TRAFFIC IMPACT STUDY
FOR
VILLAGE GATE

VILLAGE OF GLENDALE
HAMILTON COUNTY, OHIO

MAY 2015

PREPARED FOR:

THE DREES COMPANY
211 GRANDVIEW DRIVE
FORT MITCHELL, KENTUCKY 41017
PHONE: (859) 578-4261

PREPARED BY:

BAYER BECKER
6900 TYLERSVILLE ROAD
MASON, OHIO 45040
PHONE: (513) 336-6600
FAX: (513) 336-9365

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EXECUTIVE SUMMARY

The proposed Village Gate development is situated on approximately 36.5 acres in the Village of Glendale, Hamilton County, Ohio. The site is located east of Chester Road and north of Oak Road.

The proposed Village Gate development will consist of the following:

- 93 Single-Family Detached Homes

Approximately half of the development will be constructed and occupied by opening day in 2016. Full build-out is expected in 2018.

Since the original version of this study was written, the number of single-family detached homes in the proposed development has been reduced to 89. This reduction will not cause a significant change in the analysis or recommendations; therefore, the analysis in this study uses the original number of homes.

The roadways that will provide major access to the proposed site are Oak Road and Chester Road. Access to the site is proposed at the following locations:

- Proposed Access Drive and Oak Road, a proposed three-leg roundabout approximately 270' east of Chester Road
- Two proposed homes with driveways on Chester Road, north of Oak Road

Bayer Becker corresponded with the Village of Glendale to establish the scope of the study. As such, the following key intersections define the study area of this report:

- Proposed Site Access and Oak Road
- Chester Road and Oak Road
- Sharon Road and Chester Road

The analysis years of the study include ***2015 existing conditions, 2016 opening day*** and ***no-build conditions, 2018 full build-out*** and ***no-build conditions***, and ***2038 build*** and ***no-build conditions***.

The site is surrounded by residential and commercial land uses and a church and cemetery.

At this time, there are no known additional developments or improvements planned within the study area that will affect study area intersections.

Based on the analysis contained in this report, no roadway improvements are recommended to accommodate ***2015 existing conditions, 2016 no-build conditions***, ***2016 opening day conditions***, ***2018 no-build conditions***, ***2018 full build-out conditions***, ***2038 no-build conditions***, ***or 2038 build conditions***.

The intersection of Oak Road and Chester Road is currently a five-leg all-way stop intersection which is skewed 50 degrees from perpendicular. To increase safety, it is recommended that Oak Road be realigned to provide a four-leg all-way stop intersection with a maximum skew from perpendicular of 20 degrees.

Based upon engineering judgment and the analysis contained in this report, the proposed Village Gate development will not significantly impact operations on the adjacent roadway network.

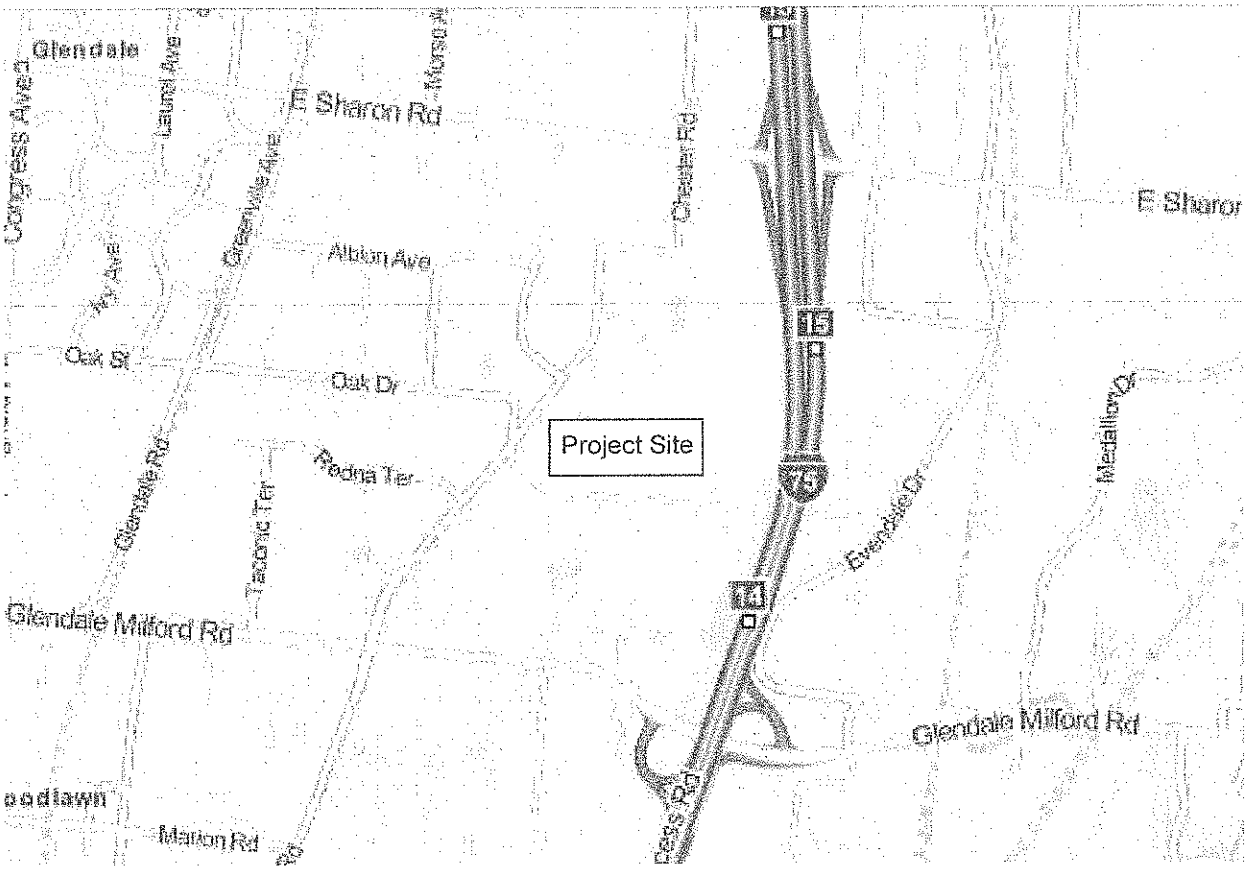
INTRODUCTION

The purpose of this study is to determine the traffic impacts of the proposed Village Gate development, situated on approximately 36.5 acres in the Village of Glendale, Hamilton County, Ohio, and to satisfy the Village of Glendale requirements for traffic impact studies.

This study describes the existing roadway network, identifies peak traffic conditions, forecasts and distributes future traffic volumes, and projects the impact of the proposed development. Conclusions relative to the impact of the increased traffic on the roadway system have been identified, and recommendations for mitigating any possible traffic impacts are provided.

The proposed development is located east of Chester Road and north of Oak Road in the Village of Glendale. A vicinity map is provided in Figure 1.

Figure 1
Vicinity Map



Bayer Becker corresponded with the Village of Glendale to establish the scope of the study. As such, the following key intersections define the study area of this report.

- Proposed Site Access and Oak Road
- Chester Road and Oak Road
- Sharon Road and Chester Road

Also based on discussions with the Village, the analysis years of the study include ***2015 existing conditions, 2016 opening day*** and ***no-build conditions***, ***2018 full build-out*** and ***no-build conditions***, and ***2038 build*** and ***no-build conditions***.

The proposed Village Gate development will consist of the following:

- 93 Single-Family Detached Homes

Approximately half of the development will be constructed and occupied by opening day in 2016. Full build-out is expected in 2018.

The technical material and data contained in this document was prepared by Bayer Becker under the supervision and direction of a Professional Engineer licensed to practice in the State of Ohio, using the following resources in the development of the analysis:

1. Site reconnaissance, traffic counts and field observations by Bayer Becker.
2. Traffic counts performed by Bayer Becker.
3. Concept Plan for full build out provided by The Drees Company.
4. Communications with the Village of Glendale.
5. Communications with the Village of Glendale engineering consultant, TEC Consultants.
6. Institute of Transportation Engineers (ITE), *Traffic Access and Impact Studies and Site Development – A Recommended Practice.*
7. *Highway Capacity Manual, 2010.*
8. Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition.*
9. *Trip Generation Handbook, 3rd Edition, An ITE Proposed Recommended Practice.*
10. The Ohio Department of Transportation (ODOT) *Location and Design (L&D) Manual, Volume One.*
11. Ohio-Kentucky-Indiana Regional Council of Governments (*OKI) 2040 Regional Transportation Plan*, Update to Chapter 3, 2014.

12. Village of Glendale Zoning Code, updated April 7, 2014.
13. Village of Glendale Zoning Map, September, 2007.
14. Highway Capacity Software (HCS 2010).
15. TRAFVU traffic simulation software (Version 6.2)
16. *Ohio Manual of Uniform Traffic Control Devices* (OMUTCD).
17. Hamilton County Thoroughfare Plan Map, September, 2005.
18. Signal timing for the intersection of Sharon Road and Chester Road, provided by CT Consultants.

PROPOSED SITE DEVELOPMENT

The proposed Village Gate development is situated on approximately 36.5 acres in the Village of Glendale, Hamilton County, Ohio. The site is located east of Chester Road and north of Oak Road. The property is currently zoned AA-1, Single Family Residence, and is included in a Planned Development Overlay (PDO).

The proposed development will consist of the following:

- 93 Single-Family Detached Homes

Approximately half of the development will be constructed and occupied by opening day in 2016. Full build-out is expected in 2018.

The concept plan of the proposed Village Gate development is provided in Appendix A.

AREA CONDITIONS

Study Area

The proposed Village Gate development is located east of Chester Road and north of Oak Road. The following intersections define the study area of this report:

- Proposed Site Access and Oak Road
- Chester Road and Oak Road
- Sharon Road and Chester Road

Study Area Land Use

I-75 is located to the east of the proposed development, Chester Road is to the west, and Oak Road is to the south. The site is generally surrounded by residential and commercial land uses, a church and a cemetery.

At this time, there are no other known developments or improvements planned within the study area that will affect study-area intersections.

Site Accessibility

The roadways that will provide major access to the proposed development are Oak Road and Chester Road. Access to the site will be provided at a proposed roundabout on Oak Road, approximately 270' east of Chester Road, and two proposed homes will have driveways on Chester Road.

Oak Road, in the vicinity of the site, is a two-lane roadway with a posted speed limit of 25 mph. According to the Hamilton County Thoroughfare Plan, Oak Road is classified as a collector.

Chester Road, in the vicinity of the site, is a two-lane roadway with a posted speed limit of 25 mph. According to the Hamilton County Thoroughfare Plan, Chester Road is classified as a collector.

Sharon Road is a two-lane roadway with a posted speed limit of 35 mph west of Chester Road and a four-lane roadway with a posted speed limit of 35 mph east of Chester Road. According to the Hamilton County Thoroughfare Plan, Chester Road is classified as a collector.

Existing lane usages and traffic control devices for the key intersections are provided in Figure 2.

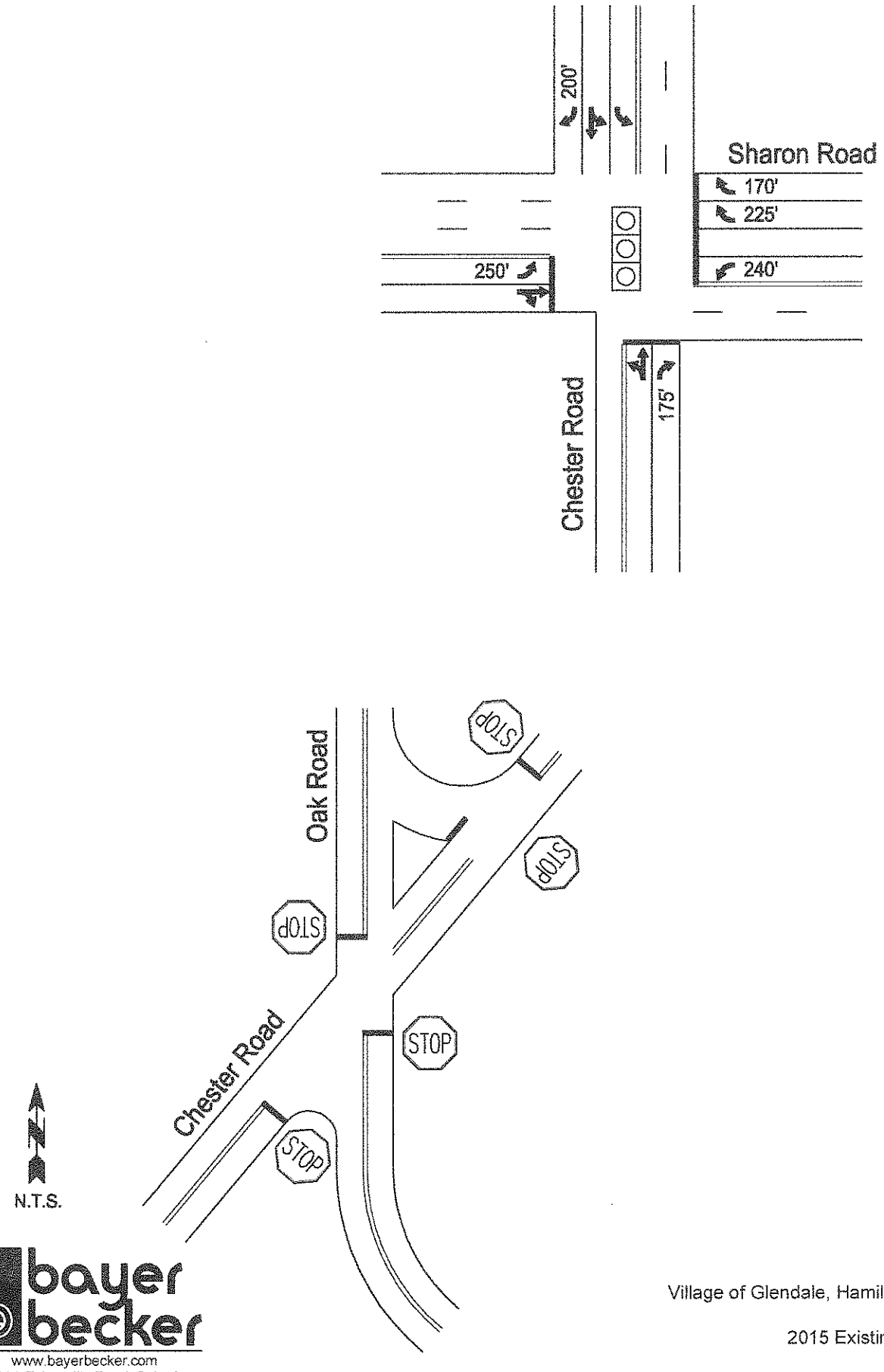


Figure 2

Village Gate
Village of Glendale, Hamilton County, Ohio

2015 Existing Traffic Control

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Bayer Becker performed the following turning movement counts at study area intersections:

- Oak Road and Chester Road, Thursday, February 26, 2015, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM.
- Sharon Road and Chester Road, Wednesday, February 25, 2015, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM.

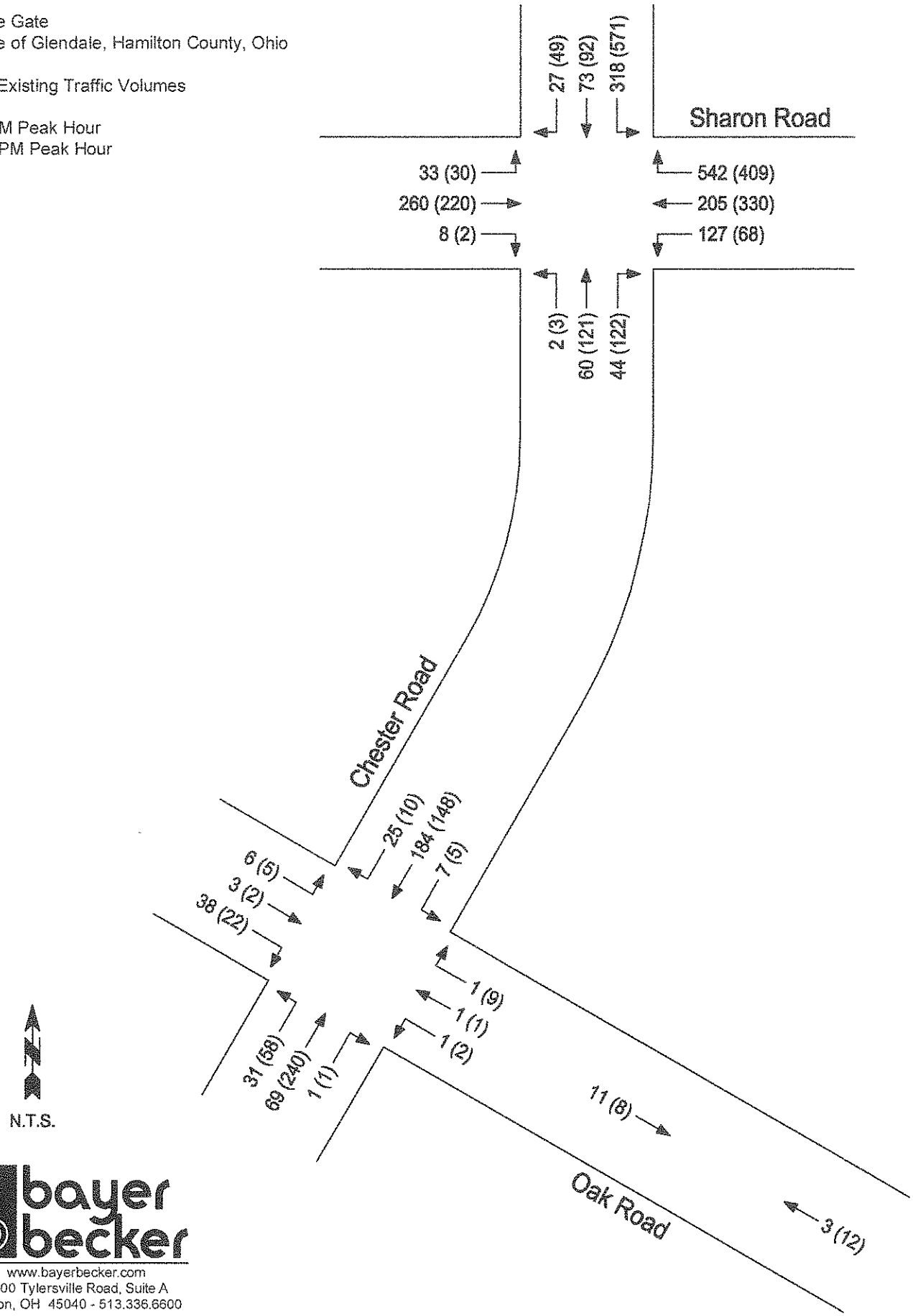
Existing 2015 AM and PM peak-hour volumes are presented in Figure 3, and complete count information is provided in Appendix B.

Figure 3

Village Gate
Village of Glendale, Hamilton County, Ohio

2015 Existing Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour



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PROJECTED TRAFFIC

Site Traffic

The proposed Village Gate development will consist of the following:

- 93 Single-Family Detached Homes

Approximately half of the development will be constructed and occupied by opening day in 2016. Full build-out is expected in 2018.

