.1	16.2	9	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	2	691	13	5	510
Future Vol, veh/h	4	2	691	13	5	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	0	0	5
Mvmt Flow	4	2	727	14	5	537

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1281	734	0	0	741	0
Stage 1	734	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	184	423	-	-	875	-
Stage 1	478	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	183	423	-	-	875	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	226	875	-
HCM Lane V/C Ratio	-	-	0.028	0.006	-
HCM Control Delay (s)	-	-	21.4	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1880	4	4	1404	8	11
Future Vol, veh/h	1880	4	4	1404	8	11
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	1918	4	4	1433	8	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1923	0	2646	962
Stage 1	-	-	-	-	1921	-
Stage 2	-	-	-	-	725	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	311	-	19	260
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	446	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	311	-	19	260
Mov Cap-2 Maneuver	-	-	-	-	81	-
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	446	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	36.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	135	-	-	311	-
HCM Lane V/C Ratio	0.144	-	-	0.013	-
HCM Control Delay (s)	36.1	-	-	16.7	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1882	1	1	1411	2	2
Future Vol, veh/h	1882	1	1	1411	2	2
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	0	6	0	0
Mvmt Flow	1940	1	1	1455	2	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1942	0	2672	972
Stage 1	-	-	-	-	1942	-
Stage 2	-	-	-	-	730	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	306	-	19	256
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	443	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	306	-	19	256
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	443	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	35.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	121	-	-	306	-
HCM Lane V/C Ratio	0.034	-	-	0.003	-
HCM Control Delay (s)	35.8	-	-	16.8	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1837	54	32	1383	0	25	0	33	0	0	0
Future Vol, veh/h	0	1837	54	32	1383	0	25	0	33	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	7	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	0	1934	57	34	1456	0	26	0	35	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1456	0	0	1991	0	0	2759	-	996	2491	-	728
Stage 1	-	-	-	-	-	-	1963	-	-	1524	-	-
Stage 2	-	-	-	-	-	-	796	-	-	967	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	471	-	-	293	-	-	~ 9	0	247	15	0	370
Stage 1	-	-	-	-	-	-	67	0	-	126	0	-
Stage 2	-	-	-	-	-	-	351	0	-	277	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	471	-	-	293	-	-	~ 8	-	247	12	-	370
Mov Cap-2 Maneuver	-	-	-	-	-	-	52	-	-	76	-	-
Stage 1	-	-	-	-	-	-	67	-	-	126	-	-
Stage 2	-	-	-	-	-	-	310	-	-	238	-	-

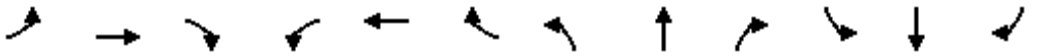
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	68.8	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	52	247	471	-	-	293	-	-	-	-
HCM Lane V/C Ratio	0.506	0.141	-	-	-	0.115	-	-	-	-
HCM Control Delay (s)	130.8	21.9	0	-	-	18.9	-	-	0	0
HCM Lane LOS	F	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	1.9	0.5	0	-	-	0.4	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Capacity Analysis Summary Reports

Weekday Evening Peak Hour
Existing Plus Site Conditions



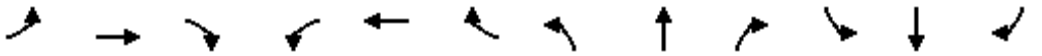
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1568	180	105	1562	146	219	397	120	227	448	127
Future Volume (vph)	173	1568	180	105	1562	146	219	397	120	227	448	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00			1.00		1.00		
Frt		0.985			0.987			0.965			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3429	0	1787	3428	0	1770	3413	0	1770	3456	0
Flt Permitted	0.057			0.058			0.211			0.182		
Satd. Flow (perm)	108	3429	0	109	3428	0	393	3413	0	339	3456	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	1840	0	111	1798	0	231	544	0	239	606	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	14.0	75.0		14.0	75.0		18.0	24.0		22.0	28.0	
Total Split (%)	10.4%	55.6%		10.4%	55.6%		13.3%	17.8%		16.3%	20.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	83.5	70.6		80.4	69.0		36.0	19.0		41.7	22.0	
Actuated g/C Ratio	0.62	0.52		0.60	0.51		0.27	0.14		0.31	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.92	1.03		0.63	1.03		0.92	1.13		0.83	1.08	
Control Delay	78.7	60.5		38.0	61.3		77.8	133.3		60.6	112.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	78.7	60.5		38.0	61.3		77.8	133.3		60.6	112.6	
LOS	E	E		D	E		E	F		E	F	
Approach Delay		62.2			59.9			116.7			97.9	
Approach LOS		E			E			F			F	
Queue Length 50th (ft)	106	~908		41	~883		160	~303		166	~310	
Queue Length 95th (ft)	#254	#1061		104	#1021		#306	#422		#274	#433	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	198	1792		196	1752		252	481		302	563	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.92	1.03		0.57	1.03		0.92	1.13		0.79	1.08	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 74.5 Intersection LOS: E
Intersection Capacity Utilization 102.7% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1568	180	105	1562	146	219	397	120	227	448	127
Future Volume (vph)	173	1568	180	105	1562	146	219	397	120	227	448	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor						0.99		1.00		1.00		
Frt			0.850			0.850		0.965			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3471	1599	1787	3471	1583	1770	3413	0	1770	3456	0
Flt Permitted	0.064			0.066			0.171			0.228		
Satd. Flow (perm)	122	3471	1599	124	3471	1562	319	3413	0	425	3456	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	1651	189	111	1644	154	231	544	0	239	606	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	6.5	6.5	21.0	6.5	6.5	21.0		6.5	21.0	
Total Split (s)	14.0	67.0	20.0	14.0	67.0	20.0	20.0	34.0		20.0	34.0	
Total Split (%)	10.4%	49.6%	14.8%	10.4%	49.6%	14.8%	14.8%	25.2%		14.8%	25.2%	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	3.5	3.5	6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Act Effct Green (s)	75.5	62.5	84.4	72.6	61.0	79.3	47.0	28.6		46.9	28.5	
Actuated g/C Ratio	0.56	0.46	0.63	0.54	0.45	0.59	0.35	0.21		0.35	0.21	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.91	1.03	0.19	0.62	1.05	0.17	0.82	0.75		0.78	0.83	
Control Delay	76.7	65.6	11.4	36.8	72.8	11.6	54.9	57.7		50.0	61.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	76.7	65.6	11.4	36.8	72.8	11.6	54.9	57.7		50.0	61.9	
LOS	E	E	B	D	E	B	D	E		D	E	
Approach Delay		61.5			65.8			56.8			58.6	
Approach LOS		E			E			E			E	
Queue Length 50th (ft)	106	~815	66	42	~823	54	145	238		151	271	
Queue Length 95th (ft)	#254	#969	105	104	#962	86	#261	306		#232	#360	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	199	1607	1007	197	1568	928	289	722		314	730	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.91	1.03	0.19	0.56	1.05	0.17	0.80	0.75		0.76	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 61.9 Intersection LOS: E
Intersection Capacity Utilization 98.0% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	0	31	110	0	150	34	533	107	39	646	48
Future Vol, veh/h	53	0	31	110	0	150	34	533	107	39	646	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	0	0	2	2	0	2	0
Mvmt Flow	56	0	33	117	0	160	36	567	114	41	687	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1151	1549	369	1123	1517	342	738	0	0	682	0	0
Stage 1	795	795	-	697	697	-	-	-	-	-	-	-
Stage 2	356	754	-	426	820	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	155	115	634	162	120	660	877	-	-	920	-	-
Stage 1	351	402	-	400	446	-	-	-	-	-	-	-
Stage 2	640	420	-	579	392	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	110	105	634	144	110	659	877	-	-	919	-	-
Mov Cap-2 Maneuver	110	105	-	144	110	-	-	-	-	-	-	-
Stage 1	337	384	-	383	427	-	-	-	-	-	-	-
Stage 2	465	402	-	524	374	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47	46.1	0.5	0.5
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	877	-	-	110	634	144	659	919	-	-
HCM Lane V/C Ratio	0.041	-	-	0.513	0.052	0.813	0.242	0.045	-	-
HCM Control Delay (s)	9.3	-	-	68	11	92.3	12.2	9.1	-	-
HCM Lane LOS	A	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.3	0.2	5.1	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	7	7	1	6	12	655	6	7	756	24
Future Vol, veh/h	11	1	7	7	1	6	12	655	6	7	756	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	18	0	0	14	0	0	0	2	17	0	2	0
Mvmt Flow	11	1	7	7	1	6	12	668	6	7	771	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1496	1495	783	1496	1504	671	795	0	0	674	0	0
Stage 1	797	797	-	695	695	-	-	-	-	-	-	-
Stage 2	699	698	-	801	809	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	93	124	397	95	123	460	835	-	-	927	-	-
Stage 1	357	401	-	414	447	-	-	-	-	-	-	-
Stage 2	406	445	-	361	396	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	121	397	91	120	460	835	-	-	927	-	-
Mov Cap-2 Maneuver	90	121	-	91	120	-	-	-	-	-	-	-
Stage 1	352	398	-	408	441	-	-	-	-	-	-	-
Stage 2	394	439	-	351	393	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.1	33.2	0.2	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	835	-	-	128	142	927	-	-
HCM Lane V/C Ratio	0.015	-	-	0.151	0.101	0.008	-	-
HCM Control Delay (s)	9.4	-	-	38.1	33.2	8.9	-	-
HCM Lane LOS	A	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	671	1	0	787
Future Vol, veh/h	0	3	671	1	0	787
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	3	685	1	0	803