The procedures outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition* were used to estimate AM and PM trip generation rates for the proposed land use. Trip generation rate information, excerpted from ITE *Trip Generation Manual, 9th Edition,* is provided in Appendix C.

Trip generation summaries for 2016 (opening day) and 2018 (full build-out) for the proposed development are presented below, in Tables 1 and 2, respectively, with calculations provided in Appendix C.

Table 1

Trip Generation – Village Gate (Opening Day, 2016)

Land Use	ITE Code	Size	Unit	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Single-Family Detached Housing	210	46	DU	10	32	42	33	19	52
Total New Trips				10	32	42	33	19	52

Table 2

Trip Generation – Village Gate (Full Build-Out, 2018)

Land Use	ITE Code	Size	Unit	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Single-Family Detached Housing	210	93	DU	19	56	75	62	36	98
Total New Trips				19	56	75	62	36	98

New site trips were distributed throughout the study area based on existing traffic patterns and knowledge of the area. East of the proposed access drive, Oak Road provides access to the Landmark Baptist Church and cemetery with "no outlet;" therefore, no site trips were distributed to or from the east on Oak Road. The development will have a secondary access connection to the

existing cemetery drive to the east; however, it is expected that this access will be gated for emergency use only. New trips generated by the proposed development were distributed at the other study-area intersections based on existing traffic patterns. The proposed site trip distribution was calculated as shown below in Figure 4.

Trips generated by the proposed development in 2016 (opening day) and 2018 (full build-out) are presented below in Figures 5 and 6, respectively.

Figure 4

Village Gate
Village of Glendale, Hamilton County, Ohio

Site Trip Distribution

xx - AM Peak Hour
(xx) - PM Peak Hour

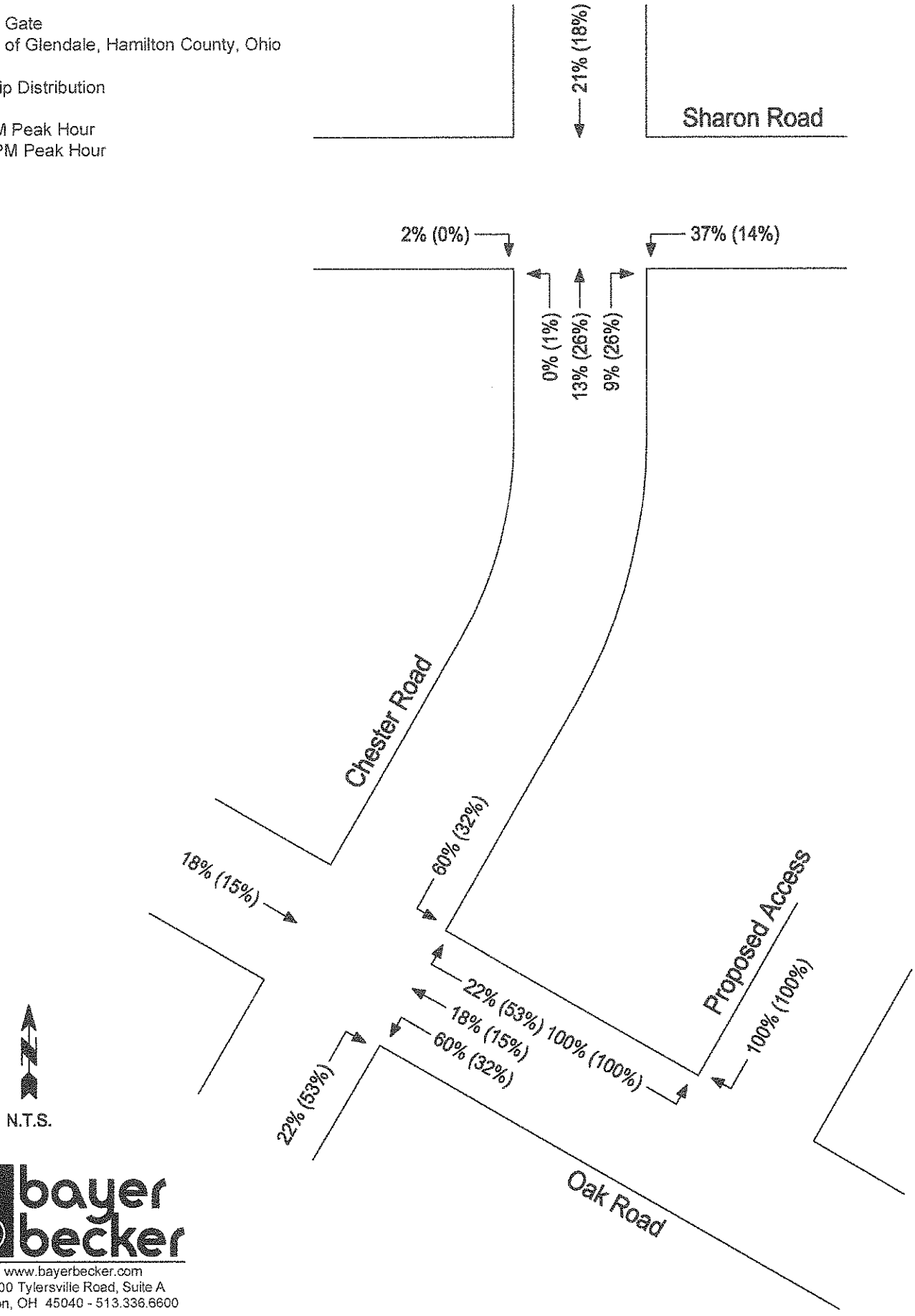

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Figure 5

Village Gate
Village of Glendale, Hamilton County, Ohio

2016 Opening Day Site Trips

xx - AM Peak Hour
(xx) - PM Peak Hour

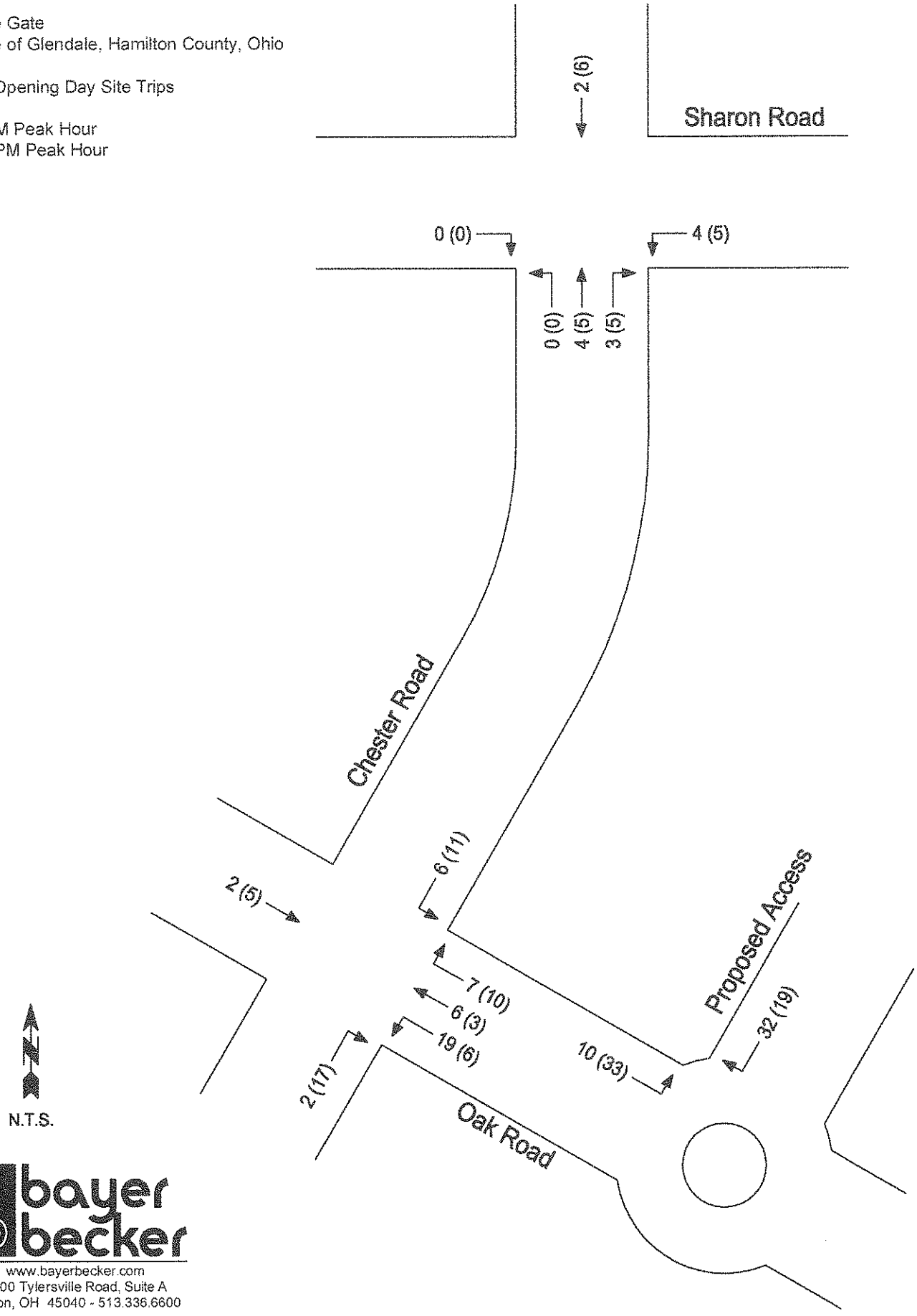

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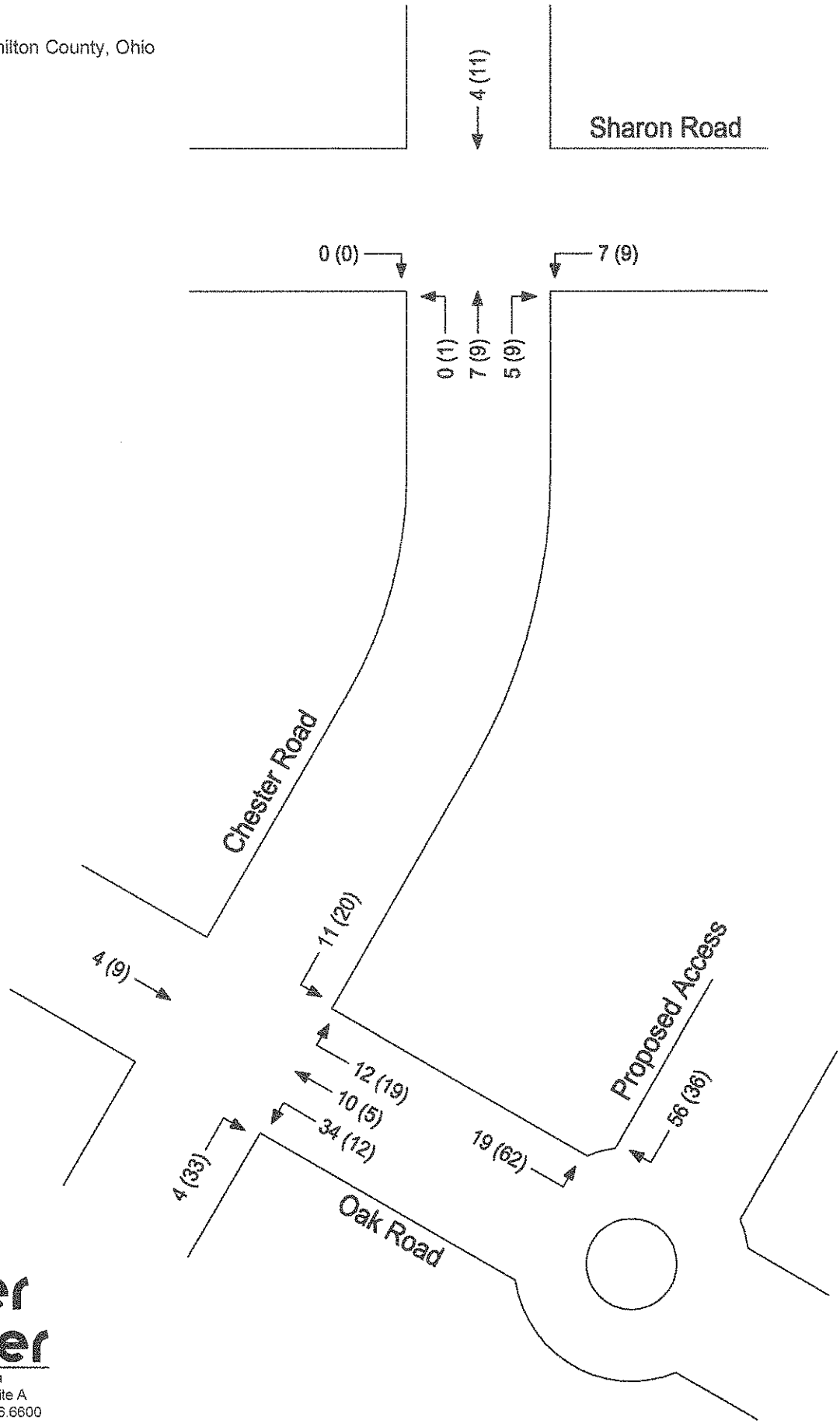
Figure 6

Village Gate
Village of Glendale, Hamilton County, Ohio

Full Build-Out Site Trips

xx - AM Peak Hour
(xx) - PM Peak Hour



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Background Traffic

To assess the future impact of the site traffic on the adjacent roadway network, volumes for 2016, 2018 and 2038 were evaluated. Based on population projections provided by the Ohio, Kentucky and Indiana Regional Council of Governments (OKI) for the Village of Glendale, a growth rate of 0.5%, compounded annually, was applied to the 2015 existing traffic volumes to estimate the 2016, 2018 and 2038 no-build traffic volumes.

The 2016, 2018 and 2038 no-build traffic volumes are presented in Figures 7, 8 and 9, respectively, and growth rate information is provided in Appendix C.

Total Traffic

The 2016 build traffic volumes were obtained by adding the 2016 opening day site traffic volumes from Figure 5 to the 2016 no-build traffic volumes from Figure 7. The 2018 and 2038 build traffic volumes were obtained by adding the Full Build-Out site traffic volumes from Figure 6 to the 2018 and 2038 no-build traffic volumes from Figures 8 and 9, respectively.

The 2016, 2018, and 2038 build traffic volumes are presented in Figures 10, 11, and 12, respectively.

Figure 7
Village Gate
Village of Glendale, Hamilton County, Ohio

2016 No-Build Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour

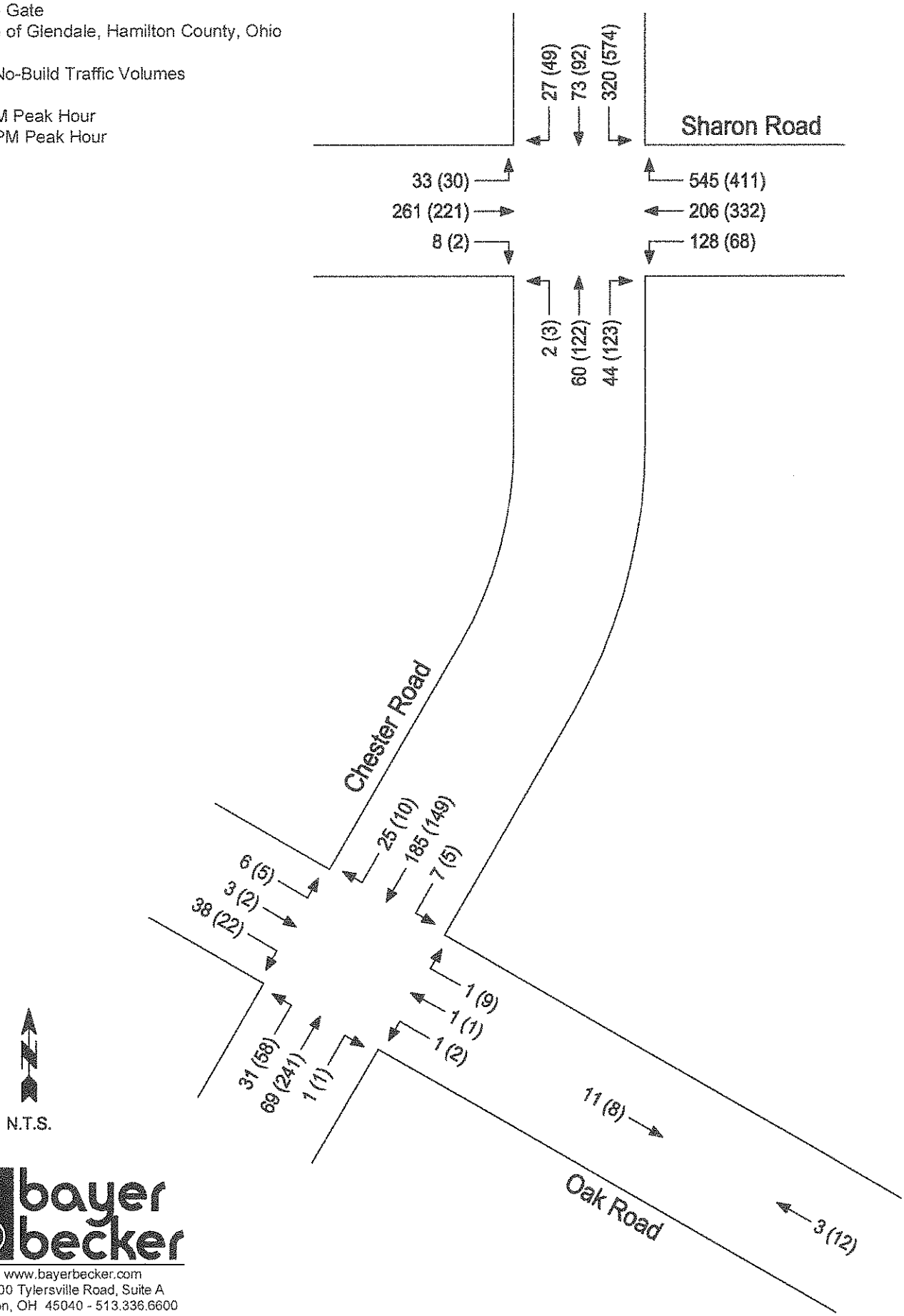

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Figure 8

Village Gate
Village of Glendale, Hamilton County, Ohio

2018 No-Build Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour

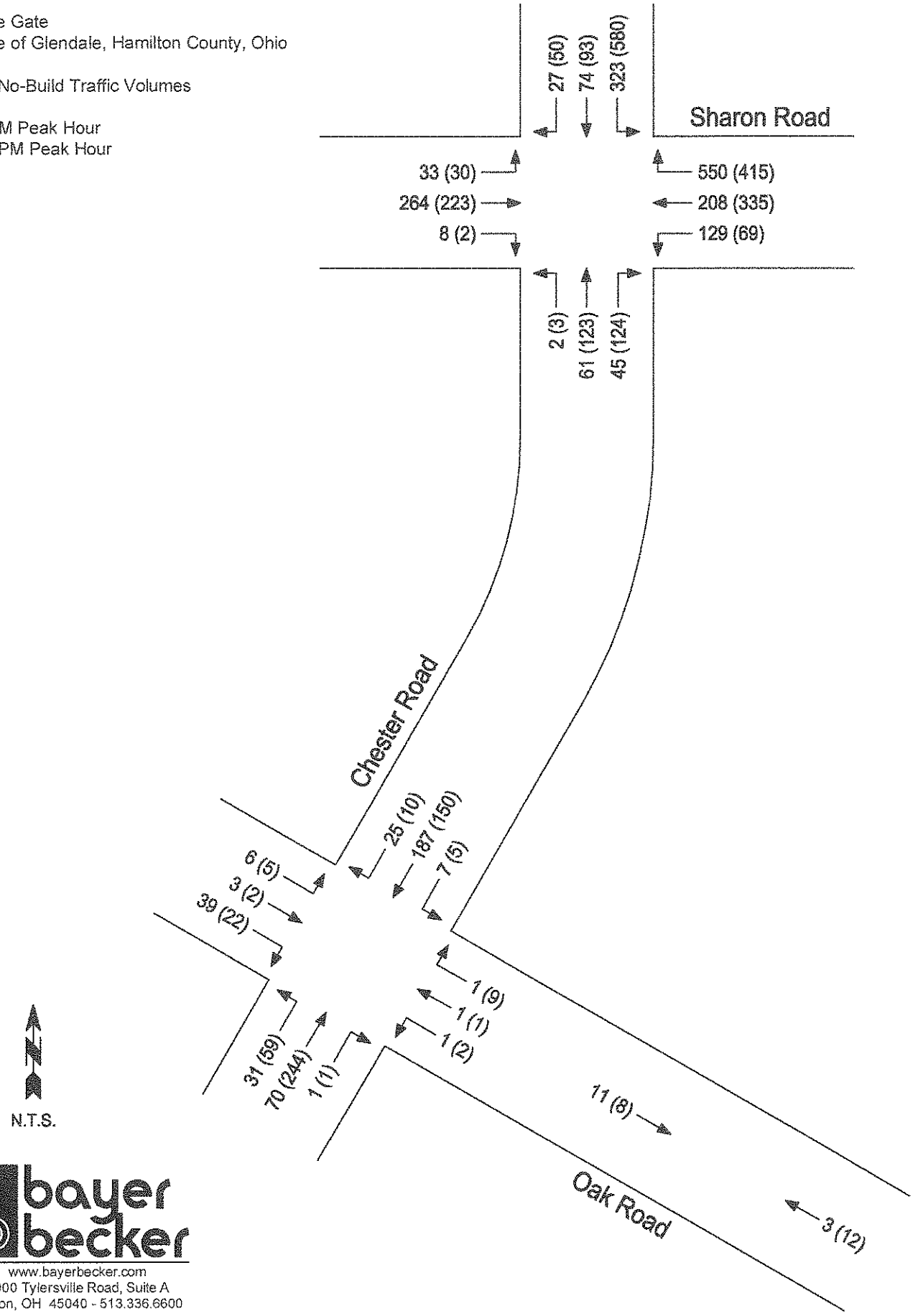

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Figure 9

Village Gate
Village of Glendale, Hamilton County, Ohio

2038 No-Build Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour

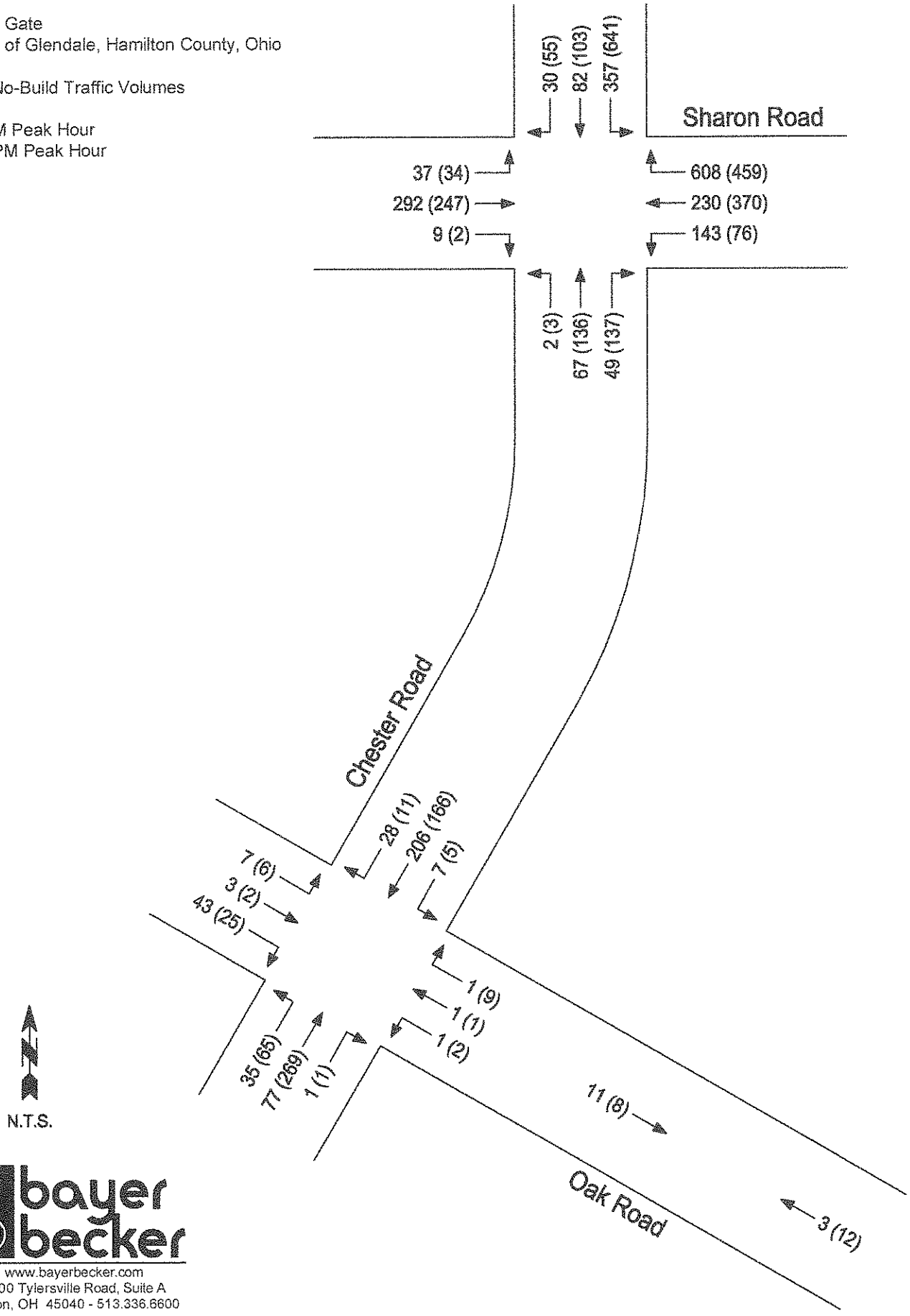

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Figure 10

Village Gate
Village of Glendale, Hamilton County, Ohio

2016 Opening Day Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour

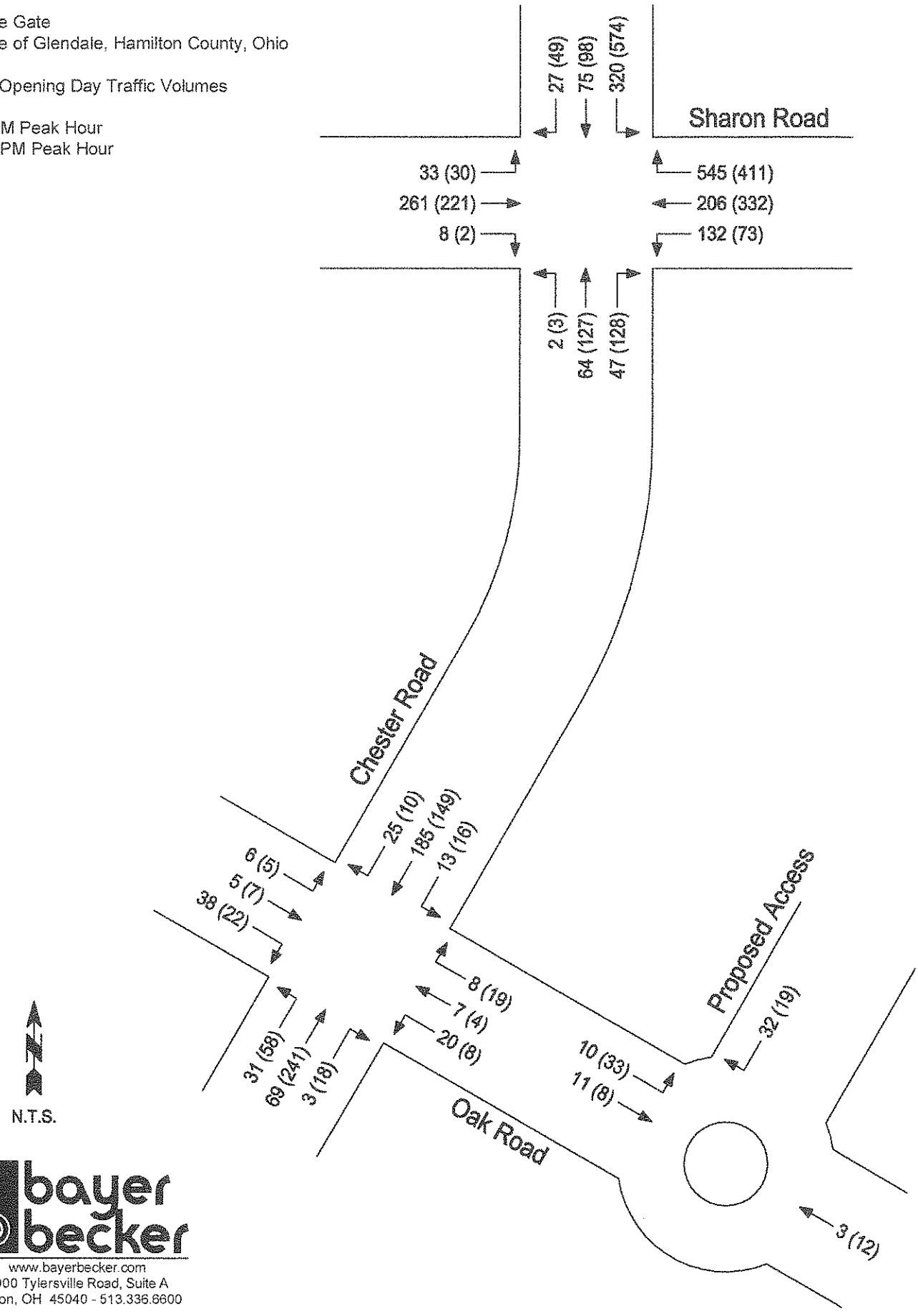

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Figure 11

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2018 Full Build-Out Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour

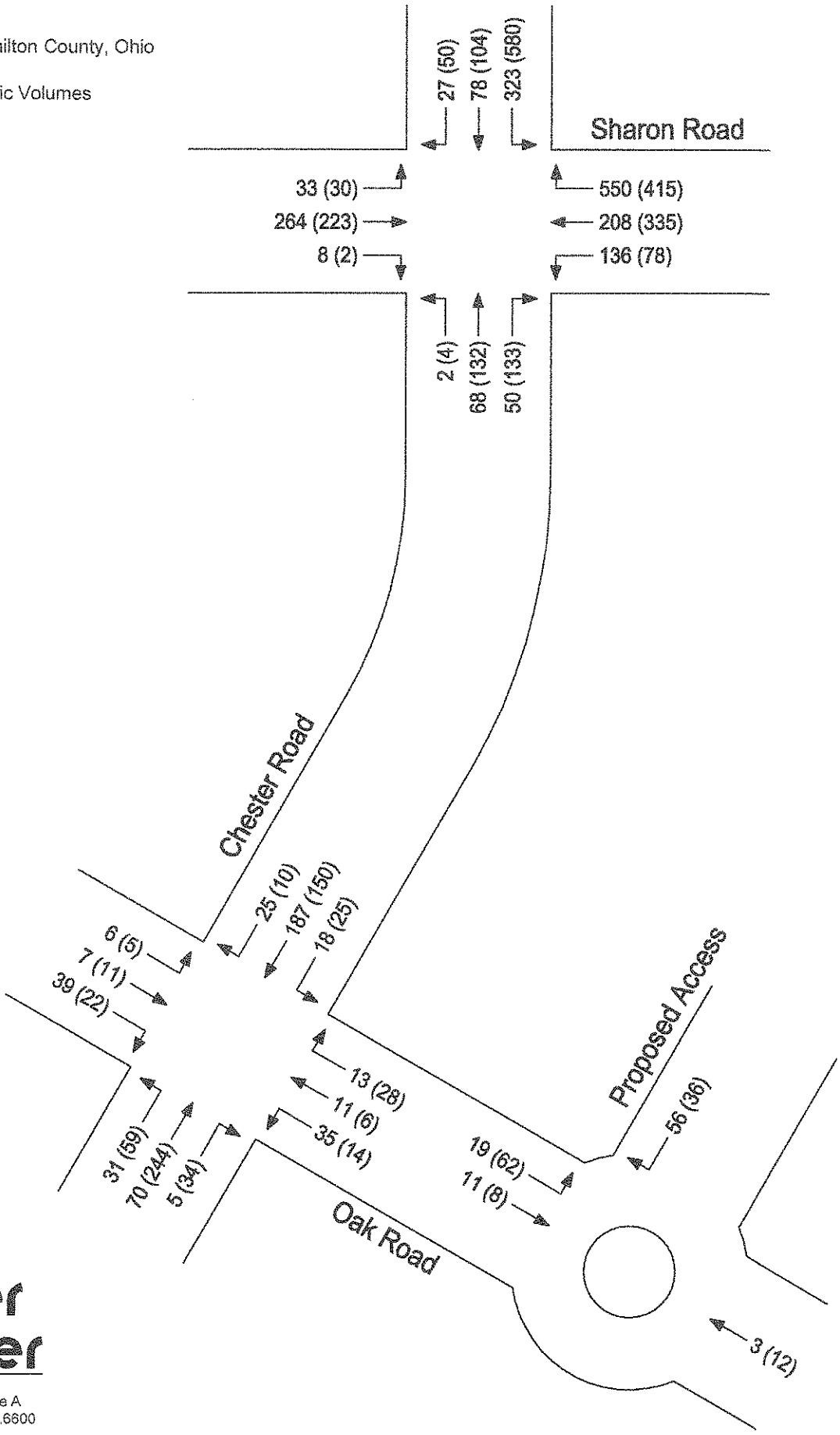

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Figure 12

Village Gate
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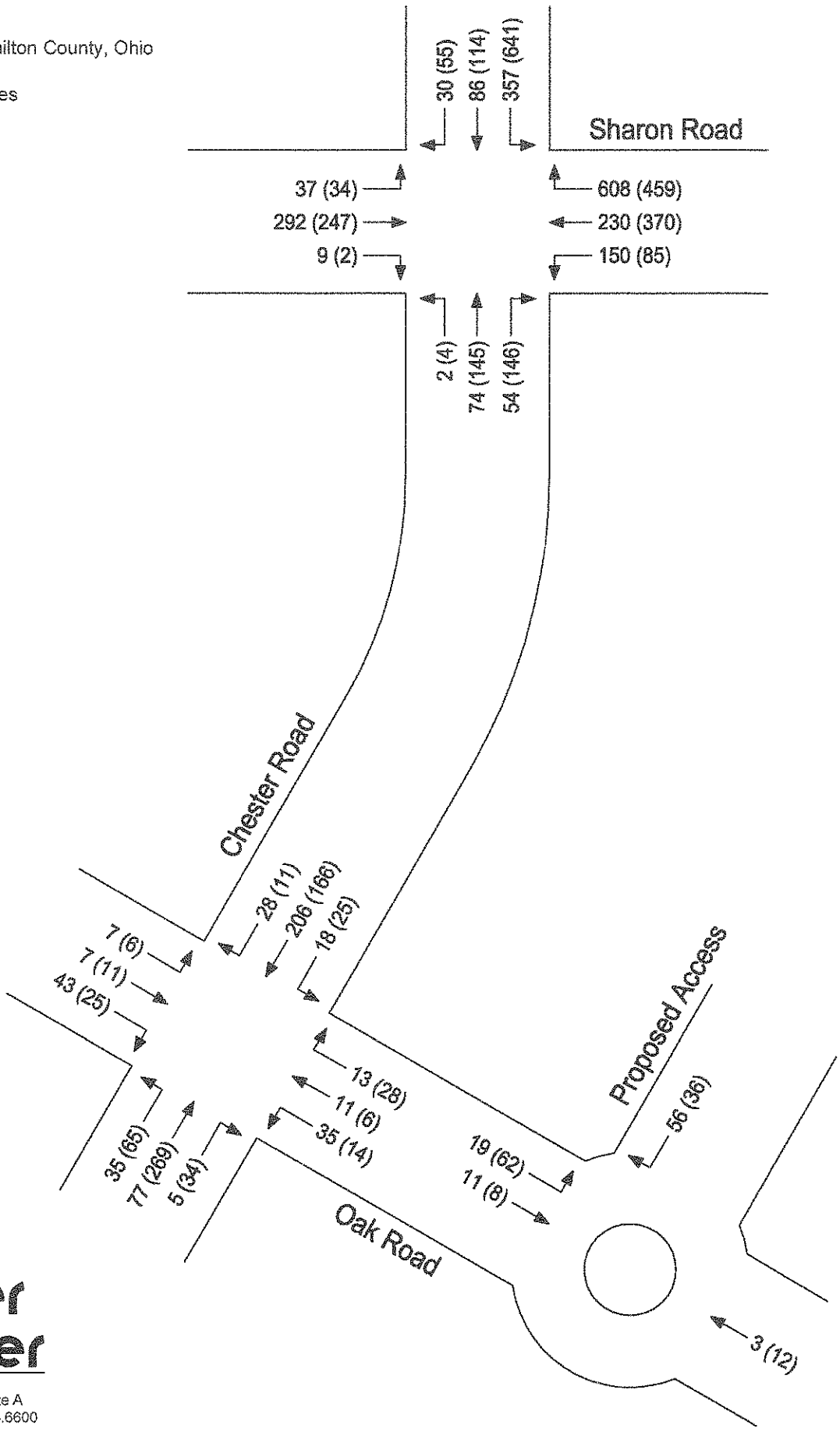
2038 Build Traffic Volumes

xx - AM Peak Hour
(xx) - PM Peak Hour



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TRAFFIC ANALYSIS

Site Access

The roadways that will provide major access to the site are Oak Road and Chester Road. Access to the site will be provided at the Proposed Site Access on a roundabout on Oak Road, approximately 270' east of Chester Road, and two of the proposed homes will have driveways on Chester Road.

Turn Lane Warrant Analysis

The intersection of the Proposed Site Access and Oak Road is proposed as a roundabout. Therefore no turn lane analysis was performed at this intersection.