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1489	686	0	0	686	0
Stage 1	686	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	138	451	-	-	917	-
Stage 1	504	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	451	-	-	917	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	444	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	451	917	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	13	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1938	2	12	1895	3	7
Future Vol, veh/h	1938	2	12	1895	3	7
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	2178	2	13	2129	3	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2182	0	3272	1092
Stage 1	-	-	-	-	2181	-
Stage 2	-	-	-	-	1091	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	247	-	7	213
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	288	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	247	-	7	213
Mov Cap-2 Maneuver	-	-	-	-	53	-
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	288	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	40.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	112	-	-	247	-
HCM Lane V/C Ratio	0.1	-	-	0.055	-
HCM Control Delay (s)	40.7	-	-	20.4	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1939	1	3	1895	0	1
Future Vol, veh/h	1939	1	3	1895	0	1
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	4	0	0
Mvmt Flow	2131	1	3	2082	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2133	0	3180	1067
Stage 1	-	-	-	-	2133	-
Stage 2	-	-	-	-	1047	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	258	-	8	221
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	258	-	8	221
Mov Cap-2 Maneuver	-	-	-	-	59	-
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	303	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	221	-	-	258	-
HCM Lane V/C Ratio	0.005	-	-	0.013	-
HCM Control Delay (s)	21.4	-	-	19.1	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1852	93	67	1841	0	66	0	69	0	0	0
Future Vol, veh/h	0	1852	93	67	1841	0	66	0	69	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	1949	98	71	1938	0	69	0	73	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1938	0	0	2047	0	0	3109	-	1024	3055	-	969
Stage 1	-	-	-	-	-	-	1998	-	-	2080	-	-
Stage 2	-	-	-	-	-	-	1111	-	-	975	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	307	-	-	279	-	-	~ 5	0	236	6	0	257
Stage 1	-	-	-	-	-	-	~ 63	0	-	56	0	-
Stage 2	-	-	-	-	-	-	226	0	-	274	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	307	-	-	279	-	-	~ 4	-	236	3	-	257
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 43	-	-	36	-	-
Stage 1	-	-	-	-	-	-	~ 63	-	-	56	-	-
Stage 2	-	-	-	-	-	-	168	-	-	190	-	-

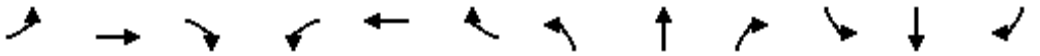
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	263.2	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	43	236	307	-	-	279	-	-	-	-
HCM Lane V/C Ratio	1.616	0.308	-	-	-	0.253	-	-	-	-
HCM Control Delay (s)	$ 510.2	26.9	0	-	-	22.2	-	-	0	0
HCM Lane LOS	F	D	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	7	1.3	0	-	-	1	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Capacity Analysis Summary Reports

Saturday Midday Peak Hour
Existing Plus Site Conditions

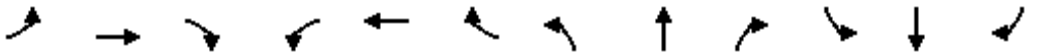


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1219	108	145	1083	136	215	297	137	282	289	116
Future Volume (vph)	141	1219	108	145	1083	136	215	297	137	282	289	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.988			0.983			0.953			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3466	0	1671	3445	0	1787	3369	0	1787	3389	0
Flt Permitted	0.097			0.080			0.360			0.231		
Satd. Flow (perm)	182	3466	0	141	3445	0	677	3369	0	434	3389	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1354	0	148	1244	0	219	443	0	288	413	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0		13.0	55.0		20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%		11.8%	50.0%		18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	60.7	49.5		61.3	49.8		33.3	16.4		36.6	18.2	
Actuated g/C Ratio	0.55	0.45		0.56	0.45		0.30	0.15		0.33	0.17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.63	0.87		0.73	0.80		0.63	0.88		0.84	0.74	
Control Delay	27.6	34.9		40.8	30.8		35.4	65.9		51.3	53.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.6	34.9		40.8	30.8		35.4	65.9		51.3	53.3	
LOS	C	C		D	C		D	E		D	D	
Approach Delay		34.2			31.9			55.8			52.5	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	43	447		51	391		114	164		156	149	
Queue Length 95th (ft)	99	551		#143	484		179	#257		#286	#230	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	240	1558		211	1558		384	503		347	559	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.60	0.87		0.70	0.80		0.57	0.88		0.83	0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 39.8		Intersection LOS: D	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Pfingsten Road & Willow Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1219	108	145	1083	136	215	297	137	282	289	116
Future Volume (vph)	141	1219	108	145	1083	136	215	297	137	282	289	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt			0.850			0.850		0.953			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3505	1583	1671	3505	1568	1787	3369	0	1787	3389	0
Flt Permitted	0.141			0.094			0.360			0.231		
Satd. Flow (perm)	265	3505	1583	165	3505	1568	677	3369	0	434	3389	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1244	110	148	1105	139	219	443	0	288	413	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	21.0	6.5	21.0	21.0	6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0	55.0	13.0	55.0	55.0	20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%	50.0%	11.8%	50.0%	50.0%	18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effct Green (s)	60.8	49.5	49.5	61.2	49.8	49.8	33.3	16.4		36.6	18.2	
Actuated g/C Ratio	0.55	0.45	0.45	0.56	0.45	0.45	0.30	0.15		0.33	0.17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.54	0.79	0.15	0.69	0.70	0.20	0.63	0.88		0.84	0.74	
Control Delay	18.3	30.4	18.8	34.1	27.2	19.3	35.4	65.9		51.3	53.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.3	30.4	18.8	34.1	27.2	19.3	35.4	65.9		51.3	53.3	
LOS	B	C	B	C	C	B	D	E		D	D	
Approach Delay		28.4			27.1			55.8			52.5	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	43	387	45	45	324	58	114	164		156	149	
Queue Length 95th (ft)	73	478	82	#126	403	100	179	#257		#286	#230	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	279	1578	712	222	1585	709	384	503		347	559	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.52	0.79	0.15	0.67	0.70	0.20	0.57	0.88		0.83	0.74	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 87.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	0	38	96	0	208	40	376	110	83	405	54
Future Vol, veh/h	65	0	38	96	0	208	40	376	110	83	405	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	1	0	2	0	0	3	0
Mvmt Flow	69	0	40	102	0	221	43	400	117	88	431	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	922	1240	244	938	1210	260	488	0	0	518	0	0
Stage 1	636	636	-	546	546	-	-	-	-	-	-	-
Stage 2	286	604	-	392	664	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	228	177	763	221	184	742	1086	-	-	1058	-	-
Stage 1	437	475	-	492	521	-	-	-	-	-	-	-
Stage 2	703	491	-	607	461	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	145	156	763	190	162	741	1086	-	-	1057	-	-
Mov Cap-2 Maneuver	145	156	-	190	162	-	-	-	-	-	-	-
Stage 1	420	436	-	472	500	-	-	-	-	-	-	-
Stage 2	474	471	-	527	423	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.6	22	0.6	1.3
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1086	-	-	145	763	190	741	1057	-	-
HCM Lane V/C Ratio	0.039	-	-	0.477	0.053	0.538	0.299	0.084	-	-
HCM Control Delay (s)	8.4	-	-	50.6	10	44	11.9	8.7	-	-
HCM Lane LOS	A	-	-	F	B	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.2	2.8	1.3	0.3	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	11	2	0	5	4	509	5	7	507	25
Future Vol, veh/h	8	0	11	2	0	5	4	509	5	7	507	25
Conflicting Peds, #/hr	5	0	1	1	0	5	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	13	0	0	0	0	0	25	1	0	0	2	0
Mvmt Flow	8	0	12	2	0	5	4	536	5	7	534	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1118	1115	551	1117	1126	546	563	0	0	543	0	0
Stage 1	564	564	-	549	549	-	-	-	-	-	-	-
Stage 2	554	551	-	568	577	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.5	6.2	7.1	6.5	6.2	4.35	-	-	4.1	-	-
Critical Hdwy Stg 1	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4	3.3	3.5	4	3.3	2.425	-	-	2.2	-	-
Pot Cap-1 Maneuver	175	210	538	186	207	541	903	-	-	1036	-	-
Stage 1	491	512	-	524	520	-	-	-	-	-	-	-
Stage 2	498	519	-	511	505	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	170	207	536	180	204	537	900	-	-	1034	-	-
Mov Cap-2 Maneuver	170	207	-	180	204	-	-	-	-	-	-	-
Stage 1	488	507	-	521	517	-	-	-	-	-	-	-
Stage 2	489	516	-	496	500	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.8	15.7	0.1	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	900	-	-	281	343	1034	-	-
HCM Lane V/C Ratio	0.005	-	-	0.071	0.021	0.007	-	-
HCM Control Delay (s)	9	-	-	18.8	15.7	8.5	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	522	0	3	536
Future Vol, veh/h	3	4	522	0	3	536
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	3	4	549	0	3	564