The need for turn lanes on controlled approaches at key intersections was determined using intersection capacity analysis. Based on the intersection capacity analysis, no new turn lanes are warranted at study area intersections through the ***2038 no-build conditions*** or ***2038 build conditions***.

Queue Analysis

The proposed development will access Oak Road at a proposed roundabout, approximately 270' east of Chester Road. Queues on Oak Road between Chester road and the proposed roundabout were evaluated using TRAFVU traffic simulation software. The simulation indicates that no eastbound queues are expected at the proposed roundabout through ***2038 build conditions***, and the maximum westbound queue at Chester Road is expected to be 50' through ***2038 build conditions***. Therefore, the 270' spacing along Oak Road between Chester Road and the proposed roundabout is adequate for the traffic volumes generated by the proposed development.

Capacity and Level of Service

Level of service (LOS), as defined in the *Highway Capacity Manual 2010* (HCM), is "a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience." LOS is a function of the control delay per vehicle, and it is the standard used to evaluate traffic flow at an intersection.

The criteria used by *HCM* are provided in Table 3, below.

Table 3
Level of Service Criteria for Signalized and Unsignalized Intersections

Signalized Intersections

Level of Service	Delay Range (sec/veh)	Expected Delay
A	<10	Extremely Favorable Progression
B	>10 and < 20	Good Progression
C	>20 and < 35	Fair Progression
D	>35 and < 55	Unfavorable Progression
E	>55 and < 80	Poor Progression
F	>80	Excessive Traffic Delay

Unsignalized Intersections and Roundabouts

Level of Service	Delay Range (sec/veh)	Expected Delay
A	<10	Little or No Delay
B	>10 and < 15	Short Traffic Delay
C	>15 and < 25	Average Traffic Delay
D	>25 and < 35	Long Traffic Delay
E	>35 and < 50	Very long Traffic Delay
F	>50	Excessive Traffic Delay

Capacity analysis of the study-area intersections was performed for ***2015 existing conditions***, ***2016 opening day*** and ***no-build conditions, 2018 full build-out*** and ***no-build conditions*** and ***2038 build*** and ***no-build conditions***. Levels of service and delay for the key intersections are presented in Tables 4 and 5. For the complete capacity analysis, see Appendix D.

The Village of Glendale zoning code requires that collector and arterial roads at all intersections within ¼ mile of the proposed access for a development in a Planned Development Overlay District (PDO) maintain a minimum level of service D. Where a level of service D is not maintained, it must be shown that the proposed development will not reduce the level of service. All study area intersections meet this condition for ***2016 opening day conditions***, ***2018 full build-out conditions*** and ***2038 build conditions***; therefore, no roadway improvements are recommended based on the intersection capacity analysis.

Table 4 AM Levels of Service & Delay (Sec.)		2015		2016				2018				2038				2038 (Realigned Oak Road with no EB left turn lane)			
		Existing		No Build		Build		No Build		Build		No Build		Build		No Build		Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Sharon Road & Chester Road																			
EB	L	D	51.2	D	49.0	D	49.0	D	49.0	D	49.0	D	52.7	D	52.7	-	-	-	-
	TR	C	28.7	C	27.9	C	27.9	C	28.0	C	28.0	C	30.2	C	30.2	-	-	-	-
	Approach	C	31.1	C	30.2	C	30.2	C	30.3	C	30.3	C	32.6	C	32.6	-	-	-	-
WB	L	C	34.8	C	33.2	C	33.4	C	33.4	C	33.7	D	36.8	D	37.2	-	-	-	-
	T	C	26.0	C	25.6	C	25.6	C	25.6	C	25.6	C	27.1	C	27.1	-	-	-	-
	R	A	8.9	A	8.7	A	8.7	A	8.7	A	8.7	A	9.0	A	9.5	-	-	-	-
	Approach	B	16.7	B	16.2	B	16.3	B	16.3	B	16.4	B	17.3	B	17.8	-	-	-	-
NB	LT	D	49.9	D	47.7	D	49.4	D	48.1	D	51.4	D	50.9	D	48.2	-	-	-	-
	R	A	9.6	A	9.5	A	9.6	A	9.5	A	9.6	A	9.2	A	9.2	-	-	-	-
	Approach	C	33.2	C	31.9	C	32.8	C	32.0	C	34.0	C	33.6	C	32.0	-	-	-	-
SB	L	D	35.1	C	33.3	C	33.3	C	33.5	C	33.5	C	34.5	D	36.3	-	-	-	-
	T	C	26.2	C	26.1	C	26.2	C	26.1	C	26.2	C	25.5	C	26.3	-	-	-	-
	R	C	22.7	C	22.7	C	22.7	C	22.7	C	22.7	C	22.1	C	22.7	-	-	-	-
	Approach	C	32.8	C	31.4	C	31.3	C	31.5	C	31.5	C	32.1	C	33.7	-	-	-	-
Intersection		C	24.2	C	23.4	C	23.5	C	23.5	C	23.8	C	24.7	C	25.2	-	-	-	-
Chester Road & Oak Road																			
EB	L	A	8.82	A	8.51	A	8.58	A	8.52	A	8.66	A	8.61	A	8.76	-	-	-	-
	TR/LTR	A	8.00	A	7.57	A	7.70	A	7.58	A	7.81	A	7.70	A	7.95	A	7.57	A	7.81
	Approach	A	8.10	A	7.68	A	7.80	A	7.69	A	7.91	A	7.81	A	8.05	A	7.57	A	7.81
WB	LTR	A	8.05	A	7.70	A	8.09	A	7.72	A	8.35	A	7.81	A	8.47	A	7.68	A	8.32
	Approach	A	8.05	A	7.70	A	8.09	A	7.72	A	8.35	A	7.81	A	8.47	A	7.68	A	8.32
NB	LTR	A	8.59	A	7.95	A	8.10	A	7.97	A	8.23	A	8.11	A	8.41	A	8.10	A	8.39
	Approach	A	8.59	A	7.95	A	8.10	A	7.97	A	8.23	A	8.11	A	8.41	A	8.10	A	8.39
SB	LTR	A	9.43	A	8.55	A	8.81	A	8.58	A	9.05	A	8.84	A	9.37	A	8.81	A	9.34
	Approach	A	9.43	A	8.55	A	8.81	A	8.58	A	9.05	A	8.84	A	9.37	A	8.81	A	9.34
Intersection		A	8.99	A	8.27	A	8.45	A	8.29	A	8.64	A	8.50	A	8.88	A	8.45	A	8.81
Proposed Site Access & Oak Road																			
EB	R	-	-	-	-	A	3.39	-	-	A	3.46	-	-	A	3.46	-	-	-	-
WB	R	-	-	-	-	A	3.27	-	-	A	3.31	-	-	A	3.31	-	-	-	-
SB	R	-	-	-	-	A	3.49	-	-	A	3.68	-	-	A	3.68	-	-	-	-
Intersection		-	-	-	-	A	3.44	-	-	A	3.23	-	-	A	3.23	-	-	-	-

Table 5 PM Levels of Service & Delay (Sec.)		2015		2016				2018				2038				2038 (Realigned Oak Road with no EB left turn lane)			
		Existing		No Build		Build		No Build		Build		No Build		Build		No Build		Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Sharon Road & Chester Road																			
EB	L	D	54.3	D	54.1	D	54.1	D	54.1	D	54.1	E	69.9	E	69.9	-	-	-	-
	TR	D	41.3	D	42.7	D	42.7	D	41.4	D	41.4	D	47.2	D	47.2	-	-	-	-
	Approach	D	42.9	D	44.1	D	44.1	D	42.9	D	42.9	D	49.9	D	49.9	-	-	-	-
WB	L	D	43.4	D	44.3	D	44.6	D	43.4	D	43.9	D	50.2	D	50.7	-	-	-	-
	T	D	51.7	D	54.8	D	54.8	D	51.9	D	51.9	E	65.6	E	65.6	-	-	-	-
	R	A	9.4	A	9.4	A	9.9	A	9.9	A	9.9	A	8.9	A	9.3	-	-	-	-
	Approach	C	29.6	C	30.9	C	31.3	C	29.9	C	30.1	D	35.5	D	35.9	-	-	-	-
NB	LT	D	54.9	D	54.8	D	51.9	D	50.9	D	53.7	E	77.0	E	73.2	-	-	-	-
	R	A	8.9	A	8.5	A	8.0	A	7.8	A	9.0	B	16.3	B	15.9	-	-	-	-
	Approach	C	32.1	C	31.8	C	30.1	C	29.5	C	31.6	D	46.9	D	44.9	-	-	-	-
SB	L	D	46.5	D	42.3	D	45.8	D	51.7	D	51.7	D	48.8	D	52.9	-	-	-	-
	T	C	22.0	C	21.4	C	22.1	C	22.7	C	22.8	C	21.5	C	22.3	-	-	-	-
	R	B	19.1	B	18.5	B	19.1	B	19.7	B	19.7	B	18.7	B	19.3	-	-	-	-
	Approach	D	41.5	D	38.0	D	40.7	D	45.7	D	45.4	D	43.2	D	46.4	-	-	-	-
Intersection		D	35.7	D	35.2	D	36.0	D	37.1	D	37.2	D	41.4	D	42.5	-	-	-	-
Chester Road & Oak Road																			
EB	L	A	9.13	A	8.87	A	8.98	A	8.89	A	9.11	A	9.02	A	9.26	-	-	-	-
	TR/LTR	A	8.18	A	7.84	A	8.12	A	7.86	A	8.36	A	8.01	A	8.51	A	7.94	A	8.36
	Approach	A	8.33	A	8.01	A	8.24	A	8.03	A	8.45	A	8.18	A	8.61	A	7.94	A	8.36
WB	LTR	A	8.05	A	7.81	A	8.15	A	7.83	A	8.45	A	7.96	A	8.61	A	7.84	A	8.46
	Approach	A	8.05	A	7.81	A	8.15	A	7.83	A	8.45	A	7.96	A	8.61	A	7.84	A	8.46
NB	LTR	B	11.06	A	9.81	B	10.20	A	9.88	B	10.71	B	10.45	B	11.47	B	10.42	B	11.43
	Approach	B	11.06	A	9.81	B	10.20	A	9.88	B	10.71	B	10.45	B	11.47	B	10.42	B	11.43
SB	LTR	A	8.89	A	8.45	A	8.74	A	8.48	A	9.05	A	8.72	A	9.35	A	8.70	A	9.33
	Approach	A	8.89	A	8.45	A	8.74	A	8.48	A	9.05	A	8.72	A	9.35	A	8.70	A	9.33
Intersection		B	10.14	A	9.22	A	9.52	A	9.28	A	9.89	A	9.71	B	10.44	A	9.67	B	10.38
Proposed Site Access & Oak Road																			
EB	R	-	-	-	-	A	3.55	-	-	A	3.79	-	-	A	3.79	-	-	-	-
WB	R	-	-	-	-	A	3.44	-	-	A	3.55	-	-	A	3.55	-	-	-	-
SB	R	-	-	-	-	A	3.42	-	-	A	3.56	-	-	A	3.56	-	-	-	-
Intersection		-	-	-	-	A	3.50	-	-	A	3.23	-	-	A	3.23	-	-	-	-

Proposed Site Access and Oak Road

With full build-out of the proposed development, all movements at this proposed roundabout are expected to operate at level of service A through ***2038 build conditions***.

Chester Road and Oak Road

All movements currently operate at level of service B or better. With full build-out of the proposed development, all movements are expected to continue to operate at level of service B or better through ***2038 build conditions***.

To facilitate movement through the existing skewed intersection, the eastbound left turn movement is separated from the shared through-right lane. As part of this development, Oak Road is expected to be realigned to reduce the skew and make this separation unnecessary. All movements at the realigned intersection are expected to operate at level of service B or better through ***2038 build conditions***.

Sharon Road and Chester Road

All movements currently operate at level of service D or better during the AM and PM peak hours and will continue a similar level of service through ***2018 full build-out conditions***. By 2038 some movements at this intersection could experience delays of about one minute (level of service E) during the PM peak hour, with or without the proposed development.

Traffic Safety

No traffic safety issues were observed at study-area intersections during Bayer Becker site visits in February, 2015. Despite the skew and complexity of the all-way stop intersection of Chester Road and Oak Road, the intersection operates safely during the AM and PM peak hours.

Site Access and Parking Needs

Access to the site will be provided at the Proposed Site Access on a proposed roundabout on Oak Road, approximately 270' east of Chester Road. The site circulation and parking provided in the Village Gate development is adequate for the proposed land uses.

IMPROVEMENT ANALYSIS

Status of Improvements Previously Recommended

At this time, there are no other known developments or improvements planned within the study area that will affect study-area intersections.

Improvements to Accommodate Base Traffic

Based on the analysis contained in this report, no roadway improvements are recommended to accommodate ***2015 existing conditions***, ***2016 no-build conditions***, ***2018 no-build conditions*** or ***2038 no-build conditions***.

Additional Improvements to Accommodate Site Traffic

Based on the analysis contained in this report, no roadway improvements are recommended to accommodate ***2016 opening day conditions***, ***2018 full build-out conditions*** or ***2038 build conditions.***

The intersection of Oak Road and Chester Road is currently a five-leg all-way stop intersection which is skewed 50 degrees from perpendicular. To increase safety, it is recommended that Oak Road be realigned to provide a four-leg all-way stop intersection with a maximum skew from perpendicular of 20 degrees.

FINDINGS

Site Accessibility

The roadways that will provide major access to the site are Oak Road and Chester Road.

Traffic Impacts

The proposed Village Gate development will consist of the following:

- 93 Single-Family Detached Homes

Approximately half of the development will be constructed and occupied by opening day in 2016. Full build-out is expected in 2018.

The following intersections were analyzed to determine the levels of service for ***full build-out conditions***:

- Proposed Site Access and Oak Road
- Chester Road and Oak Road
- Sharon Road and Chester Road

Need for Improvements

Based on the analysis contained in this report, no roadway improvements are recommended to accommodate ***2015 existing conditions***, ***2016 opening day conditions***, ***2016 no-build conditions***, ***2018 full build-out conditions***, ***2018 no-build conditions***, ***2038 build conditions*** or ***2038 no-build conditions***.

The intersection of Oak Road and Chester Road is currently a five-leg all-way stop intersection which is skewed 50 degrees from perpendicular. To increase safety, it is recommended that Oak Road be realigned to provide a four-leg all-way stop intersection with a maximum skew from perpendicular of 20 degrees.

Compliance with Applicable Codes

Based upon engineering judgment and the analysis contained in this report, the proposed Village Gate development will not significantly impact operations on the adjacent roadway network.

RECOMMENDATIONS

Site Access

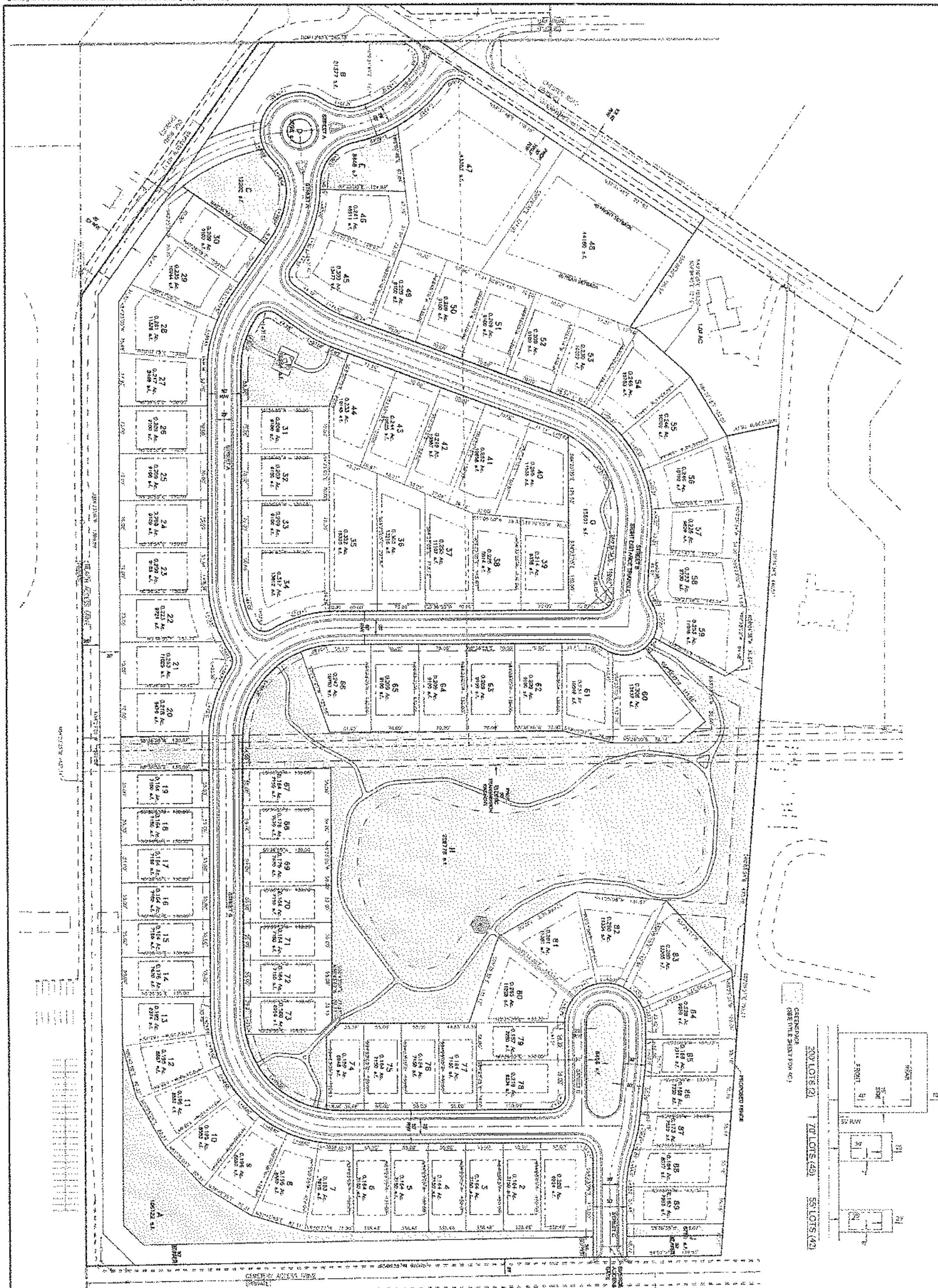
The roadways that provide major access to the site are Oak Road and Chester Road.

Roadway Improvements

Based on the analysis contained in this report, no roadway improvements are recommended to accommodate ***2015 existing conditions***, ***2016 opening day conditions***, ***2016 no-build conditions***, ***2018 full build-out conditions***, ***2018 no-build conditions***, ***2038 build conditions*** or ***2038 no-build conditions***.

The intersection of Oak Road and Chester Road is currently a five-leg all-way stop intersection which is skewed 50 degrees from perpendicular. To increase safety, it is recommended that Oak Road be realigned to provide a four-leg all-way stop intersection with a maximum skew from perpendicular of 20 degrees.

APPENDIX A
CONCEPT PLAN



VILLAGE GATE

PRELIMINARY DEVELOPMENT PLAN

SECTION 35, TOWN 4, E. RANGE 1
VILLAGE OF GLENDALE
HAMILTON COUNTY, OHIO

LOT LAYOUT

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

3

APPENDIX B
TRAFFIC COUNTS

Bayer Becker

6900 Tylersville Road
Mason, Ohio 45040

Chester Road & Oak Road
Thu 2/26/15

File Name : Not Named 2
Site Code : 00000000
Start Date : 2/26/2015
Page No : 1

Groups Printed- Unshifted

	CHESTER From North					OAK From East					CHESTER From South					OAK From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	48	2	0	53	0	0	0	0	0	0	19	0	0	19	7	2	1	0	10	82
07:15 AM	3	44	2	0	49	1	0	0	0	1	1	10	3	0	14	6	0	1	0	7	71
07:30 AM	7	30	2	0	39	0	1	1	0	2	0	12	14	0	26	12	1	0	0	13	80
07:45 AM	12	62	1	0	75	0	0	0	0	0	0	28	14	0	42	13	0	4	0	17	134
Total	25	184	7	0	216	1	1	1	0	3	1	69	31	0	101	38	3	6	0	47	367
08:00 AM	4	54	2	0	60	0	0	0	0	0	0	15	8	0	23	16	0	3	0	19	102
08:15 AM	2	36	1	0	39	2	1	0	0	3	1	15	4	0	20	8	1	2	0	11	73
08:30 AM	3	19	1	0	23	0	1	1	0	2	0	13	2	0	15	5	1	0	0	6	46
08:45 AM	2	28	3	0	33	1	2	0	0	3	1	18	3	0	22	7	0	2	0	9	67
Total	11	137	7	0	155	3	4	1	0	8	2	61	17	0	80	36	2	7	0	45	288
Grand Total	36	321	14	0	371	4	5	2	0	11	3	130	48	0	181	74	5	13	0	92	655
Apprch %	9.7	86.5	3.8	0		36.4	45.5	18.2	0		1.7	71.8	26.5	0		80.4	5.4	14.1	0		
Total %	5.5	49	2.1	0	56.6	0.6	0.8	0.3	0	1.7	0.5	19.8	7.3	0	27.6	11.3	0.8	2	0	14	

	CHESTER From North					OAK From East					CHESTER From South					OAK From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	3	48	2	0	53	0	0	0	0	0	0	19	0	0	19	7	2	1	0	10	82
07:15 AM	3	44	2	0	49	1	0	0	0	1	1	10	3	0	14	6	0	1	0	7	71
07:30 AM	7	30	2	0	39	0	1	1	0	2	0	12	14	0	26	12	1	0	0	13	80
07:45 AM	12	62	1	0	75	0	0	0	0	0	0	28	14	0	42	13	0	4	0	17	134
Total Volume	25	184	7	0	216	1	1	1	0	3	1	69	31	0	101	38	3	6	0	47	367
% App. Total	11.6	85.2	3.2	0		33.3	33.3	33.3	0		1	68.3	30.7	0		80.9	6.4	12.8	0		
PHF	.521	.742	.875	.000	.720	.250	.250	.250	.000	.375	.250	.616	.554	.000	.601	.731	.375	.375	.000	.691	.685

Bayer Becker

6900 Tylersville Road
Mason, Ohio 45040

Chester Road & Oak Road
Thu 2/26/15

File Name : Not Named 3
Site Code : 00000000
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Page No : 1

Groups Printed- Unshifted

	CHESTER From North					OAK From East					CHESTER From South					OAK From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	4	20	0	0	24	2	0	2	0	4	1	45	6	0	52	4	0	1	0	5	85
04:15 PM	2	27	0	0	29	1	2	0	0	3	0	43	11	0	54	4	1	1	0	6	92
04:30 PM	2	20	1	0	23	1	0	1	0	2	0	72	20	0	92	4	0	2	0	6	123
04:45 PM	4	26	1	0	31	0	1	0	0	1	0	57	9	0	66	2	0	1	0	3	101
Total	12	93	2	0	107	4	3	3	0	10	1	217	46	0	264	14	1	5	0	20	401
05:00 PM	3	30	2	0	35	3	0	1	0	4	0	83	15	0	98	5	1	1	0	7	144
05:15 PM	2	48	1	0	51	3	0	1	0	4	1	55	19	0	75	8	0	0	0	8	138
05:30 PM	1	44	1	0	46	3	0	0	0	3	0	45	15	0	60	7	1	3	0	11	120
05:45 PM	2	28	3	0	33	2	5	0	0	7	0	50	8	0	58	2	3	1	0	6	104
Total	8	150	7	0	165	11	5	2	0	18	1	233	57	0	291	22	5	5	0	32	506
Grand Total	20	243	9	0	272	15	8	5	0	28	2	450	103	0	555	36	6	10	0	52	907
Apprch %	7.4	89.3	3.3	0		53.6	28.6	17.9	0		0.4	81.1	18.6	0		69.2	11.5	19.2	0		
Total %	2.2	26.8	1	0	30	1.7	0.9	0.6	0	3.1	0.2	49.6	11.4	0	61.2	4	0.7	1.1	0	5.7	

	CHESTER From North					OAK From East					CHESTER From South					OAK From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	4	26	1	0	31	0	1	0	0	1	0	57	9	0	66	2	0	1	0	3	101
05:00 PM	3	30	2	0	35	3	0	1	0	4	0	83	15	0	98	5	1	1	0	7	144
05:15 PM	2	48	1	0	51	3	0	1	0	4	1	55	19	0	75	8	0	0	0	8	138
05:30 PM	1	44	1	0	46	3	0	0	0	3	0	45	15	0	60	7	1	3	0	11	120
Total Volume	10	148	5	0	163	9	1	2	0	12	1	240	58	0	299	22	2	5	0	29	503
% App. Total	6.1	90.8	3.1	0		75	8.3	16.7	0		0.3	80.3	19.4	0		75.9	6.9	17.2	0		
PHF	.625	.771	.625	.000	.799	.750	.250	.500	.000	.750	.250	.723	.763	.000	.763	.688	.500	.417	.000	.659	.873

Bayer Becker

6900 Tylersville Road
Mason, Ohio 45040

Sharon Road & Chester Road
Wed 2/25/15

File Name : 14M095-000 Sharon & Chester AM 150225
Site Code : 00000000
Start Date : 2/25/2015
Page No : 1

Groups Printed- Unshifted

	CHESTER RD From North					SHARON RD From East					CHESTER RD From South					SHARON RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	12	20	110	0	142	169	51	22	0	242	7	14	1	0	22	4	48	13	0	65	471
07:15 AM	6	22	84	0	112	118	37	28	0	183	10	10	0	0	20	1	44	4	0	49	364
07:30 AM	5	14	44	0	63	109	50	32	0	191	13	9	0	0	22	0	82	7	0	89	365
07:45 AM	4	17	80	0	101	146	67	45	0	258	14	27	1	0	42	3	86	9	0	98	499
Total	27	73	318	0	418	542	205	127	0	874	44	60	2	0	106	8	260	33	0	301	1699
08:00 AM	4	13	77	0	94	123	61	36	0	220	15	13	0	0	28	1	55	3	0	59	401
08:15 AM	2	10	42	0	54	104	65	28	0	197	10	12	0	0	22	1	48	5	0	54	327
08:30 AM	2	11	55	0	68	98	64	27	0	189	6	3	1	0	10	0	28	6	0	34	301
08:45 AM	5	11	45	0	61	120	66	29	0	215	8	15	2	0	25	0	28	5	0	33	334
Total	13	45	219	0	277	445	256	120	0	821	39	43	3	0	85	2	159	19	0	180	1363
Grand Total	40	118	537	0	695	987	461	247	0	1695	83	103	5	0	191	10	419	52	0	481	3062
Apprch %	5.8	17	77.3	0		58.2	27.2	14.6	0		43.5	53.9	2.6	0		2.1	87.1	10.8	0		
Total %	1.3	3.9	17.5	0	22.7	32.2	15.1	8.1	0	55.4	2.7	3.4	0.2	0	6.2	0.3	13.7	1.7	0	15.7	

	CHESTER RD From North					SHARON RD From East					CHESTER RD From South					SHARON RD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**12**	20	**110**	0	**142**	**169**	51	22	0	242	7	14	1	0	22	4	48	**13**	0	65	471
07:15 AM	6	**22**	84	0	112	118	37	28	0	183	10	10	0	0	20	1	44	4	0	49	364
07:30 AM	5	14	44	0	63	109	50	32	0	191	13	9	0	0	22	0	82	7	0	89	365
07:45 AM	4	17	80	0	101	146	**67**	**45**	0	**258**	**14**	**27**	1	0	**42**	3	**86**	9	0	**98**	**499**
Total Volume	27	73	318	0	418	542	205	127	0	874	44	60	2	0	106	8	260	33	0	301	1699
% App. Total	6.5	17.5	76.1	0		62	23.5	14.5	0		41.5	56.6	1.9	0		2.7	86.4	11	0		
PHF	.563	.830	.723	.000	.736	.802	.765	.706	.000	.847	.786	.556	.500	.000	.631	.500	.756	.635	.000	.768	.851

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6900 Tylersville Road
Mason, Ohio 45040

Sharon Road & Chester Road
Wed 2/25/15

File Name : Not Named 3
Site Code : 00000000
Start Date : 2/25/2015
Page No : 1

Groups Printed- Unshifted

	CHESTER From North					SHARON From East					CHESTER From South					SHARON From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	7	21	125	0	153	115	61	14	0	190	16	17	1	0	34	1	60	7	0	68	445
04:15 PM	10	17	144	0	171	101	50	15	0	166	16	19	0	0	35	5	58	9	0	72	444
04:30 PM	7	20	118	0	145	97	55	8	0	160	48	22	1	0	71	0	60	5	0	65	441
04:45 PM	10	20	145	0	175	95	77	21	0	193	25	23	2	0	50	1	51	8	0	60	478
Total	34	78	532	0	644	408	243	58	0	709	105	81	4	0	190	7	229	29	0	265	1808
05:00 PM	12	31	162	0	205	99	79	17	0	195	43	38	0	0	81	0	69	7	0	76	557
05:15 PM	11	22	134	0	167	114	91	15	0	220	27	28	0	0	55	1	62	6	0	69	511
05:30 PM	16	19	130	0	165	101	83	15	0	199	27	32	1	0	60	0	38	9	0	47	471
05:45 PM	13	22	94	0	129	125	64	22	0	211	30	30	0	0	60	1	64	8	0	73	473
Total	52	94	520	0	666	439	317	69	0	825	127	128	1	0	256	2	233	30	0	265	2012
Grand Total	86	172	1052	0	1310	847	560	127	0	1534	232	209	5	0	446	9	462	59	0	530	3820
Apprch %	6.6	13.1	80.3	0		55.2	36.5	8.3	0		52	46.9	1.1	0		1.7	87.2	11.1	0		
Total %	2.3	4.5	27.5	0	34.3	22.2	14.7	3.3	0	40.2	6.1	5.5	0.1	0	11.7	0.2	12.1	1.5	0	13.9	

	CHESTER From North					SHARON From East					CHESTER From South					SHARON From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	10	20	145	0	175	95	77	**21**	0	193	25	23	**2**	0	50	1	51	8	0	60	478
05:00 PM	12	**31**	**162**	0	**205**	99	79	17	0	195	**43**	**38**	0	0	**81**	0	**69**	7	0	**76**	**557**
05:15 PM	11	22	134	0	167	**114**	**91**	15	0	**220**	27	28	0	0	55	1	62	6	0	69	511
05:30 PM	**16**	19	130	0	165	101	83	15	0	199	27	32	1	0	60	0	38	**9**	0	47	471
Total Volume	49	92	571	0	712	409	330	68	0	807	122	121	3	0	246	2	220	30	0	252	2017
% App. Total	6.9	12.9	80.2	0		50.7	40.9	8.4	0		49.6	49.2	1.2	0		0.8	87.3	11.9	0		
PHF	.766	.742	.881	.000	.868	.897	.907	.810	.000	.917	.709	.796	.375	.000	.759	.500	.797	.833	.000	.829	.905

APPENDIX C
TRIP GENERATION

Land Use: 210
Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

The peak hour of the generator typically coincided with the peak hour of the adjacent street traffic.

The sites were surveyed between the late 1960s and the 2000s throughout the United States and Canada.

Source Numbers

1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 16, 19, 20, 21, 26, 34, 35, 36, 38, 40, 71, 72, 84, 91, 98, 100, 105, 108, 110, 114, 117, 119, 157, 167, 177, 187, 192, 207, 211, 246, 275, 283, 293, 300, 319, 320, 357, 384, 435, 550, 552, 579, 598, 601, 603, 611, 614, 637, 711, 735

2016 OPENING

Single-Family Detached Housing
(210)

Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

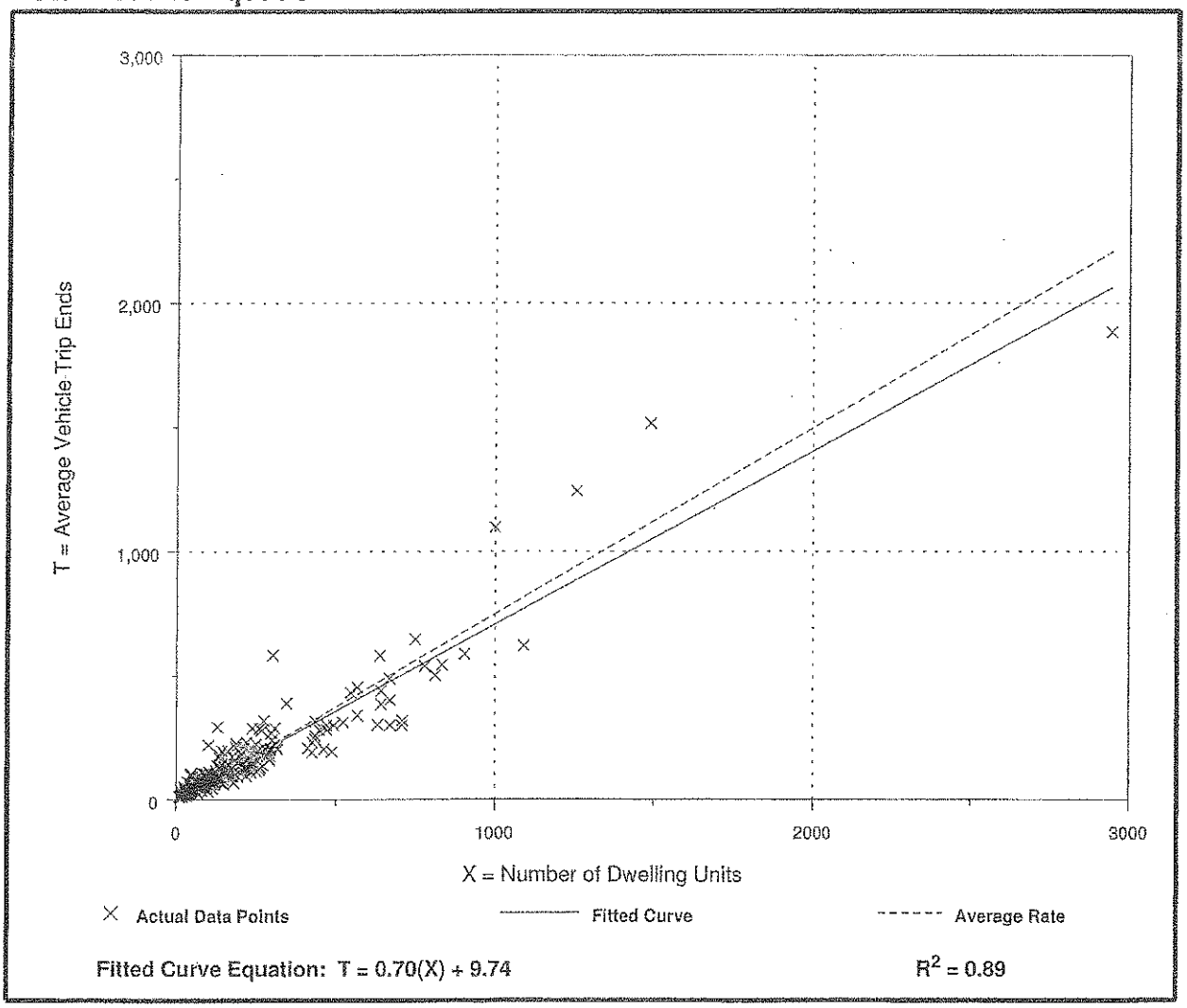
Number of Studies: 292
Avg. Number of Dwelling Units: 194
Directional Distribution: 25% entering, 75% exiting

Trip Generation per Dwelling Unit

46 DU

Average Rate	Range of Rates	Standard Deviation
0.75	0.33 - 2.27	0.90

Data Plot and Equation



Fitted Curve Equation: T = 0.70(X) + 9.74

R^2 = 0.89

T = 0.70 (46) + 9.74 = 42
ENTER = 42(0.25) = 10
EXIT = 42(0.75) = 32

Single-Family Detached Housing
(210)

2018
FULL BUILD - OUT

Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

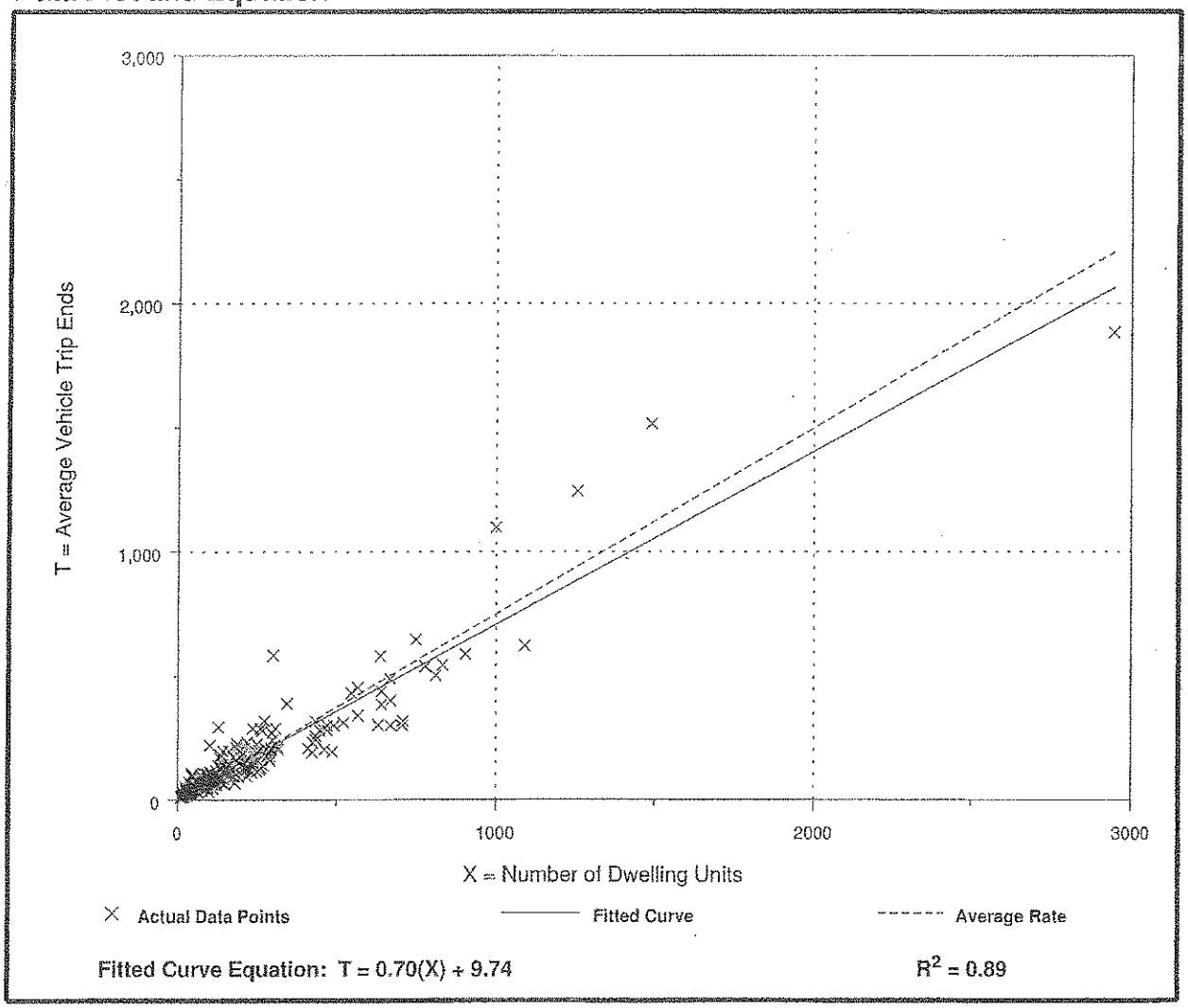
Number of Studies: 292
Avg. Number of Dwelling Units: 194
Directional Distribution: 25% entering, 75% exiting