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1120	550	0	0	550	0
Stage 1	550	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	231	539	-	-	1030	-
Stage 1	582	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	230	538	-	-	1029	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	579	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	342	1029	-
HCM Lane V/C Ratio	-	-	0.022	0.003	-
HCM Control Delay (s)	-	-	15.8	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1478	6	10	1403	5	9
Future Vol, veh/h	1478	6	10	1403	5	9
Conflicting Peds, #/hr	0	4	4	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	20	0	2	0	0
Mvmt Flow	1572	6	11	1493	5	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1582	0	2348	793
Stage 1	-	-	-	-	1579	-
Stage 2	-	-	-	-	769	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	421	-	31	336
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	423	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	419	-	30	335
Mov Cap-2 Maneuver	-	-	-	-	112	-
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	423	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	196	-	-	419	-
HCM Lane V/C Ratio	0.076	-	-	0.025	-
HCM Control Delay (s)	24.9	-	-	13.8	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1480	2	3	1405	1	4
Future Vol, veh/h	1480	2	3	1405	1	4
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	1574	2	3	1495	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1581	0	2334	793
Stage 1	-	-	-	-	1580	-
Stage 2	-	-	-	-	754	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	422	-	32	336
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	420	-	32	334
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	431	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	242	-	-	420	-
HCM Lane V/C Ratio	0.022	-	-	0.008	-
HCM Control Delay (s)	20.2	-	-	13.6	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1375	112	81	1333	0	80	0	93	0	0	0
Future Vol, veh/h	0	1375	112	81	1333	0	80	0	93	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	0	1447	118	85	1403	0	84	0	98	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1403	0	0	1565	0	0	2378	-	783	2297	-	702
Stage 1	-	-	-	-	-	-	1506	-	-	1573	-	-
Stage 2	-	-	-	-	-	-	872	-	-	724	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	493	-	-	428	-	-	~ 19	0	341	21	0	385
Stage 1	-	-	-	-	-	-	129	0	-	117	0	-
Stage 2	-	-	-	-	-	-	316	0	-	388	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	493	-	-	428	-	-	~ 16	-	341	13	-	385
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 84	-	-	72	-	-
Stage 1	-	-	-	-	-	-	129	-	-	117	-	-
Stage 2	-	-	-	-	-	-	253	-	-	277	-	-

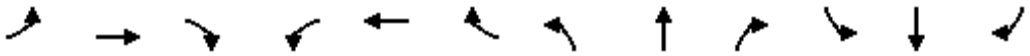
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	97.3	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	84	341	493	-	-	428	-	-	-	-
HCM Lane V/C Ratio	1.003	0.287	-	-	-	0.199	-	-	-	-
HCM Control Delay (s)	187.5	19.8	0	-	-	15.5	-	-	0	0
HCM Lane LOS	F	C	A	-	-	C	-	-	A	A
HCM 95th %tile Q(veh)	5.6	1.2	0	-	-	0.7	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Capacity Analysis Summary Reports

Weekday Morning Peak Hour – No-Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1651	122	75	1174	128	236	415	89	301	357	100
Future Volume (vph)	155	1651	122	75	1174	128	236	415	89	301	357	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.990			0.985			0.973			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3397	0	1736	3294	0	1736	3420	0	1687	3375	0
Flt Permitted	0.083			0.063			0.201			0.203		
Satd. Flow (perm)	150	3397	0	115	3294	0	367	3420	0	360	3375	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1809	0	77	1329	0	241	514	0	307	466	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	17.0	67.0		17.0	67.0		21.0	26.0		20.0	25.0	
Total Split (%)	13.1%	51.5%		13.1%	51.5%		16.2%	20.0%		15.4%	19.2%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	80.1	68.4		74.0	63.4		39.3	20.0		38.7	19.7	
Actuated g/C Ratio	0.62	0.53		0.57	0.49		0.30	0.15		0.30	0.15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.70	1.01		0.47	0.83		0.84	0.98		1.12	0.91	
Control Delay	36.1	55.9		24.2	34.5		60.0	88.6		124.7	77.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.1	55.9		24.2	34.5		60.0	88.6		124.7	77.4	
LOS	D	E		C	C		E	F		F	E	
Approach Delay		54.3			34.0			79.5			96.2	
Approach LOS		D			C			E			F	
Queue Length 50th (ft)	57	~862		24	496		158	230		~244	207	
Queue Length 95th (ft)	134	#1040		63	619		#274	#346		#434	#314	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	255	1786		238	1607		297	526		275	512	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.62	1.01		0.32	0.83		0.81	0.98		1.12	0.91	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 58.9		Intersection LOS: E	
Intersection Capacity Utilization 101.3%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	119	621	111	57	497
Future Vol, veh/h	50	119	621	111	57	497
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	3	1	0	4
Mvmt Flow	53	125	654	117	60	523

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1095	386	0	0	771	0
Stage 1	713	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Critical Hdwy	6.88	6.96	-	-	4.1	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.33	-	-	2.2	-
Pot Cap-1 Maneuver	205	610	-	-	853	-
Stage 1	441	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	191	610	-	-	853	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	654	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	191	610	853	-
HCM Lane V/C Ratio	-	-	0.276	0.205	0.07	-
HCM Control Delay (s)	-	-	30.9	12.4	9.5	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.8	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1	17	2	0	13	7	700	3	4	524	18
Future Vol, veh/h	30	1	17	2	0	13	7	700	3	4	524	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	100	6	0	0	8	0	3	0	0	5	6
Mvmt Flow	32	1	18	2	0	14	7	737	3	4	552	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1330	1324	562	1332	1332	739	571	0	0	740	0	0
Stage 1	570	570	-	753	753	-	-	-	-	-	-	-
Stage 2	760	754	-	579	579	-	-	-	-	-	-	-
Critical Hdwy	7.1	7.5	6.26	7.1	6.5	6.28	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.9	3.354	3.5	4	3.372	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	133	101	519	133	156	408	1012	-	-	876	-	-
Stage 1	510	377	-	405	420	-	-	-	-	-	-	-
Stage 2	401	301	-	504	504	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	127	100	519	126	154	408	1012	-	-	876	-	-
Mov Cap-2 Maneuver	127	100	-	126	154	-	-	-	-	-	-	-
Stage 1	506	375	-	402	417	-	-	-	-	-	-	-
Stage 2	385	299	-	483	501	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.4	17.1	0.1	0.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1012	-	-	172	314	876	-	-
HCM Lane V/C Ratio	0.007	-	-	0.294	0.05	0.005	-	-
HCM Control Delay (s)	8.6	-	-	34.4	17.1	9.1	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	2	730	13	5	542
Future Vol, veh/h	4	2	730	13	5	542
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	0	0	5
Mvmt Flow	4	2	768	14	5	571

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1356	775	0	0	782	0
Stage 1	775	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	166	401	-	-	845	-
Stage 1	458	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	165	401	-	-	845	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	563	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	205	845	-
HCM Lane V/C Ratio	-	-	0.031	0.006	-
HCM Control Delay (s)	-	-	23.1	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1986	3	4	1499	7	9
Future Vol, veh/h	1986	3	4	1499	7	9
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	2027	3	4	1530	7	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2031	0	2803	1016
Stage 1	-	-	-	-	2030	-
Stage 2	-	-	-	-	773	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	283	-	15	239
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	421	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	283	-	15	239
Mov Cap-2 Maneuver	-	-	-	-	71	-
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	421	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	40.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	117	-	-	283	-
HCM Lane V/C Ratio	0.14	-	-	0.014	-
HCM Control Delay (s)	40.7	-	-	17.9	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1987	1	1	1505	2	2
Future Vol, veh/h	1987	1	1	1505	2	2
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	0	6	0	0
Mvmt Flow	2048	1	1	1552	2	2