Trip Generation per Dwelling Unit

93 DU

Average Rate	Range of Rates	Standard Deviation
0.75	0.33 - 2.27	0.90

Data Plot and Equation



Fitted Curve Equation: $T = 0.70(X) + 9.74$ $R^2 = 0.89$

$T = 0.70(93) + 9.74 = 75$
ENTER $= 75(0.25) = 19$
EXIT $= 75(0.75) = 56$

2016 OPENING

Single-Family Detached Housing
(210)

Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

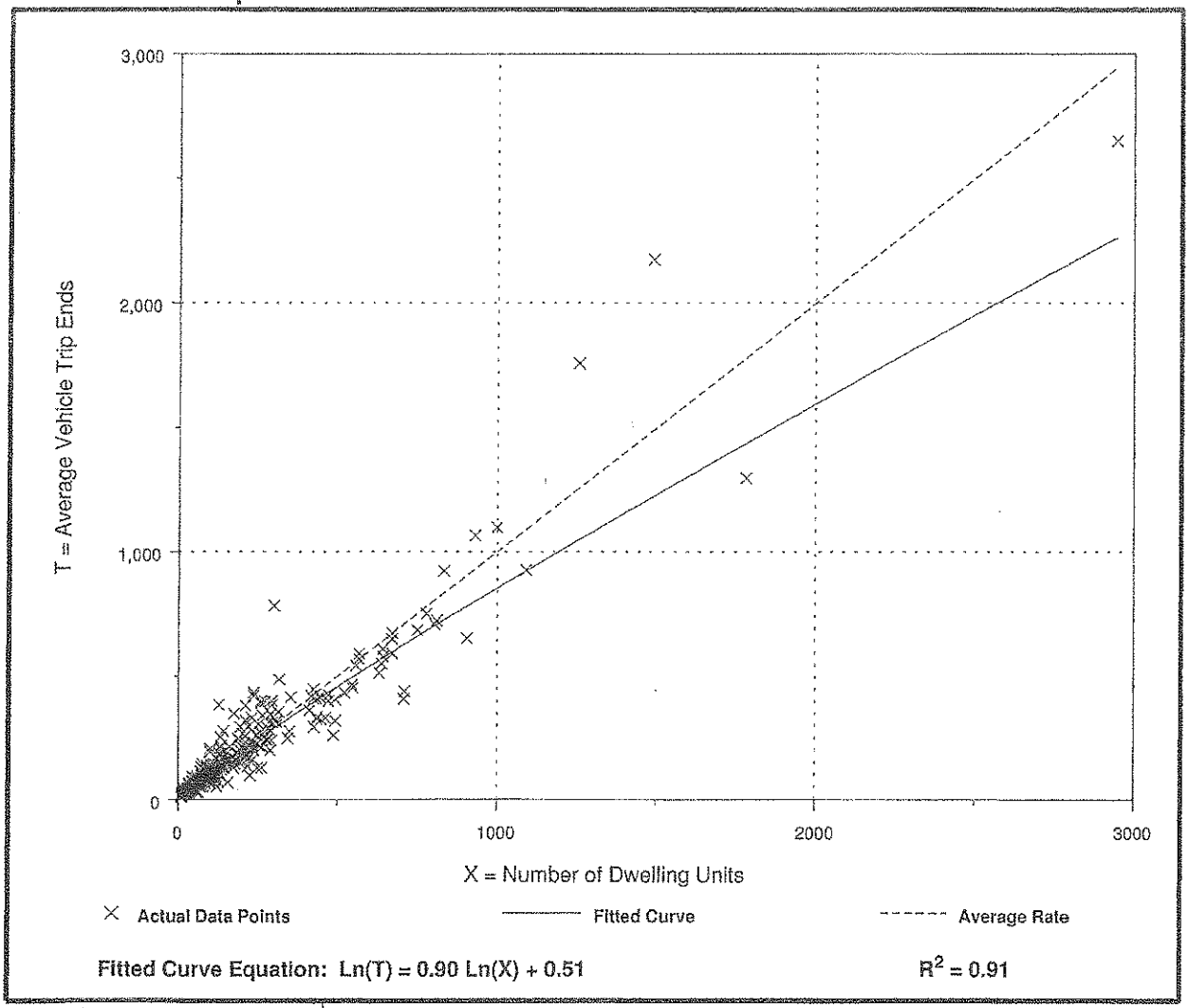
Number of Studies: 321
Avg. Number of Dwelling Units: 207
Directional Distribution: 63% entering, 37% exiting

Trip Generation per Dwelling Unit

46 DU

Average Rate	Range of Rates	Standard Deviation
1.00	0.42 - 2.98	1.05

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.90 Ln(X) + 0.51 **R^2 = 0.91**

$Ln(T) = 0.90\,Ln(46) + 0.51 \rightarrow T = 52$

ENTER = $52(0.63) = 33$

EXIT = $52(0.37) = 19$

2018
FULL BUILD-OUT

Single-Family Detached Housing
(210)

Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

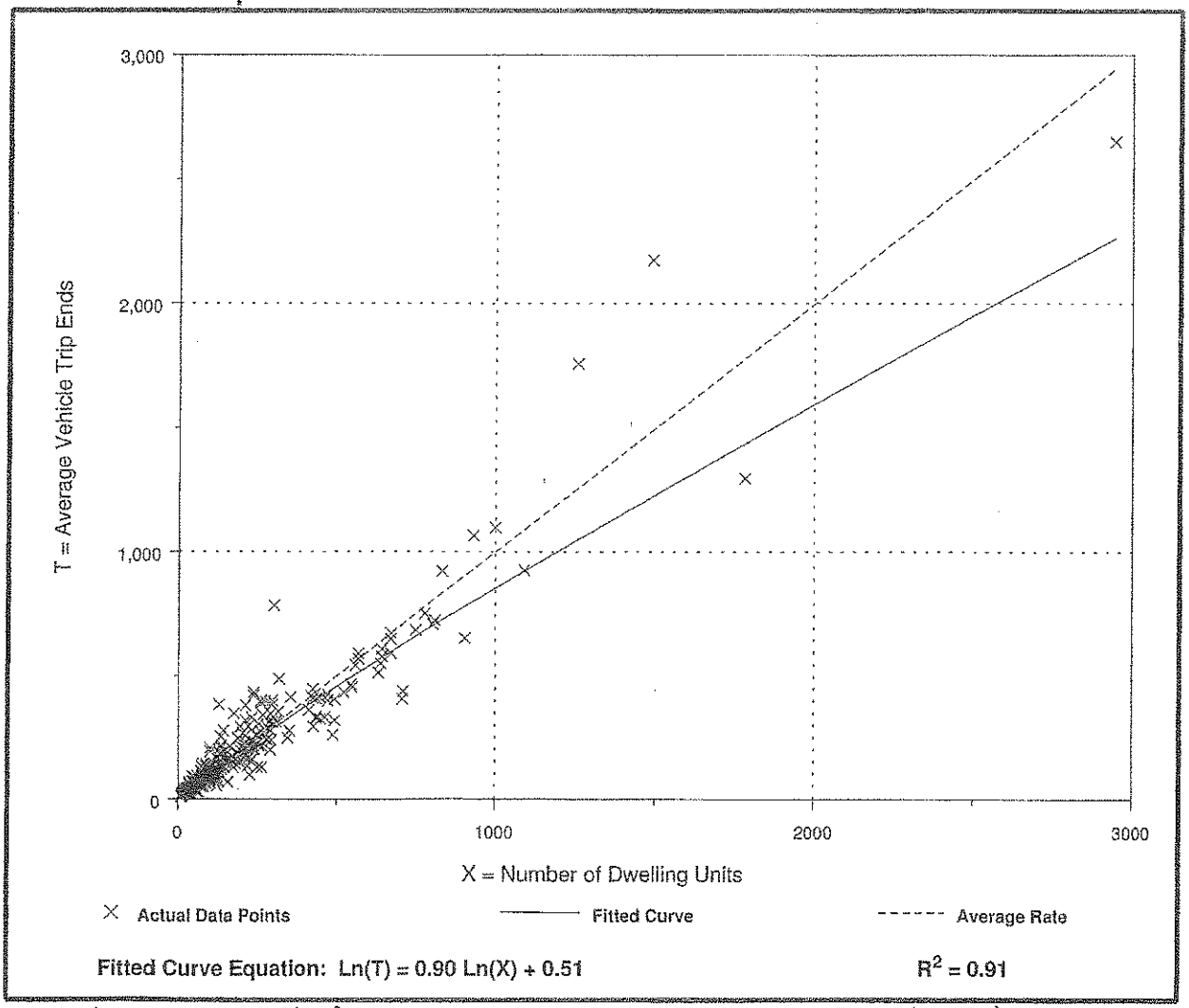
Number of Studies: 321
Avg. Number of Dwelling Units: 207
Directional Distribution: 63% entering, 37% exiting

Trip Generation per Dwelling Unit

93 DU

Average Rate	Range of Rates	Standard Deviation
1.00	0.42 - 2.98	1.05

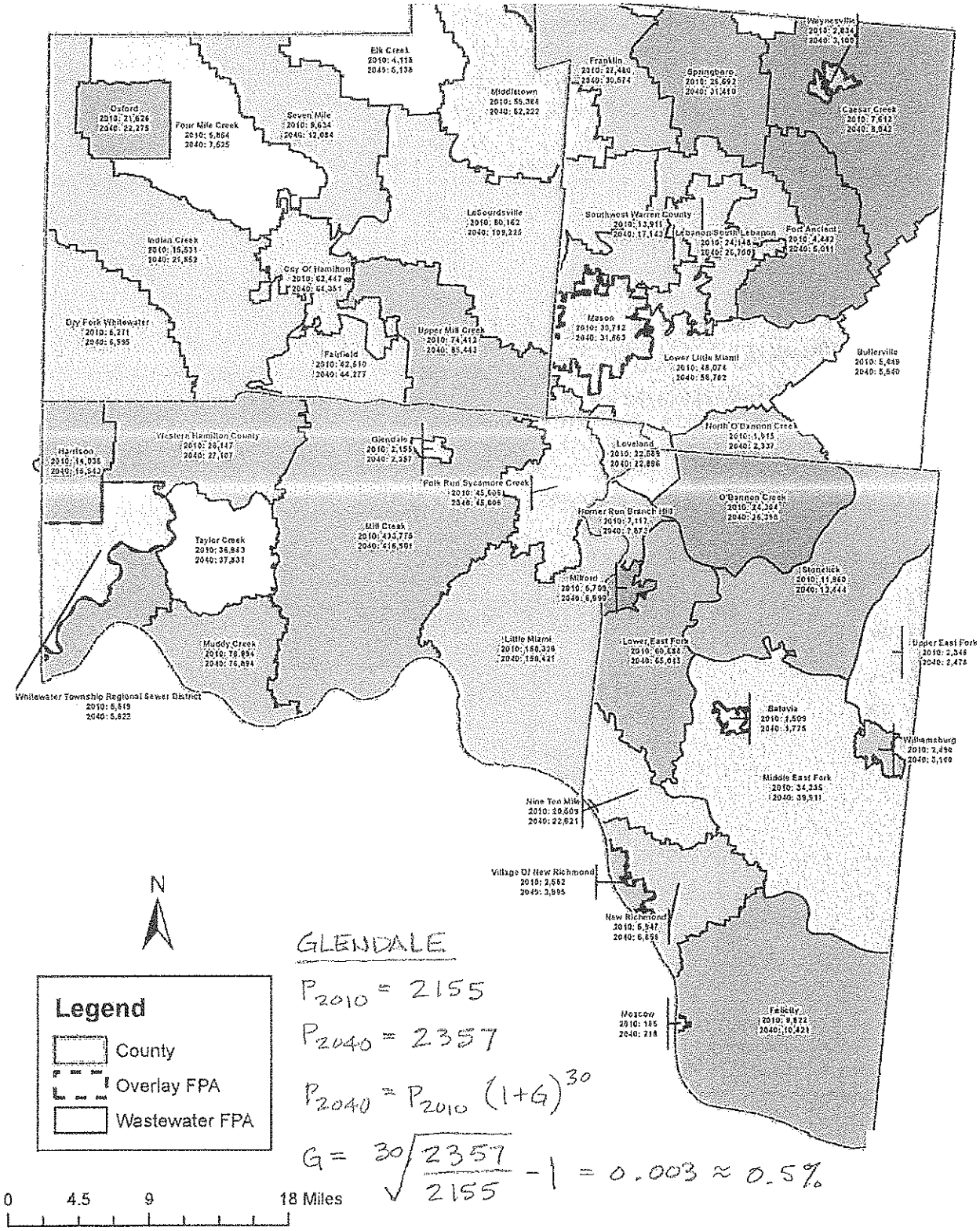
Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.90 Ln(X) + 0.51 **R^2 = 0.91**

$Ln(T) = 0.90\,Ln(93) + 0.51 \rightarrow T = 98$ ENTER $= 98(0.63) = 62$
EXIT $= 98(0.37) = 36$

Figure 3-8: 2010 Population and 2040 Population Projections for Facility Planning Areas in Butler, Clermont, Hamilton and Warren Counties



GLENDALE

$P_{2010} = 2155$

$P_{2040} = 2357$

$P_{2040} = P_{2010}(1+G)^{30}$

$G = \sqrt[30]{\frac{2357}{2155}} - 1 = 0.003 \approx 0.5\%$

APPENDIX D
INTERSECTION CAPACITY ANALYSIS

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2015 Existing

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	3	38	1	1	1
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	69	1	7	184	25
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.69	0.69	0.38		0.60		0.72	
Flow Rate (veh/h)	8	59	6		166		298	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.3		0.0	
Prop. Right-Turns	0.0	0.9	0.3		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.7	-0.1		0.1		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.05	0.01		0.15		0.26	
hd, final value (s)	6.04	4.88	5.01		4.45		4.20	
x, final value	0.01	0.08	0.01		0.21		0.35	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.7	2.6	3.0		2.4		2.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	258	309	256		416		548	
Delay (s/veh)	8.82	8.00	8.05		8.59		9.43	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	8.10		8.05		8.59		9.43	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.99							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2015 Existing

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	2	22	2	1	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	58	240	1	5	148	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.66	0.66	0.75		0.76		0.80	
Flow Rate (veh/h)	7	36	15		392		202	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.1		0.2		0.0	
Prop. Right-Turns	0.0	0.9	0.8		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.5		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.03	0.01		0.35		0.18	
hd, final value (s)	6.35	5.19	4.95		4.31		4.43	
x, final value	0.01	0.05	0.02		0.47		0.25	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	4.0	2.9	2.9		2.3		2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	257	286	265		642		452	
Delay (s/veh)	9.13	8.18	8.05		11.06		8.89	
LOS	A	A	A		B		A	
Approach: Delay (s/veh)	8.33		8.05		11.06		8.89	
LOS	A		A		B		A	
Intersection Delay (s/veh)	10.14							
Intersection LOS	B							

HCS+™ Version 5.6 Generated: 5/22/2015 5:03 PM

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2016 Build

Project ID Village Gate

East/West Street: Oak Rd | North/South Street: Chester Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	5	38	20	7	8
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	69	3	13	185	25
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	6	46	36		110		242	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.6		0.3		0.1	
Prop. Right-Turns	0.0	0.9	0.2		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.04	0.03		0.10		0.22	
hd, final value (s)	5.83	4.70	4.85		4.41		4.18	
x, final value	0.01	0.06	0.05		0.13		0.28	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.5	2.4	2.8		2.4		2.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	296	286		360		492	
Delay (s/veh)	8.58	7.70	8.09		8.10		8.81	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	7.80		8.09		8.10		8.81	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.45							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2016 Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	7	22	8	4	19
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	58	241	18	16	149	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	5	30	32		343		188	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.2		0.1	
Prop. Right-Turns	0.0	0.8	0.6		0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.5	-0.3		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.00	0.03	0.03		0.30		0.17	
hd, final value (s)	6.23	5.18	4.92		4.28		4.42	
x, final value	0.01	0.04	0.04		0.41		0.23	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.9	2.9	2.9		2.3		2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	255	280	282		593		438	
Delay (s/veh)	8.98	8.12	8.15		10.20		8.74	
LOS	A	A	A		B		A	
Approach: Delay (s/veh)	8.24		8.15		10.20		8.74	
LOS	A		A		B		A	
Intersection Delay (s/veh)	9.52							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2016 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	3	38	1	1	1
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	69	1	7	185	25
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	6	44	3		108		235	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.3		0.0	
Prop. Right-Turns	0.0	0.9	0.3		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.7	-0.1		0.1		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.04	0.00		0.10		0.21	
hd, final value (s)	5.75	4.59	4.69		4.31		4.08	
x, final value	0.01	0.06	0.00		0.13		0.27	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.5	2.3	2.7		2.3		2.1	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	294	253		358		485	
Delay (s/veh)	8.51	7.57	7.70		7.95		8.55	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	7.68		7.70		7.95		8.55	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.27							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2016 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	2	22	2	1	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	58	241	1	5	149	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	5	25	12		325		176	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.2		0.2		0.0	
Prop. Right-Turns	0.0	0.9	0.8		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.4		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.00	0.02	0.01		0.29		0.16	
hd, final value (s)	6.12	4.96	4.74		4.23		4.31	
x, final value	0.01	0.03	0.02		0.38		0.21	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.8	2.7	2.7		2.2		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	255	275	262		575		426	
Delay (s/veh)	8.87	7.84	7.81		9.81		8.45	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	8.01		7.81		9.81		8.45	
LOS	A		A		A		A	
Intersection Delay (s/veh)	9.22							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2018 Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	7	39	35	11	13
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	70	5	18	187	25
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	1.00	0.92		0.92		0.92	
Flow Rate (veh/h)	6	46	63		114		249	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.6		0.3		0.1	
Prop. Right-Turns	0.0	0.8	0.2		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.0		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.04	0.06		0.10		0.22	
hd, final value (s)	5.90	4.80	4.89		4.49		4.27	
x, final value	0.01	0.06	0.09		0.14		0.30	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.6	2.5	2.9		2.5		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	296	313		364		499	
Delay (s/veh)	8.66	7.81	8.35		8.23		9.05	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	7.91		8.35		8.23		9.05	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.64							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2018 Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	11	22	14	6	28
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	59	244	34	25	150	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	5	34	51		365		200	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.2		0.1	
Prop. Right-Turns	0.0	0.7	0.6		0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.5	-0.3		-0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.00	0.03	0.05		0.32		0.18	
hd, final value (s)	6.35	5.37	5.06		4.34		4.53	
x, final value	0.01	0.05	0.07		0.44		0.25	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	4.1	3.1	3.1		2.3		2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	255	284	301		615		450	
Delay (s/veh)	9.11	8.36	8.45		10.71		9.05	
LOS	A	A	A		B		A	
Approach: Delay (s/veh)	8.45		8.45		10.71		9.05	
LOS	A		A		B		A	
Intersection Delay (s/veh)	9.89							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2018 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	3	39	1	1	1
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	31	70	1	7	187	25
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	6	45	3		110		237	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.3		0.0	
Prop. Right-Turns	0.0	0.9	0.3		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.7	-0.1		0.1		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.04	0.00		0.10		0.21	
hd, final value (s)	5.76	4.60	4.70		4.32		4.08	
x, final value	0.01	0.06	0.00		0.13		0.27	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.5	2.3	2.7		2.3		2.1	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	295	253		360		487	
Delay (s/veh)	8.52	7.58	7.72		7.97		8.58	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	7.69		7.72		7.97		8.58	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.29							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2018 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	5	2	22	2	1	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	59	244	1	5	150	10
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	5	25	12		330		178	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.2		0.2		0.0	
Prop. Right-Turns	0.0	0.9	0.8		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.4		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.00	0.02	0.01		0.29		0.16	
hd, final value (s)	6.13	4.98	4.75		4.23		4.31	
x, final value	0.01	0.03	0.02		0.39		0.21	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.8	2.7	2.8		2.2		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	255	275	262		580		428	
Delay (s/veh)	8.89	7.86	7.83		9.88		8.48	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	8.03		7.83		9.88		8.48	
LOS	A		A		A		A	
Intersection Delay (s/veh)	9.28							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	7	43	35	11	13
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	77	5	18	206	28
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	7	53	63		126		272	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.6		0.3		0.1	
Prop. Right-Turns	0.0	0.9	0.2		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.6	-0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.05	0.06		0.11		0.24	
hd, final value (s)	5.99	4.87	4.99		4.55		4.31	
x, final value	0.01	0.07	0.09		0.16		0.33	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.7	2.6	3.0		2.5		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	257	303	313		376		522	
Delay (s/veh)	8.76	7.95	8.47		8.41		9.37	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	8.05		8.47		8.41		9.37	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.88							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	11	25	14	6	28
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	269	34	25	166	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	6	38	51		398		218	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.2		0.1	
Prop. Right-Turns	0.0	0.7	0.6		0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.5	-0.3		-0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.03	0.05		0.35		0.19	
hd, final value (s)	6.49	5.48	5.20		4.39		4.59	
x, final value	0.01	0.06	0.07		0.49		0.28	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	4.2	3.2	3.2		2.4		2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	288	301		648		468	
Delay (s/veh)	9.26	8.51	8.61		11.47		9.35	
LOS	A	A	A		B		A	
Approach: Delay (s/veh)	8.61		8.61		11.47		9.35	
LOS	A		A		B		A	
Intersection Delay (s/veh)	10.44							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	3	43	1	1	1
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	77	1	7	206	28
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	7	49	3		122		260	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	0.3		0.3		0.0	
Prop. Right-Turns	0.0	0.9	0.3		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.7	-0.1		0.1		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.04	0.00		0.11		0.23	
hd, final value (s)	5.84	4.68	4.79		4.36		4.11	
x, final value	0.01	0.06	0.00		0.15		0.30	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	3.5	2.4	2.8		2.4		2.1	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	257	299	253		372		510	
Delay (s/veh)	8.61	7.70	7.81		8.11		8.84	
LOS	A	A	A		A		A	
Approach: Delay (s/veh)	7.81		7.81		8.11		8.84	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.50							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 No Build

Project ID *Village Gate*

East/West Street: *Oak Rd* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	2	25	2	1	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	269	1	5	166	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	LTR		LTR		LTR	
PHF	0.92	0.92	0.92		0.92		0.92	
Flow Rate (veh/h)	6	29	12		363		196	
% Heavy Vehicles	0	0	0		0		0	
No. Lanes	2		1		1		1	
Geometry Group	5		4a		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	1.0	0.0	0.2		0.2		0.0	
Prop. Right-Turns	0.0	0.9	0.8		0.0		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0		0.0		0.0	
hLT-adj	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.5	-0.7	-0.4		0.0		-0.0	

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	3.20	3.20	3.20		3.20		3.20	
x, initial	0.01	0.03	0.01		0.32		0.17	
hd, final value (s)	6.25	5.09	4.88		4.27		4.37	
x, final value	0.01	0.04	0.02		0.43		0.24	
Move-up time, m (s)	2.3		2.0		2.0		2.0	
Service Time, t_s (s)	4.0	2.8	2.9		2.3		2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	256	279	262		613		446	
Delay (s/veh)	9.02	8.01	7.96		10.45		8.72	
LOS	A	A	A		B		A	
Approach: Delay (s/veh)	8.18		7.96		10.45		8.72	
LOS	A		A		B		A	
Intersection Delay (s/veh)	9.71							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 Build (No EB LTL)

Project ID *Village Gate*

East/West Street: *Oak Rd (Realigned)* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	7	43	35	11	13
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	77	5	18	206	28
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate (veh/h)	60		63		126		272	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.6		0.3		0.1	
Prop. Right-Turns	0.8		0.2		0.0		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.4		-0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.05		0.06		0.11		0.24	
hd, final value (s)	4.45		4.87		4.53		4.29	
x, final value	0.07		0.09		0.16		0.32	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.5		2.9		2.5		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	310		313		376		522	
Delay (s/veh)	7.81		8.32		8.39		9.34	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.81		8.32		8.39		9.34	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.81							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 Build (No EB LTL)

Project ID *Village Gate*

East/West Street: *Oak Rd (Realigned)* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	11	25	14	6	28
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	269	34	25	166	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate (veh/h)	44		51		398		218	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.3		0.2		0.1	
Prop. Right-Turns	0.6		0.6		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.3		-0.3		-0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.04		0.05		0.35		0.19	
hd, final value (s)	5.03		5.07		4.38		4.58	
x, final value	0.06		0.07		0.48		0.28	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	3.0		3.1		2.4		2.6	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	294		301		648		468	
Delay (s/veh)	8.36		8.46		11.43		9.33	
LOS	A		A		B		A	
Approach: Delay (s/veh)	8.36		8.46		11.43		9.33	
LOS	A		A		B		A	
Intersection Delay (s/veh)	10.38							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	AM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 No Build (No EB LTL)

Project ID *Village Gate*

East/West Street: *Oak Rd (Realigned)* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	3	43	1	1	1
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	77	1	7	206	28
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate (veh/h)	56		3		122		260	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.3		0.3		0.0	
Prop. Right-Turns	0.8		0.3		0.0		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.5		-0.1		0.1		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.05		0.00		0.11		0.23	
hd, final value (s)	4.26		4.67		4.35		4.10	
x, final value	0.07		0.00		0.15		0.30	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.3		2.7		2.3		2.1	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	306		253		372		510	
Delay (s/veh)	7.57		7.68		8.10		8.81	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.57		7.68		8.10		8.81	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.45							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	CPT
Agency/Co.	Bayer Becker
Date Performed	2/25/2015
Analysis Time Period	PM Peak

Site Information

Intersection	Chester Rd & Oak Rd
Jurisdiction	Glendale
Analysis Year	2038 No Build (No EB LTL)

Project ID *Village Gate*

East/West Street: *Oak Rd (Realigned)* North/South Street: *Chester Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	2	25	2	1	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	269	1	5	166	11
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate (veh/h)	35		12		363		196	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.2		0.2		0.0	
Prop. Right-Turns	0.8		0.8		0.0		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.4		-0.4		0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.03		0.01		0.32		0.17	
hd, final value (s)	4.71		4.76		4.26		4.36	
x, final value	0.05		0.02		0.43		0.24	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.7		2.8		2.3		2.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	285		262		613		446	
Delay (s/veh)	7.94		7.84		10.42		8.70	
LOS	A		A		B		A	
Approach: Delay (s/veh)	7.94		7.84		10.42		8.70	
LOS	A		A		B		A	
Intersection Delay (s/veh)	9.67							
Intersection LOS	A							

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CPT*	Intersection	*Oak Rd & Prop Access*
Agency or Co.	*Bayer Becker*	E/W Street Name	*Oak Rd*
Date Performed	*5/22/2015*	N/S Street Name	*Prop Access*
Time Period	*AM Peak*	Analysis Year	*2016 Build*
		Project ID	*Village Gate*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*10*	*11*	*0*	*0*	*0*	*3*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*32*	*0*
Heavy Veh. Adj. (f_{HV}), %	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*0*			*11*			*23*			*3*		
Exiting Flow (V_{ex}), pc/h	*12*			*38*			*11*			*0*		
Entry Flow (V_e), pc/h		*23*			*3*			*0*			*35*	
Entry Volume veh/h		*23*			*3*						*35*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1130*			*1118*			*1104*			*1126*	
Capacity (c), veh/h		*1119*			*1107*			*0*			*1115*	
v/c Ratio (X)		*0.02*			*0.00*						*0.03*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*3.4*			*3.3*						*3.5*	
Lane LOS		*A*			*A*						*A*	
Lane 95% Queue		*0.1*			*0.0*						*0.1*	
Approach Delay, s/veh	*3.39*			*3.27*						*3.49*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*3.44*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CPT*	Intersection	*Oak Rd & Prop Access*
Agency or Co.	*Bayer Becker*	E/W Street Name	*Oak Rd*
Date Performed	*5/22/2015*	N/S Street Name	*Prop Access*
Time Period	*PM Peak*	Analysis Year	*2016 Build*
		Project ID	*Village Gate*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*33*	*8*	*0*	*0*	*0*	*12*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*19*	*0*
Heavy Veh. Adj. (f_{HV}), %	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*0*			*36*			*45*			*13*		
Exiting Flow (V_{ex}), pc/h	*9*			*34*			*36*			*0*		
Entry Flow (V_e), pc/h		*45*			*13*			*0*			*21*	
Entry Volume veh/h		*45*			*13*						*21*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1130*			*1090*			*1080*			*1115*	
Capacity (c), veh/h		*1119*			*1079*			*0*			*1104*	
v/c Ratio (X)		*0.04*			*0.01*						*0.02*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*3.5*			*3.4*						*3.4*	
Lane LOS		*A*			*A*						*A*	
Lane 95% Queue		*0.1*			*0.0*						*0.1*	
Approach Delay, s/veh	*3.55*			*3.44*						*3.42*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*3.50*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CPT*	Intersection	*Oak Rd & Prop Access*
Agency or Co.	*Bayer Becker*	E/W Street Name	*Oak Rd*
Date Performed	*5/22/2015*	N/S Street Name	*Prop Access*
Time Period	*AM Peak*	Analysis Year	*2018 Build*
		Project ID	*Village Gate*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*19*	*11*	*0*	*0*	*0*	*3*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*56*	*0*
Heavy Veh. Adj. (f_{HV}), %	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*0*			*21*			*33*			*3*		
Exiting Flow (V_{ex}), pc/h	*12*			*65*			*21*			*0*		
Entry Flow (V_e), pc/h		*33*			*3*			*0*			*61*	
Entry Volume veh/h		*33*			*3*						*60*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1130*			*1107*			*1093*			*1126*	
Capacity (c), veh/h		*1119*			*1096*			*0*			*1115*	
v/c Ratio (X)		*0.03*			*0.00*						*0.05*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*3.5*			*3.3*						*3.7*	
Lane LOS		*A*			*A*						*A*	
Lane 95% Queue		*0.1*			*0.0*						*0.2*	
Approach Delay, s/veh	*3.46*			*3.31*						*3.68*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*3.23*											
Intersection LOS	*A*											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	CPT	Intersection	Oak Rd & Prop Access
Agency or Co.	Bayer Becker	E/W Street Name	Oak Rd
Date Performed	5/22/2015	N/S Street Name	Prop Access
Time Period	PM Peak	Analysis Year	2018 Build
		Project ID	Village Gate

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	0	1	0		0	1	0		0	0	0		0	1	0	
Volume (V), veh/h	62	8	0	0	0	12	0	0	0		0	0	0	0	36	0
Heavy Veh. Adj. (f_{HV}), %	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			68			77			13		
Exiting Flow (V_{ex}), pc/h	9			53			68			0		
Entry Flow (V_e), pc/h		77			13			0			40	
Entry Volume veh/h		76			13						40	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			1056			1046			1115	
Capacity (c), veh/h		1119			1045			0			1104	
v/c Ratio (X)		0.07			0.01						0.04	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.8			3.5						3.6	
Lane LOS		A			A						A	
Lane 95% Queue		0.2			0.0						0.1	
Approach Delay, s/veh	3.79			3.55						3.56		
Approach LOS, s/veh	A			A						A		
Intersection Delay, s/veh	3.23											
Intersection LOS	A											

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ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CPT*	Intersection	*Oak Rd & Prop Access*
Agency or Co.	*Bayer Becker*	E/W Street Name	*Oak Rd*
Date Performed	*5/22/2015*	N/S Street Name	*Prop Access*
Time Period	*AM Peak*	Analysis Year	*2038 Build*
		Project ID	*Village Gate*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*19*	*11*	*0*	*0*	*0*	*3*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*56*	*0*
Heavy Veh. Adj. (f_{HV}), %	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*0*			*21*			*33*			*3*		
Exiting Flow (V_{ex}), pc/h	*12*			*65*			*21*			*0*		
Entry Flow (V_e), pc/h		*33*			*3*			*0*			*61*	
Entry Volume veh/h		*33*			*3*						*60*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*1130*			*1107*			*1093*			*1126*	
Capacity (c), veh/h		*1119*			*1096*			*0*			*1115*	
v/c Ratio (X)		*0.03*			*0.00*						*0.05*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*3.5*			*3.3*						*3.7*	
Lane LOS		*A*			*A*						*A*	
Lane 95% Queue		*0.1*			*0.0*						*0.2*	
Approach Delay, s/veh	*3.46*			*3.31*						*3.68*		
Approach LOS, s/veh	*A*			*A*						*A*		
Intersection Delay, s/veh	*3.23*											
Intersection LOS	*A*											

 HCS 2010™ 6.41 Roundabouts Generated: 5/22/2015 4:00 PM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	CPT	Intersection	Oak Rd & Prop Access
Agency or Co.	Bayer Becker	E/W Street Name	Oak Rd
Date Performed	5/22/2015	N/S Street Name	Prop Access
Time Period	PM Peak	Analysis Year	2038 Build
		Project ID	Village Gate

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	0	1	0		0	1	0		0	0	0		0	1	0	
Volume (V), veh/h	62	8	0	0	0	12	0	0	0		0	0	0	0	36	0
Heavy Veh. Adj. (f_{HV}), %	1	1	1	1	1	1	1	1	3	3	3	1	1	1	1	1
Peak Hour Factor (PHF)																
No. of Pedestrians Crossing Entry	0				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	0			68			77			13		
Exiting Flow (V_{ex}), pc/h	9			53			68			0		
Entry Flow (V_e), pc/h		77			13			0			40	
Entry Volume veh/h		76			13						40	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		1130			1056			1046			1115	
Capacity (c), veh/h		1119			1045			0			1104	
v/c Ratio (X)		0.07			0.01						0.04	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.8			3.5						3.6	
Lane LOS		A			A						A	
Lane 95% Queue		0.2			0.0						0.1	
Approach Delay, s/veh	3.79			3.55						3.56		
Approach LOS, s/veh	A			A						A		
Intersection Delay, s/veh	3.23											
Intersection LOS	A											

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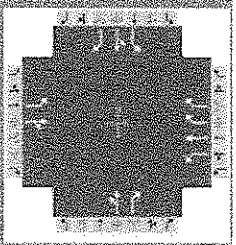
HCS 2010 Signalized Intersection Results Summary

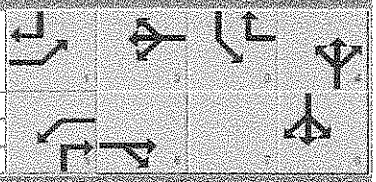
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.85
Intersection	Sharon Rd & Chester Rd	Analysis Year	2015 Existing	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2015 Existing AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	260	8	127	205	542	2	60	44	318	73	27

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	24.4	4.3	6.6	29.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



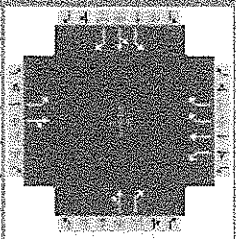
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	40.7	10.3	41.0		13.0		36.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.1		2.0			5.7		20.4
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	39	315		149	241	638		73	52	374	86	32
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	2.1	13.5		0.0	9.5	10.5		3.7	3.0	18.4	3.3	1.4
Cycle Queue Clearance Time (g_c), s	2.1	13.5		0.0	9.5	10.5		3.7	3.0	18.4	3.3	1.4
Capacity (*c*), veh/h	72	637		349	659	1814		125	169	530	557	527
Volume-to-Capacity Ratio (*X*)	0.536	0.495		0.428	0.366	0.351		0.583	0.307	0.706	0.154	0.060
Available Capacity (c_a), veh/h	72	637		349	659	1814		125	169	530	557	527
Back of Queue (*Q*), veh/ln (50th percentile)	1.0	6.2		3.2	4.4	3.0		1.9	1.0	8.3	1.5	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.10	0.00		0.33	0.00	0.33		0.00	0.14	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.1	25.9		34.5	24.4	8.4		45.4	9.2	31.5	26.2	22.7
Incremental Delay (d_2), s/veh	4.2	2.7		0.3	1.6	0.5		4.5	0.4	3.6	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	51.2	28.7		34.8	26.0	8.9		49.9	9.6	35.1	26.2	22.7
Level of Service (LOS)	D	C		C	C	A		D	A	D	C	C
Approach Delay, s/veh / LOS	31.1	C		16.7	B		33.2	C		32.8	C	
Intersection Delay, s/veh / LOS	24.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.1	A	2.2	B	0.7	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