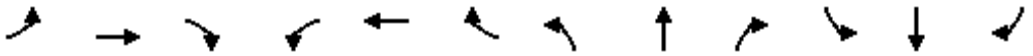
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2050	0	2828	1026
Stage 1	-	-	-	-	2050	-
Stage 2	-	-	-	-	778	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	278	-	14	236
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	419	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	278	-	14	236
Mov Cap-2 Maneuver	-	-	-	-	69	-
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	40
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	107	-	-	278	-
HCM Lane V/C Ratio	0.039	-	-	0.004	-
HCM Control Delay (s)	40	-	-	18	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Capacity Analysis Summary Reports

Weekday Evening Peak Hour – No-Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	1587	193	82	1618	168	223	407	109	285	467	131
Future Volume (vph)	179	1587	193	82	1618	168	223	407	109	285	467	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00			1.00		1.00		
Frt		0.984			0.986			0.968			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3426	0	1787	3424	0	1770	3423	0	1770	3456	0
Flt Permitted	0.056			0.058			0.222			0.186		
Satd. Flow (perm)	106	3426	0	109	3424	0	414	3423	0	346	3456	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	188	1874	0	86	1880	0	235	543	0	300	630	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	14.0	75.0		14.0	75.0		18.0	24.0		22.0	28.0	
Total Split (%)	10.4%	55.6%		10.4%	55.6%		13.3%	17.8%		16.3%	20.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	84.1	71.3		79.7	69.0		35.0	18.0		42.5	22.0	
Actuated g/C Ratio	0.62	0.53		0.59	0.51		0.26	0.13		0.31	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.95	1.04		0.52	1.07		0.93	1.19		0.99	1.12	
Control Delay	86.2	63.0		27.6	77.0		80.9	155.0		88.4	125.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	86.2	63.0		27.6	77.0		80.9	155.0		88.4	125.7	
LOS	F	E		C	E		F	F		F	F	
Approach Delay		65.1			74.8			132.6			113.7	
Approach LOS		E			E			F			F	
Queue Length 50th (ft)	112	~926		27	~962		163	~301		217	~333	
Queue Length 95th (ft)	#269	#1094		75	#1100		#309	#420		#400	#457	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	198	1808		196	1750		252	456		304	563	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.95	1.04		0.44	1.07		0.93	1.19		0.99	1.12	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 85.5 Intersection LOS: F
Intersection Capacity Utilization 107.6% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	110	150	589	107	39	703
Future Vol, veh/h	110	150	589	107	39	703
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	0	2	2	0	2
Mvmt Flow	117	160	627	114	41	748

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1141	372	0	0	742	0
Stage 1	685	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Critical Hdwy	6.82	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	196	631	-	-	874	-
Stage 1	465	-	-	-	-	-
Stage 2	608	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	187	630	-	-	873	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	443	-	-	-	-	-
Stage 2	608	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.2	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	187	630	873	-
HCM Lane V/C Ratio	-	-	0.626	0.253	0.048	-
HCM Control Delay (s)	-	-	51.9	12.6	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	3.6	1	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	7	7	1	6	12	677	6	7	782	24
Future Vol, veh/h	11	1	7	7	1	6	12	677	6	7	782	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	18	0	0	14	0	0	0	2	17	0	2	0
Mvmt Flow	11	1	7	7	1	6	12	691	6	7	798	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1546	1545	810	1546	1554	694	822	0	0	697	0	0
Stage 1	824	824	-	718	718	-	-	-	-	-	-	-
Stage 2	722	721	-	828	836	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	86	116	383	87	114	446	816	-	-	909	-	-
Stage 1	345	390	-	402	436	-	-	-	-	-	-	-
Stage 2	394	435	-	348	385	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	83	113	383	83	111	446	816	-	-	909	-	-
Mov Cap-2 Maneuver	83	113	-	83	111	-	-	-	-	-	-	-
Stage 1	340	387	-	396	429	-	-	-	-	-	-	-
Stage 2	382	428	-	338	382	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	41.1	35.8	0.2	0.1
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	816	-	-	119	131	909	-	-
HCM Lane V/C Ratio	0.015	-	-	0.163	0.109	0.008	-	-
HCM Control Delay (s)	9.5	-	-	41.1	35.8	9	-	-
HCM Lane LOS	A	-	-	E	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.4	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	693	1	0	813
Future Vol, veh/h	0	3	693	1	0	813
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	3	707	1	0	830

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1538	708	0	0	708	0
Stage 1	708	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	129	438	-	-	900	-
Stage 1	492	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	129	438	-	-	900	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	432	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	438	900	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	13.3	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2003	1	9	1967	2	6
Future Vol, veh/h	2003	1	9	1967	2	6
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	2251	1	10	2210	2	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2254	0	3379	1128
Stage 1	-	-	-	-	2254	-
Stage 2	-	-	-	-	1125	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	231	-	6	201
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	276	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	231	-	6	201
Mov Cap-2 Maneuver	-	-	-	-	49	-
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	276	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	113	-	-	231	-
HCM Lane V/C Ratio	0.08	-	-	0.044	-
HCM Control Delay (s)	39.6	-	-	21.3	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2003	1	3	1966	0	1
Future Vol, veh/h	2003	1	3	1966	0	1
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	4	0	0
Mvmt Flow	2201	1	3	2160	0	1

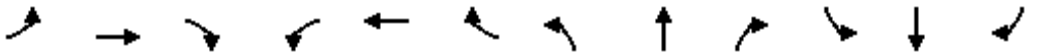
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2203	0	3289	1102
Stage 1	-	-	-	-	2203	-
Stage 2	-	-	-	-	1086	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	242	-	7	210
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	289	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	242	-	7	210
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	289	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	210	-	-	242	-
HCM Lane V/C Ratio	0.005	-	-	0.014	-
HCM Control Delay (s)	22.2	-	-	20.1	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Capacity Analysis Summary Reports

Saturday Midday Peak Hour – No-Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	1221	120	121	1126	144	219	295	123	329	294	105
Future Volume (vph)	129	1221	120	121	1126	144	219	295	123	329	294	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.987			0.983			0.956			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3462	0	1671	3445	0	1787	3382	0	1787	3405	0
Flt Permitted	0.082			0.080			0.371			0.240		
Satd. Flow (perm)	154	3462	0	141	3445	0	698	3382	0	451	3405	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1154			1422			385			478	
Travel Time (s)		17.5			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	1368	0	123	1296	0	223	427	0	336	407	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0		13.0	55.0		20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%		11.8%	50.0%		18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	61.0	50.0		61.0	49.9		33.0	16.0		36.5	18.0	
Actuated g/C Ratio	0.55	0.45		0.55	0.45		0.30	0.15		0.33	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.62	0.87		0.63	0.83		0.63	0.87		0.96	0.73	
Control Delay	29.5	34.7		31.2	32.2		35.6	65.1		71.1	52.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	34.7		31.2	32.2		35.6	65.1		71.1	52.9	
LOS	C	C		C	C		D	E		E	D	
Approach Delay		34.3			32.1			55.0			61.1	
Approach LOS		C			C			D			E	
Queue Length 50th (ft)	39	451		36	414		116	156		188	147	
Queue Length 95th (ft)	99	#562		95	517		183	#242		#367	#224	
Internal Link Dist (ft)		1074			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	227	1572		211	1563		385	491		349	558	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.58	0.87		0.58	0.83		0.58	0.87		0.96	0.73	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 41.3		Intersection LOS: D	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	96	208	429	110	83	452
Future Vol, veh/h	96	208	429	110	83	452
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	51	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	1	1	2	0	0	3
Mvmt Flow	102	221	456	117	88	481