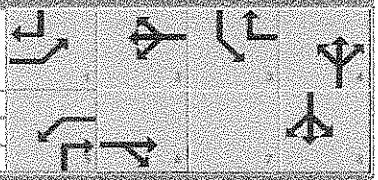
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.91
Intersection	Sharon Rd & Chester Rd	Analysis Year	2015 Existing	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2015 Existing PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	220	2	68	330	409	3	121	122	571	92	49

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	16.4	4.3	11.6	42.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



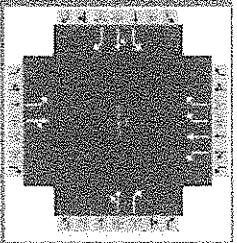
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	32.7	10.3	33.0		18.0		49.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.0		2.0			10.8		37.9
Green Extension Time (g_e), s	0.0	0.0	0.5	0.0		0.0		0.8
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.53

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	33	244		75	363	449		136	134	627	101	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	2.0	12.6		0.0	19.6	7.8		7.6	8.8	35.9	3.8	2.3
Cycle Queue Clearance Time (g_c), s	2.0	12.6		0.0	19.6	7.8		7.6	8.8	35.9	3.8	2.3
Capacity (*c*), veh/h	66	446		255	461	1781		200	225	696	731	665
Volume-to-Capacity Ratio (*X*)	0.501	0.547		0.293	0.786	0.252		0.681	0.596	0.902	0.138	0.081
Available Capacity (c_a), veh/h	66	446		255	461	1781		200	225	696	731	665
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	6.2		1.9	10.6	0.1		4.0	3.0	17.9	1.7	0.8
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.19	0.00	0.01		0.00	0.43	0.00	0.00	0.10
Uniform Delay (d_1), s/veh	52.0	36.6		43.2	39.0	9.1		47.4	5.9	31.9	22.0	19.1
Incremental Delay (d_2), s/veh	2.2	4.8		0.2	12.7	0.3		7.5	3.0	14.6	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	54.3	41.3		43.4	51.7	9.4		54.9	8.9	46.5	22.0	19.1
Level of Service (LOS)	D	D		D	D	A		D	A	D	C	B
Approach Delay, s/veh / LOS	42.9	D		29.6	C		32.1	C		41.5	D	
Intersection Delay, s/veh / LOS	35.7						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	2.0	A	0.9	A	1.8	A

HCS 2010 Signalized Intersection Results Summary

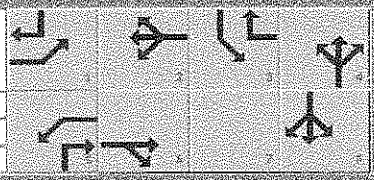
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2016 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2016 Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	33	261	8	132	206	545	2	64	47	320	75	27

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	24.4	4.3	6.6	29.3	0.0	
Yellow	3.0	3.6	3.0	3.7	3.6	0.0	
Red	3.0	2.7	3.0	2.7	3.1	0.0	



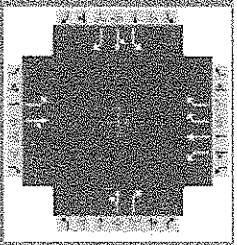
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	40.7	10.3	41.0		13.0		36.0
Change Period, (Y+Rc), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (MAH), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			5.7		18.8
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	36	292		143	224	592		72	51	348	82	29
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.3		0.0	8.7	9.6		3.7	3.0	16.8	3.2	1.3
Cycle Queue Clearance Time (g_c), s	1.9	12.3		0.0	8.7	9.6		3.7	3.0	16.8	3.2	1.3
Capacity (c), veh/h	72	637		366	659	1814		125	169	530	557	527
Volume-to-Capacity Ratio (X)	0.496	0.459		0.392	0.340	0.327		0.573	0.303	0.656	0.146	0.056
Available Capacity (c_a), veh/h	72	637		366	659	1814		125	169	530	557	527
Back of Queue (Q), veh/ln (50th percentile)	0.9	5.7		3.0	4.1	2.7		1.8	1.0	7.5	1.4	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (RQ) (50th percentile)	0.09	0.00		0.31	0.00	0.30		0.00	0.14	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.0	25.6		33.1	24.2	8.2		45.3	9.2	30.9	26.1	22.7
Incremental Delay (d_2), s/veh	1.9	2.4		0.3	1.4	0.5		4.1	0.4	2.3	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	49.0	27.9		33.4	25.6	8.7		49.4	9.6	33.3	26.2	22.7
Level of Service (LOS)	D	C		C	C	A		D	A	C	C	C
Approach Delay, s/veh / LOS	30.2	C		16.3	B		32.8	C		31.3	C	
Intersection Delay, s/veh / LOS	23.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	0.7	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

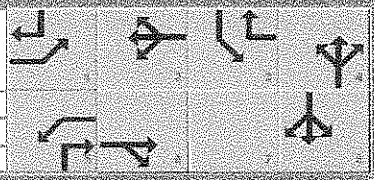
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2016 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2016 Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	221	2	73	332	411	3	127	128	574	98	49

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	15.4	4.3	12.6	42.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



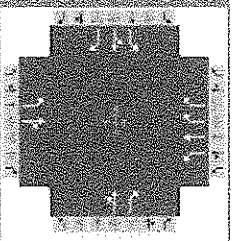
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	31.7	10.3	32.0		19.0		49.0
Change Period, (*Y+Rc*), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			11.0		37.6
Green Extension Time (g_e), s	0.0	0.0	0.5	0.0		0.1		0.8
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.46

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	33	242		79	361	447		141	139	624	107	53
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.7		0.0	19.8	7.9		7.8	9.0	35.6	4.0	2.2
Cycle Queue Clearance Time (g_c), s	1.9	12.7		0.0	19.8	7.9		7.8	9.0	35.6	4.0	2.2
Capacity (*c*), veh/h	66	429		244	444	1755		217	239	696	731	665
Volume-to-Capacity Ratio (*X*)	0.496	0.565		0.325	0.813	0.255		0.650	0.581	0.897	0.146	0.080
Available Capacity (c_a), veh/h	66	429		244	444	1755		217	239	696	731	665
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	6.3		2.0	10.9	2.3		4.0	3.0	17.7	1.8	0.8
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.21	0.00	0.26		0.00	0.43	0.00	0.00	0.10
Uniform Delay (d_1), s/veh	52.0	37.4		44.3	39.9	9.5		46.6	5.6	31.8	22.1	19.1
Incremental Delay (d_2), s/veh	2.1	5.3		0.3	15.0	0.3		5.3	2.4	14.0	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	54.1	42.7		44.6	54.8	9.9		51.9	8.0	45.8	22.1	19.1
Level of Service (LOS)	D	D		D	D	A		D	A	D	C	B
Approach Delay, s/veh / LOS	44.1	D		31.3	C		30.1	C		40.7	D	
Intersection Delay, s/veh / LOS	36.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	2.0	A	1.0	A	1.8	A

HCS 2010 Signalized Intersection Results Summary

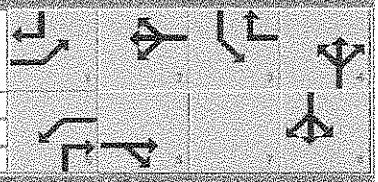
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2016 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2016 No Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	261	8	128	206	545	2	60	44	320	73	27

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	24.4	4.3	6.6	29.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



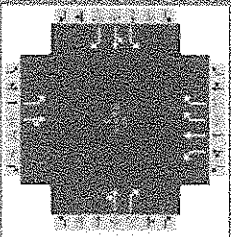
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	40.7	10.3	41.0		13.0		36.0
Change Period, (*Y+Rc*), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			5.4		18.8
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	36	292		139	224	592		67	48	348	79	29
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.3		0.0	8.7	9.6		3.4	2.8	16.8	3.1	1.3
Cycle Queue Clearance Time (g_c), s	1.9	12.3		0.0	8.7	9.6		3.4	2.8	16.8	3.1	1.3
Capacity (*c*), veh/h	72	637		366	659	1814		125	169	530	557	527
Volume-to-Capacity Ratio (*X*)	0.496	0.459		0.380	0.340	0.327		0.538	0.284	0.656	0.143	0.056
Available Capacity (c_a), veh/h	72	637		366	659	1814		125	169	530	557	527
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	5.7		2.9	4.1	2.7		1.7	0.9	7.5	1.4	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.30	0.00	0.30		0.00	0.13	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.0	25.6		33.0	24.2	8.2		45.2	9.2	30.9	26.1	22.7
Incremental Delay (d_2), s/veh	1.9	2.4		0.2	1.4	0.5		2.5	0.3	2.3	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.0	27.9		33.2	25.6	8.7		47.7	9.5	33.3	26.1	22.7
Level of Service (LOS)	D	C		C	C	A		D	A	C	C	C
Approach Delay, s/veh / LOS	30.2	C		16.2	B		31.9	C		31.4	C	
Intersection Delay, s/veh / LOS	23.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	0.7	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

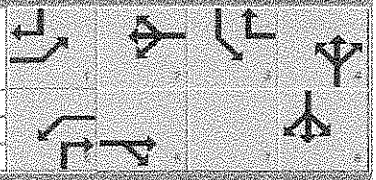
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2016 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2016 No Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	221	2	68	332	411	3	122	123	574	92	49

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	15.4	4.3	11.6	43.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



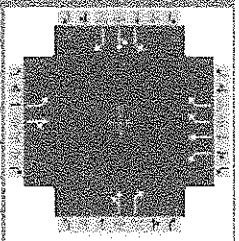
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	31.7	10.3	32.0		18.0		50.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			10.7		37.1
Green Extension Time (g_e), s	0.0	0.0	0.5	0.0		0.0		1.0
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.23

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	33	242		74	361	447		136	134	624	100	53
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.7		0.0	19.8	7.7		7.6	8.7	35.1	3.7	2.2
Cycle Queue Clearance Time (g_c), s	1.9	12.7		0.0	19.8	7.7		7.6	8.7	35.1	3.7	2.2
Capacity (*c*), veh/h	66	429		244	444	1781		200	225	712	748	680
Volume-to-Capacity Ratio (*X*)	0.496	0.565		0.303	0.813	0.251		0.679	0.594	0.876	0.134	0.078
Available Capacity (c_a), veh/h	66	429		244	444	1781		200	225	712	748	680
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	6.3		1.9	10.9	0.1		4.0	3.0	17.0	1.6	0.8
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.19	0.00	0.01		0.00	0.42	0.00	0.00	0.10
Uniform Delay (d_1), s/veh	52.0	37.4		44.1	39.9	9.1		47.4	5.6	30.9	21.3	18.5
Incremental Delay (d_2), s/veh	2.1	5.3		0.3	15.0	0.3		7.4	2.9	11.4	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	54.1	42.7		44.3	54.8	9.4		54.8	8.5	42.3	21.4	18.5
Level of Service (LOS)	D	D		D	D	A		D	A	D	C	B
Approach Delay, s/veh / LOS	44.1	D		30.9	C		31.8	C		38.0	D	
Intersection Delay, s/veh / LOS	35.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	1.9	A	0.9	A	1.8	A

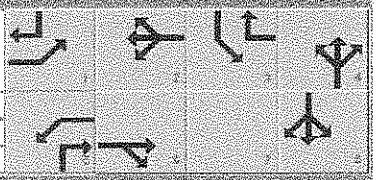
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2018 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2018 Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	33	264	8	136	208	550	2	68	50	323	78	27

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.0	24.4	4.3	6.6	29.3	0.0	
Yellow	3.0	3.6	3.0	3.7	3.6	0.0	
Red	3.0	2.7	3.0	2.7	3.1	0.0	

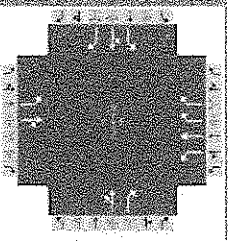
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	40.7	10.3	41.0		13.0		36.0
Change Period, (*Y+Rc*), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			5.9		19.0
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	36	296		148	226	598		76	54	351	85	29
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.5		0.0	8.8	9.7		3.9	3.2	17.0	3.3	1.3
Cycle Queue Clearance Time (g_c), s	1.9	12.5		0.0	8.8	9.7		3.9	3.2	17.0	3.3	1.3
Capacity (*c*), veh/h	72	637		364	659	1814		125	169	530	557	527
Volume-to-Capacity Ratio (*X*)	0.496	0.464		0.406	0.343	0.330		0.608	0.322	0.662	0.152	0.056
Available Capacity (c_a), veh/h	72	637		364	659	1814		125	169	530	557	527
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	5.7		3.1	4.1	2.7		2.0	1.1	7.6	1.5	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.32	0.00	0.30		0.00	0.15	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.0	25.6		33.4	24.2	8.2		45.4	9.2	31.0	26.2	22.7
Incremental Delay (d_2), s/veh	1.9	2.4		0.3	1.4	0.5		6.0	0.4	2.5	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	49.0	28.0		33.7	25.6	8.7		51.4	9.6	33.5	26.2	22.7
Level of Service (LOS)	D	C		C	C	A		D	A	C	C	C
Approach Delay, s/veh / LOS	30.3	C		16.4	B		34.0	C		31.5	C	
Intersection Delay, s/veh / LOS	23.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	0.7	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

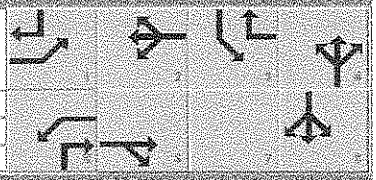
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2018 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2018 Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	223	2	78	335	415	4	132	133	580	104	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	16.4	4.3	12.6	41.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



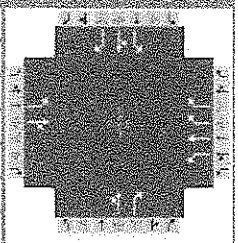
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	32.7	10.3	33.0		19.0		48.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			11.4		38.7
Green Extension Time (g_e), s	0.0	0.0	0.5	0.0		0.1		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	33	245		85	364	451		148	145	630	113	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.7		0.0	19.7	8.0		8.2	9.4	36.7	4.3	2.3
Cycle Queue Clearance Time (g_c), s	1.9	12.7		0.0	19.7	8.0		8.2	9.4	36.7	4.3	2.3
Capacity (*c*), veh/h	66	446		254	461	1755		217	239	679	713	651
Volume-to-Capacity Ratio (*X*)	0.496	0.548		0.333	0.790	0.257		0.680	0.604	0.928	0.158	0.083
Available Capacity (c_a), veh/h	66	446		254	461	1755		217	239	679	713	651
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	6.3		2.1	10.7	2.4		4.3	3.2	19.0	1.9	0.8
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.22	0.00	0.26		0.00	0.46	0.00	0.00	0.10
Uniform Delay (d_1), s/veh	52.0	36.6		43.6	39.0	9.5		46.8	5.9	32.9	22.8	19.7
Incremental Delay (d_2), s/veh	2.1	4.8		0.3	12.9	0.4		6.9	3.1	18.8	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	54.1	41.4		43.9	51.9	9.9		53.7	9.0	51.7	22.8	19.7
Level of Service (LOS)	D	D		D	D	A		D	A	D	C	B
Approach Delay, s/veh / LOS	42.9	D		30.1	C		31.6	C		45.4	D	
Intersection Delay, s/veh / LOS	37.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	2.0	A	1.0	A	1.8	A

HCS 2010 Signalized Intersection Results Summary

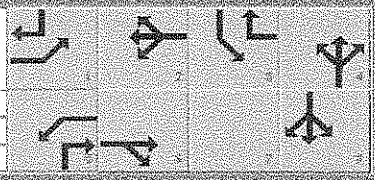
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2018 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2018 No Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	33	264	8	129	208	550	2	61	45	323	74	27

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	24.4	4.3	6.6	29.3	0.0	
Yellow	3.0	3.6	3.0	3.7	3.6	0.0	
Red	3.0	2.7	3.0	2.7	3.1	0.0	



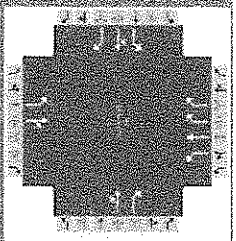
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	40.7	10.3	41.0		13.0		36.0
Change Period, $(Y+R_c)$, s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway *(MAH)*, s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			5.5		19.0
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate *(v)*, veh/h	36	296		140	226	598		68	49	351	80	29
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.5		0.0	8.8	9.7		3.5	2.9	17.0	3.1	1.3
Cycle Queue Clearance Time (g_c), s	1.9	12.5		0.0	8.8	9.7		3.5	2.9	17.0	3.1	1.3
Capacity *(c)*, veh/h	72	637		364	659	1814		125	169	530	557	527
Volume-to-Capacity Ratio *(X)*	0.496	0.464		0.385	0.343	0.330		0.547	0.290	0.662	0.144	0.056
Available Capacity (c_a), veh/h	72	637		364	659	1814		125	169	530	557	527
Back of Queue *(Q)*, veh/ln (50th percentile)	0.9	5.7		2.9	4.1	2.7		1.7	1.0	7.6	1.4	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.09	0.00		0.30	0.00	0.30		0.00	0.14	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.0	25.6		33.1	24.2	8.2		45.3	9.2	31.0	26.1	22.7
Incremental Delay (d_2), s/veh	1.9	2.4		0.2	1.4	0.5		2.9	0.3	2.5	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0	28.0		33.4	25.6	8.7		48.1	9.5	33.5	26.1	22.7
Level of Service (LOS)	D	C		C	C	A		D	A	C	C	C
Approach Delay, s/veh / LOS	30.3	C		16.3	B		32.0	C		31.5	C	
Intersection Delay, s/veh / LOS	23.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	0.7	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

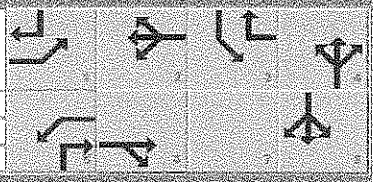
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2018 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2018 No Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	223	2	69	335	415	3	123	124	580	93	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	16.4	4.3	12.6	41.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



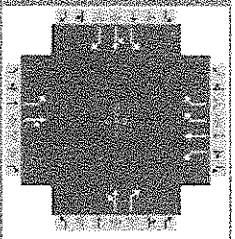
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	32.7	10.3	33.0		19.0		48.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	3.9		2.0			10.7		38.7
Green Extension Time (g_e), s	0.0	0.0	0.5	0.0		0.1		0.5
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	33	245		75	364	451		137	135	630	101	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	1.9	12.7		0.0	19.7	8.0		7.6	8.7	36.7	3.9	2.3
Cycle Queue Clearance Time (g_c), s	1.9	12.7		0.0	19.7	8.0		7.6	8.7	36.7	3.9	2.3
Capacity (*c*), veh/h	66	446		254	461	1755		217	239	679	713	651
Volume-to-Capacity Ratio (*X*)	0.496	0.548		0.295	0.790	0.257		0.630	0.563	0.928	0.142	0.083
Available Capacity (c_a), veh/h	66	446		254	461	1755		217	239	679	713	651
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	6.3		1.9	10.7	2.4		3.8	2.9	19.0	1.7	0.8
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.09	0.00		0.19	0.00	0.26		0.00	0.41	0.00	0.00	0.10
Uniform Delay (d_1), s/veh	52.0	36.6		43.2	39.0	9.5		46.5	5.