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	933	288	0	0	574	0
Stage 1	516	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.1	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.2	-
Pot Cap-1 Maneuver	267	712	-	-	1009	-
Stage 1	567	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	244	711	-	-	1008	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	636	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	244	711	1008	-
HCM Lane V/C Ratio	-	-	0.419	0.311	0.088	-
HCM Control Delay (s)	-	-	30	12.3	8.9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	1.3	0.3	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	11	2	0	5	4	522	5	7	516	25
Future Vol, veh/h	8	0	11	2	0	5	4	522	5	7	516	25
Conflicting Peds, #/hr	5	0	1	1	0	5	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	13	0	0	0	0	0	25	1	0	0	2	0
Mvmt Flow	8	0	12	2	0	5	4	549	5	7	543	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1140	1137	560	1139	1148	559	572	0	0	556	0	0
Stage 1	573	573	-	562	562	-	-	-	-	-	-	-
Stage 2	567	564	-	577	586	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.5	6.2	7.1	6.5	6.2	4.35	-	-	4.1	-	-
Critical Hdwy Stg 1	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4	3.3	3.5	4	3.3	2.425	-	-	2.2	-	-
Pot Cap-1 Maneuver	169	203	532	180	200	532	896	-	-	1025	-	-
Stage 1	486	507	-	515	513	-	-	-	-	-	-	-
Stage 2	489	512	-	506	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	165	200	530	174	197	528	893	-	-	1023	-	-
Mov Cap-2 Maneuver	165	200	-	174	197	-	-	-	-	-	-	-
Stage 1	483	502	-	512	510	-	-	-	-	-	-	-
Stage 2	480	509	-	491	495	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.2	16	0.1	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	893	-	-	274	334	1023	-	-
HCM Lane V/C Ratio	0.005	-	-	0.073	0.022	0.007	-	-
HCM Control Delay (s)	9.1	-	-	19.2	16	8.5	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	535	0	3	545
Future Vol, veh/h	3	4	535	0	3	545
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	3	4	563	0	3	574

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1144	564	0	0	564	0
Stage 1	564	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	223	529	-	-	1018	-
Stage 1	573	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	222	528	-	-	1017	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	332	1017	-
HCM Lane V/C Ratio	-	-	0.022	0.003	-
HCM Control Delay (s)	-	-	16.1	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1506	5	8	1436	4	7
Future Vol, veh/h	1506	5	8	1436	4	7
Conflicting Peds, #/hr	0	4	4	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	20	0	2	0	0
Mvmt Flow	1602	5	9	1528	4	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1611	0	2391	808
Stage 1	-	-	-	-	1609	-
Stage 2	-	-	-	-	782	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	411	-	29	328
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	417	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	409	-	28	327
Mov Cap-2 Maneuver	-	-	-	-	109	-
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	417	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	25.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	189	-	-	409	-
HCM Lane V/C Ratio	0.062	-	-	0.021	-
HCM Control Delay (s)	25.3	-	-	14	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1507	2	3	1437	1	4
Future Vol, veh/h	1507	2	3	1437	1	4
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	1603	2	3	1529	1	4

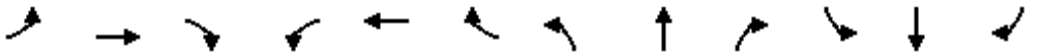
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1610	0	2380	808
Stage 1	-	-	-	-	1609	-
Stage 2	-	-	-	-	771	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	411	-	29	328
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	422	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	409	-	29	326
Mov Cap-2 Maneuver	-	-	-	-	111	-
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	422	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	235	-	-	409	-
HCM Lane V/C Ratio	0.023	-	-	0.008	-
HCM Control Delay (s)	20.7	-	-	13.9	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Capacity Analysis Summary Reports

Weekday Morning Peak Hour – Projected Conditions



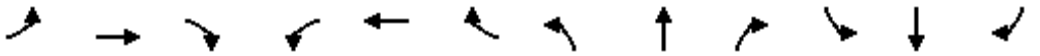
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	1663	123	89	1187	128	243	419	94	301	364	106
Future Volume (vph)	159	1663	123	89	1187	128	243	419	94	301	364	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.990			0.985			0.973			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3397	0	1736	3294	0	1736	3419	0	1687	3371	0
Flt Permitted	0.081			0.063			0.200			0.204		
Satd. Flow (perm)	147	3397	0	115	3294	0	365	3419	0	362	3371	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	1823	0	91	1342	0	248	524	0	307	479	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	17.0	67.0		17.0	67.0		21.0	26.0		20.0	25.0	
Total Split (%)	13.1%	51.5%		13.1%	51.5%		16.2%	20.0%		15.4%	19.2%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	79.4	65.7		74.5	63.2		39.4	20.0		38.6	19.6	
Actuated g/C Ratio	0.61	0.51		0.57	0.49		0.30	0.15		0.30	0.15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.72	1.06		0.52	0.84		0.86	1.00		1.12	0.94	
Control Delay	38.6	72.0		28.1	35.2		62.6	93.1		125.2	83.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.6	72.0		28.1	35.2		62.6	93.1		125.2	83.3	
LOS	D	E		C	D		E	F		F	F	
Approach Delay		69.3			34.8			83.3			99.6	
Approach LOS		E			C			F			F	
Queue Length 50th (ft)	62	~881		29	509		164	235		~243	214	
Queue Length 95th (ft)	142	#1071		78	628		#288	#356		#433	#326	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	253	1717		237	1602		296	526		275	507	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.64	1.06		0.38	0.84		0.84	1.00		1.12	0.94	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 66.3		Intersection LOS: E	
Intersection Capacity Utilization 102.7%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



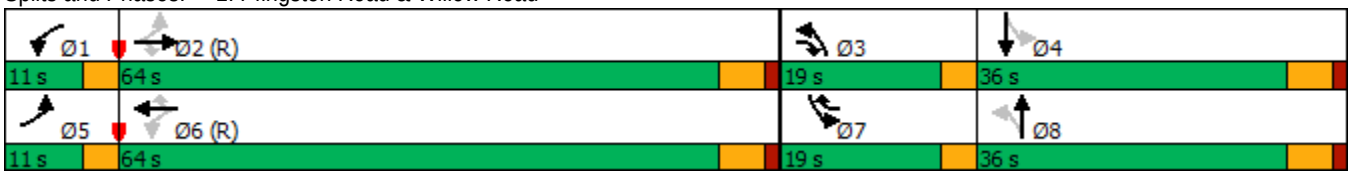
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	1663	123	89	1187	128	243	419	94	301	364	106
Future Volume (vph)	159	1663	123	89	1187	128	243	419	94	301	364	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor						0.99						
Frt			0.850			0.850		0.973			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3438	1495	1736	3343	1524	1736	3419	0	1687	3371	0
Flt Permitted	0.098			0.069			0.316			0.261		
Satd. Flow (perm)	177	3438	1495	126	3343	1505	577	3419	0	463	3371	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	8%	4%	8%	6%	4%	2%	6%	7%	3%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	1697	126	91	1211	131	248	524	0	307	479	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	6.5	6.5	21.0	6.5	6.5	21.0		6.5	21.0	
Total Split (s)	11.0	64.0	19.0	11.0	64.0	19.0	19.0	36.0		19.0	36.0	
Total Split (%)	8.5%	49.2%	14.6%	8.5%	49.2%	14.6%	14.6%	27.7%		14.6%	27.7%	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	3.5	3.5	6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Act Effct Green (s)	69.6	59.1	80.1	68.1	58.3	76.3	46.6	29.1		47.6	29.6	
Actuated g/C Ratio	0.54	0.45	0.62	0.52	0.45	0.59	0.36	0.22		0.37	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.85	1.09	0.14	0.59	0.81	0.15	0.73	0.68		0.97	0.62	
Control Delay	56.4	84.3	11.1	33.4	36.3	11.3	42.3	51.3		78.1	49.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	56.4	84.3	11.1	33.4	36.3	11.3	42.3	51.3		78.1	49.3	
LOS	E	F	B	C	D	B	D	D		E	D	
Approach Delay		77.4			33.9			48.4			60.5	
Approach LOS		E			C			D			E	
Queue Length 50th (ft)	65	~856	43	35	457	44	146	212		189	191	
Queue Length 95th (ft)	#197	#996	72	81	553	74	218	275		#340	251	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	190	1563	927	158	1499	885	347	789		315	777	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.85	1.09	0.14	0.58	0.81	0.15	0.71	0.66		0.97	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 57.7 Intersection LOS: E
Intersection Capacity Utilization 98.8% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	13	50	0	119	19	616	111	57	493	26
Future Vol, veh/h	21	0	13	50	0	119	19	616	111	57	493	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	4	0	3	0	3	1	0	4	0
Mvmt Flow	22	0	14	53	0	125	20	648	117	60	519	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1017	1458	273	1127	1413	383	546	0	0	765	0	0
Stage 1	653	653	-	747	747	-	-	-	-	-	-	-
Stage 2	364	805	-	380	666	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.58	6.5	6.96	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.58	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.58	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.54	4	3.33	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	195	131	731	157	139	612	1033	-	-	857	-	-
Stage 1	427	467	-	367	423	-	-	-	-	-	-	-
Stage 2	633	398	-	609	460	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	145	119	731	144	127	612	1033	-	-	857	-	-
Mov Cap-2 Maneuver	145	119	-	144	127	-	-	-	-	-	-	-
Stage 1	419	434	-	360	415	-	-	-	-	-	-	-
Stage 2	494	390	-	556	428	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.9	21.7	0.2	0.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1033	-	-	145	731	144	612	857	-	-
HCM Lane V/C Ratio	0.019	-	-	0.152	0.019	0.365	0.205	0.07	-	-
HCM Control Delay (s)	8.6	-	-	34.2	10	43.7	12.4	9.5	-	-
HCM Lane LOS	A	-	-	D	B	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	1.5	0.8	0.2	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1	17	2	0	13	7	714	3	4	533	18
Future Vol, veh/h	30	1	17	2	0	13	7	714	3	4	533	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	100	6	0	0	8	0	3	0	0	5	6
Mvmt Flow	32	1	18	2	0	14	7	752	3	4	561	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1354	1348	571	1356	1356	754	580	0	0	755	0	0
Stage 1	579	579	-	768	768	-	-	-	-	-	-	-
Stage 2	775	769	-	588	588	-	-	-	-	-	-	-
Critical Hdwy	7.1	7.5	6.26	7.1	6.5	6.28	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.9	3.354	3.5	4	3.372	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	128	97	513	128	151	400	1004	-	-	865	-	-
Stage 1	504	373	-	397	414	-	-	-	-	-	-	-
Stage 2	394	296	-	499	499	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	122	96	513	121	149	400	1004	-	-	865	-	-
Mov Cap-2 Maneuver	122	96	-	121	149	-	-	-	-	-	-	-
Stage 1	500	371	-	394	411	-	-	-	-	-	-	-
Stage 2	378	294	-	478	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.9	17.4	0.1	0.1
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1004	-	-	166	306	865	-	-
HCM Lane V/C Ratio	0.007	-	-	0.304	0.052	0.005	-	-
HCM Control Delay (s)	8.6	-	-	35.9	17.4	9.2	-	-
HCM Lane LOS	A	-	-	E	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	2	744	13	5	551
Future Vol, veh/h	4	2	744	13	5	551
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	0	0	5
Mvmt Flow	4	2	783	14	5	580

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1380	790	0	0	797	0
Stage 1	790	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	161	393	-	-	834	-
Stage 1	451	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	160	393	-	-	834	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	447	-	-	-	-	-
Stage 2	558	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	199	834	-
HCM Lane V/C Ratio	-	-	0.032	0.006	-
HCM Control Delay (s)	-	-	23.7	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2022	4	4	1518	8	11
Future Vol, veh/h	2022	4	4	1518	8	11
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	7	0	0	7	0	0
Mvmt Flow	2063	4	4	1549	8	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2068	0	2849	1035
Stage 1	-	-	-	-	2066	-
Stage 2	-	-	-	-	783	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	273	-	14	232
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	273	-	14	232
Mov Cap-2 Maneuver	-	-	-	-	68	-
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	416	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	42.5
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	115	-	-	273	-
HCM Lane V/C Ratio	0.169	-	-	0.015	-
HCM Control Delay (s)	42.5	-	-	18.4	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2024	1	1	1525	2	2
Future Vol, veh/h	2024	1	1	1525	2	2
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	6	0	0	6	0	0
Mvmt Flow	2087	1	1	1572	2	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2089	0	2877	1045
Stage 1	-	-	-	-	2089	-
Stage 2	-	-	-	-	788	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	268	-	13	229
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	268	-	13	229
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	41.8
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	102	-	-	268	-
HCM Lane V/C Ratio	0.04	-	-	0.004	-
HCM Control Delay (s)	41.8	-	-	18.5	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	17.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	135	1844	54	32	1444	46	25	0	33	68	0	53
Future Vol, veh/h	135	1844	54	32	1444	46	25	0	33	68	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	7	0	0	7	0	0	0	0	0	0	0
Mvmt Flow	142	1941	57	34	1520	48	26	0	35	72	0	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1568	0	0	1998	0	0	3082	-	999	2867	-	784
Stage 1	-	-	-	-	-	-	2254	-	-	1612	-	-
Stage 2	-	-	-	-	-	-	828	-	-	1255	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	426	-	-	291	-	-	~ 5	0	245	~ 8	0	340
Stage 1	-	-	-	-	-	-	43	0	-	111	0	-
Stage 2	-	-	-	-	-	-	336	0	-	185	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	426	-	-	291	-	-	~ 3	-	245	~ 5	-	340
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 22	-	-	~ 36	-	-
Stage 1	-	-	-	-	-	-	29	-	-	74	-	-
Stage 2	-	-	-	-	-	-	248	-	-	106	-	-

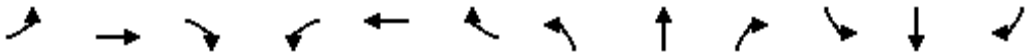
Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	233.6	$ 401.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	22	245	426	-	-	291	-	-	36	340
HCM Lane V/C Ratio	1.196	0.142	0.334	-	-	0.116	-	-	1.988	0.164
HCM Control Delay (s)	$ 512.8	22.1	17.6	-	-	19	-	-	$ 700.1	17.7
HCM Lane LOS	F	C	C	-	-	C	-	-	F	C
HCM 95th %tile Q(veh)	3.4	0.5	1.4	-	-	0.4	-	-	7.9	0.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Capacity Analysis Summary Reports

Weekday Evening Peak Hour – Projected Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1616	193	107	1644	168	242	418	123	285	480	144
Future Volume (vph)	190	1616	193	107	1644	168	242	418	123	285	480	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					1.00			1.00		1.00		
Frt		0.984			0.986			0.966			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3426	0	1787	3424	0	1770	3416	0	1770	3449	0
Flt Permitted	0.057			0.058			0.222			0.186		
Satd. Flow (perm)	108	3426	0	109	3424	0	414	3416	0	346	3449	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	1904	0	113	1908	0	255	569	0	300	657	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	14.0	75.0		14.0	75.0		18.0	24.0		22.0	28.0	
Total Split (%)	10.4%	55.6%		10.4%	55.6%		13.3%	17.8%		16.3%	20.7%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	83.4	70.5		80.5	69.0		35.0	18.0		42.5	22.0	
Actuated g/C Ratio	0.62	0.52		0.60	0.51		0.26	0.13		0.31	0.16	

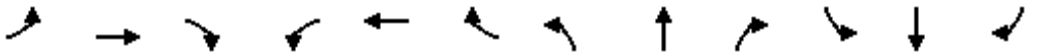
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.01	1.06		0.64	1.09		1.01	1.25		0.99	1.17	
Control Delay	101.1	72.6		38.8	82.9		99.6	176.8		88.4	142.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	101.1	72.6		38.8	82.9		99.6	176.8		88.4	142.6	
LOS	F	E		D	F		F	F		F	F	
Approach Delay		75.3			80.4			152.9			125.6	
Approach LOS		E			F			F			F	
Queue Length 50th (ft)	~126	~972		42	~989		~181	~326		217	~360	
Queue Length 95th (ft)	#293	#1123		108	#1126		#350	#447		#400	#485	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	198	1789		196	1750		252	455		304	562	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.01	1.06		0.58	1.09		1.01	1.25		0.99	1.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135			
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 96.0		Intersection LOS: F	
Intersection Capacity Utilization 109.7%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1616	193	107	1644	168	242	418	123	285	480	144
Future Volume (vph)	190	1616	193	107	1644	168	242	418	123	285	480	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor						0.99		1.00		1.00		
Frt			0.850			0.850		0.966			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3471	1599	1787	3471	1583	1770	3416	0	1770	3449	0
Flt Permitted	0.064			0.066			0.143			0.198		
Satd. Flow (perm)	122	3471	1599	124	3471	1562	266	3416	0	369	3449	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	4%	1%	1%	4%	2%	2%	2%	1%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	1701	203	113	1731	177	255	569	0	300	657	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	3	1	6	7	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0	3.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	6.5	6.5	21.0	6.5	6.5	21.0		6.5	21.0	
Total Split (s)	14.0	67.0	20.0	14.0	67.0	20.0	20.0	34.0		20.0	34.0	
Total Split (%)	10.4%	49.6%	14.8%	10.4%	49.6%	14.8%	14.8%	25.2%		14.8%	25.2%	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5	3.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	3.5	3.5	6.0	3.5	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	None	None	C-Min	None	None	None		None	None	
Act Effct Green (s)	75.4	62.4	84.9	72.6	61.0	80.0	47.0	28.0		47.0	28.0	
Actuated g/C Ratio	0.56	0.46	0.63	0.54	0.45	0.59	0.35	0.21		0.35	0.21	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	1.01	1.06	0.20	0.63	1.10	0.19	0.92	0.80		1.00	0.92	
Control Delay	100.5	76.1	11.5	37.4	92.2	11.8	73.2	60.6		87.8	71.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	100.5	76.1	11.5	37.4	92.2	11.8	73.2	60.6		87.8	71.3	
LOS	F	E	B	D	F	B	E	E		F	E	
Approach Delay		72.2			82.1			64.5			76.4	
Approach LOS		E			F			E			E	
Queue Length 50th (ft)	~125	~864	72	43	~906	63	167	252		~198	299	
Queue Length 95th (ft)	#293	#1017	113	107	#1045	99	#335	322		#384	#412	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	198	1603	1005	197	1568	928	276	708		299	715	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	1.01	1.06	0.20	0.57	1.10	0.19	0.92	0.80		1.00	0.92	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 66 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 75.2 Intersection LOS: E
Intersection Capacity Utilization 104.3% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	11.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	0	31	110	0	150	34	580	107	39	693	48
Future Vol, veh/h	53	0	31	110	0	150	34	580	107	39	693	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	0	0	2	2	0	2	0
Mvmt Flow	56	0	33	117	0	160	36	617	114	41	737	51

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1226	1649	394	1198	1617	367	788	0	0	732	0	0
Stage 1	845	845	-	747	747	-	-	-	-	-	-	-
Stage 2	381	804	-	451	870	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	137	100	611	142	105	636	840	-	-	882	-	-
Stage 1	328	382	-	373	423	-	-	-	-	-	-	-
Stage 2	619	398	-	560	372	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	96	91	611	125	96	635	840	-	-	881	-	-
Mov Cap-2 Maneuver	96	91	-	125	96	-	-	-	-	-	-	-
Stage 1	314	364	-	357	404	-	-	-	-	-	-	-
Stage 2	444	380	-	505	355	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	58.3	62.5	0.4	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	840	-	-	96	611	125	635	881	-	-
HCM Lane V/C Ratio	0.043	-	-	0.587	0.054	0.936	0.251	0.047	-	-
HCM Control Delay (s)	9.5	-	-	85.8	11.2	130.5	12.6	9.3	-	-
HCM Lane LOS	A	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.7	0.2	6.1	1	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	7	7	1	6	12	702	6	7	803	24
Future Vol, veh/h	11	1	7	7	1	6	12	702	6	7	803	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	18	0	0	14	0	0	0	2	17	0	2	0
Mvmt Flow	11	1	7	7	1	6	12	716	6	7	819	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1592	1591	831	1592	1600	719	843	0	0	722	0	0
Stage 1	845	845	-	743	743	-	-	-	-	-	-	-
Stage 2	747	746	-	849	857	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	79	108	373	81	107	432	802	-	-	889	-	-
Stage 1	336	382	-	389	425	-	-	-	-	-	-	-
Stage 2	381	424	-	339	377	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	106	373	78	105	432	802	-	-	889	-	-
Mov Cap-2 Maneuver	76	106	-	78	105	-	-	-	-	-	-	-
Stage 1	331	379	-	383	419	-	-	-	-	-	-	-
Stage 2	369	418	-	329	374	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.6	37.8	0.2	0.1
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	802	-	-	110	124	889	-	-
HCM Lane V/C Ratio	0.015	-	-	0.176	0.115	0.008	-	-
HCM Control Delay (s)	9.6	-	-	44.6	37.8	9.1	-	-
HCM Lane LOS	A	-	-	E	E	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.4	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	3	718	1	0	834
Future Vol, veh/h	0	3	718	1	0	834
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	3	733	1	0	851

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1585	734	0	0	734	0
Stage 1	734	-	-	-	-	-
Stage 2	851	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	120	423	-	-	880	-
Stage 1	478	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	120	423	-	-	880	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	423	880	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	-	-	13.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2066	2	12	2029	3	7
Future Vol, veh/h	2066	2	12	2029	3	7
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	0	0	3	0	0
Mvmt Flow	2321	2	13	2280	3	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2325	0	3490	1164
Stage 1	-	-	-	-	2324	-
Stage 2	-	-	-	-	1166	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	217	-	5	191
Stage 1	-	-	-	-	61	-
Stage 2	-	-	-	-	263	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	217	-	5	191
Mov Cap-2 Maneuver	-	-	-	-	44	-
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	263	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	47.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	95	-	-	217	-
HCM Lane V/C Ratio	0.118	-	-	0.062	-
HCM Control Delay (s)	47.9	-	-	22.7	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2067	1	3	2029	0	1
Future Vol, veh/h	2067	1	3	2029	0	1
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	0	0	4	0	0
Mvmt Flow	2271	1	3	2230	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2273	0	3394	1137
Stage 1	-	-	-	-	2273	-
Stage 2	-	-	-	-	1121	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	227	-	6	199
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	277	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	227	-	6	199
Mov Cap-2 Maneuver	-	-	-	-	50	-
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	277	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	199	-	-	227	-
HCM Lane V/C Ratio	0.006	-	-	0.015	-
HCM Control Delay (s)	23.2	-	-	21.1	-
HCM Lane LOS	C	-	-	C	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	103.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	1877	93	67	1926	39	66	0	69	53	0	49
Future Vol, veh/h	103	1877	93	67	1926	39	66	0	69	53	0	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	108	1976	98	71	2027	41	69	0	73	56	0	52

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2068	0	0	2074	0	0	3397	-	1037	3394	-	1034
Stage 1	-	-	-	-	-	-	2241	-	-	2190	-	-
Stage 2	-	-	-	-	-	-	1156	-	-	1204	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	273	-	-	272	-	-	~ 3	0	232	~ 3	0	233
Stage 1	-	-	-	-	-	-	~ 44	0	-	~ 48	0	-
Stage 2	-	-	-	-	-	-	212	0	-	199	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	273	-	-	272	-	-	~ 1	-	232	~ 1	-	233
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 9	-	-	~ 8	-	-
Stage 1	-	-	-	-	-	-	~ 27	-	-	~ 29	-	-
Stage 2	-	-	-	-	-	-	122	-	-	83	-	-

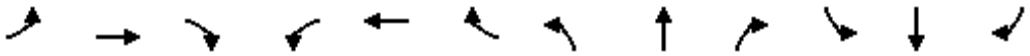
Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0.8	$ 1888.4	$ 1879
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	9	232	273	-	-	272	-	-	8	233
HCM Lane V/C Ratio	7.719	0.313	0.397	-	-	0.259	-	-	6.974	0.221
HCM Control Delay (s)	$ 3833.9	27.4	26.6	-	-	22.8	-	-	$ 3593.2	24.8
HCM Lane LOS	F	D	D	-	-	C	-	-	F	C
HCM 95th %tile Q(veh)	10.1	1.3	1.8	-	-	1	-	-	8.4	0.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Capacity Analysis Summary Reports

Saturday Midday Peak Hour – Projected Conditions

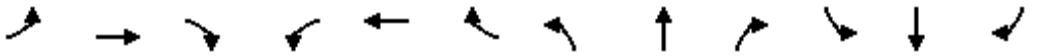


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1258	121	149	1156	144	242	308	141	329	309	120
Future Volume (vph)	148	1258	121	149	1156	144	242	308	141	329	309	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	165		0	95		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	155			200			80			265		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt		0.987			0.983			0.953			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3462	0	1671	3445	0	1787	3369	0	1787	3393	0
Flt Permitted	0.081			0.081			0.306			0.230		
Satd. Flow (perm)	152	3462	0	143	3445	0	575	3369	0	432	3393	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	1407	0	152	1327	0	247	458	0	336	437	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0		6.5	21.0		6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0		13.0	55.0		20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%		11.8%	50.0%		18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5		3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5		0.0	1.5		0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0		3.5	6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	60.8	49.4		61.2	49.6		33.6	16.0		36.1	17.4	
Actuated g/C Ratio	0.55	0.45		0.56	0.45		0.31	0.15		0.33	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.70	0.91		0.74	0.86		0.72	0.93		0.98	0.82	
Control Delay	36.4	38.0		41.9	33.9		40.4	74.4		74.7	58.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.4	38.0		41.9	33.9		40.4	74.4		74.7	58.7	
LOS	D	D		D	C		D	E		E	E	
Approach Delay		37.8			34.7			62.5			65.6	
Approach LOS		D			C			E			E	
Queue Length 50th (ft)	48	476		54	434		130	170		188	161	
Queue Length 95th (ft)	#134	#630		#149	536		202	#270		#371	#251	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	165			95			150			100		
Base Capacity (vph)	225	1554		212	1552		364	490		344	536	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.67	0.91		0.72	0.86		0.68	0.93		0.98	0.82	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 45.4		Intersection LOS: D	
Intersection Capacity Utilization 95.8%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Pfingsten Road & Willow Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	1258	121	149	1156	144	242	308	141	329	309	120
Future Volume (vph)	148	1258	121	149	1156	144	242	308	141	329	309	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	285		300	95		300	150		0	235		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	144			200			80			133		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor							1.00	1.00		1.00	1.00	
Frt			0.850			0.850		0.953			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3505	1583	1671	3505	1568	1787	3369	0	1787	3393	0
Flt Permitted	0.116			0.082			0.306			0.230		
Satd. Flow (perm)	218	3505	1583	144	3505	1568	575	3369	0	432	3393	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		644			1422			385			478	
Travel Time (s)		9.8			24.2			7.5			9.3	
Confl. Peds. (#/hr)							1		2	2		1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	3%	2%	8%	3%	3%	1%	1%	3%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	1284	123	152	1180	147	247	458	0	336	437	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	3.0	15.0	15.0	3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	21.0	21.0	6.5	21.0	21.0	6.5	21.0		6.5	21.0	
Total Split (s)	13.0	55.0	55.0	13.0	55.0	55.0	20.0	22.0		20.0	22.0	
Total Split (%)	11.8%	50.0%	50.0%	11.8%	50.0%	50.0%	18.2%	20.0%		18.2%	20.0%	
Yellow Time (s)	3.5	4.5	4.5	3.5	4.5	4.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	0.0	1.5	1.5	0.0	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	6.0	3.5	6.0		3.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None		None	None	
Act Effct Green (s)	60.7	49.4	49.4	61.3	49.7	49.7	33.6	16.0		36.1	17.4	
Actuated g/C Ratio	0.55	0.45	0.45	0.56	0.45	0.45	0.31	0.15		0.33	0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.61	0.82	0.17	0.74	0.75	0.21	0.72	0.93		0.98	0.82	
Control Delay	23.8	31.7	19.1	41.6	28.7	19.5	40.4	74.4		74.7	58.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.8	31.7	19.1	41.6	28.7	19.5	40.4	74.4		74.7	58.7	
LOS	C	C	B	D	C	B	D	E		E	E	
Approach Delay		30.0			29.1			62.5			65.6	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	45	407	51	53	357	62	130	170		188	161	
Queue Length 95th (ft)	92	502	90	#148	443	106	202	#270		#371	#251	
Internal Link Dist (ft)		564			1342			305			398	
Turn Bay Length (ft)	285		300	95		300	150			235		
Base Capacity (vph)	257	1573	710	212	1582	707	364	490		344	536	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.59	0.82	0.17	0.72	0.75	0.21	0.68	0.93		0.98	0.82	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 40.9 Intersection LOS: D
Intersection Capacity Utilization 91.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Pfingsten Road & Willow Road

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	65	0	38	96	0	208	40	418	110	83	442	54
Future Vol, veh/h	65	0	38	96	0	208	40	418	110	83	442	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	51	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	1	0	2	0	0	3	0
Mvmt Flow	69	0	40	102	0	221	43	445	117	88	470	57

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	984	1324	264	1002	1294	282	527	0	0	563	0	0
Stage 1	675	675	-	591	591	-	-	-	-	-	-	-
Stage 2	309	649	-	411	703	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.52	6.5	6.92	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.52	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.51	4	3.31	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	206	157	741	198	164	718	1050	-	-	1019	-	-
Stage 1	415	456	-	463	498	-	-	-	-	-	-	-
Stage 2	682	469	-	591	443	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	129	138	741	169	144	717	1050	-	-	1018	-	-
Mov Cap-2 Maneuver	129	138	-	169	144	-	-	-	-	-	-	-
Stage 1	398	417	-	444	477	-	-	-	-	-	-	-
Stage 2	452	449	-	510	405	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42.4	25.5	0.6	1.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1050	-	-	129	741	169	717	1018	-	-
HCM Lane V/C Ratio	0.041	-	-	0.536	0.055	0.604	0.309	0.087	-	-
HCM Control Delay (s)	8.6	-	-	61.3	10.1	54.4	12.2	8.9	-	-
HCM Lane LOS	A	-	-	F	B	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	0.2	3.3	1.3	0.3	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	11	2	0	5	4	551	5	7	544	25
Future Vol, veh/h	8	0	11	2	0	5	4	551	5	7	544	25
Conflicting Peds, #/hr	5	0	1	1	0	5	3	0	2	2	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	13	0	0	0	0	0	25	1	0	0	2	0
Mvmt Flow	8	0	12	2	0	5	4	580	5	7	573	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1201	1198	590	1200	1209	590	602	0	0	587	0	0
Stage 1	603	603	-	593	593	-	-	-	-	-	-	-
Stage 2	598	595	-	607	616	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.5	6.2	7.1	6.5	6.2	4.35	-	-	4.1	-	-
Critical Hdwy Stg 1	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4	3.3	3.5	4	3.3	2.425	-	-	2.2	-	-
Pot Cap-1 Maneuver	154	187	511	163	184	511	872	-	-	998	-	-
Stage 1	467	492	-	496	497	-	-	-	-	-	-	-
Stage 2	470	496	-	487	485	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	184	509	157	181	508	870	-	-	996	-	-
Mov Cap-2 Maneuver	150	184	-	157	181	-	-	-	-	-	-	-
Stage 1	464	487	-	493	494	-	-	-	-	-	-	-
Stage 2	461	493	-	472	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.4	16.9	0.1	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	870	-	-	254	310	996	-	-
HCM Lane V/C Ratio	0.005	-	-	0.079	0.024	0.007	-	-
HCM Control Delay (s)	9.2	-	-	20.4	16.9	8.6	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	564	0	3	573
Future Vol, veh/h	3	4	564	0	3	573
Conflicting Peds, #/hr	0	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	3	4	594	0	3	603

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1204	595	0	0	595	0
Stage 1	595	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	205	508	-	-	991	-
Stage 1	555	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	204	508	-	-	990	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	310	990	-
HCM Lane V/C Ratio	-	-	0.024	0.003	-
HCM Control Delay (s)	-	-	16.9	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1580	6	10	1501	5	9
Future Vol, veh/h	1580	6	10	1501	5	9
Conflicting Peds, #/hr	0	4	4	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	20	0	2	0	0
Mvmt Flow	1681	6	11	1597	5	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1691	0	2509	848
Stage 1	-	-	-	-	1688	-
Stage 2	-	-	-	-	821	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	383	-	24	309
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	398	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	382	-	23	308
Mov Cap-2 Maneuver	-	-	-	-	98	-
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	398	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	27.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	174	-	-	382	-
HCM Lane V/C Ratio	0.086	-	-	0.028	-
HCM Control Delay (s)	27.6	-	-	14.7	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1582	2	3	1503	1	4
Future Vol, veh/h	1582	2	3	1503	1	4
Conflicting Peds, #/hr	0	5	5	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	1683	2	3	1599	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1690	0	2495	848
Stage 1	-	-	-	-	1689	-
Stage 2	-	-	-	-	806	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	383	-	25	309
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	405	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	381	-	25	308
Mov Cap-2 Maneuver	-	-	-	-	101	-
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	405	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	218	-	-	381	-
HCM Lane V/C Ratio	0.024	-	-	0.008	-
HCM Control Delay (s)	21.9	-	-	14.5	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	30.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	1371	112	81	1379	45	80	0	93	63	0	52
Future Vol, veh/h	106	1371	112	81	1379	45	80	0	93	63	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	100	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	3	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	112	1443	118	85	1452	47	84	0	98	66	0	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1499	0	0	1561	0	0	2622	-	781	2592	-	750
Stage 1	-	-	-	-	-	-	1726	-	-	1646	-	-
Stage 2	-	-	-	-	-	-	896	-	-	946	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	-	6.9	7.5	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	-	-	6.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	-	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	453	-	-	429	-	-	~ 12	0	342	~ 13	0	358
Stage 1	-	-	-	-	-	-	94	0	-	106	0	-
Stage 2	-	-	-	-	-	-	306	0	-	285	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	453	-	-	429	-	-	~ 7	-	342	~ 6	-	358
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 40	-	-	~ 36	-	-
Stage 1	-	-	-	-	-	-	~ 71	-	-	80	-	-
Stage 2	-	-	-	-	-	-	208	-	-	153	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.8	$ 346.9	$ 357.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	40	342	453	-	-	429	-	-	36	358
HCM Lane V/C Ratio	2.105	0.286	0.246	-	-	0.199	-	-	1.842	0.153
HCM Control Delay (s)	$ 727.2	19.7	15.5	-	-	15.5	-	-	$ 639.1	16.9
HCM Lane LOS	F	C	C	-	-	C	-	-	F	C
HCM 95th %tile Q(veh)	9	1.2	1	-	-	0.7	-	-	7.2	0.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon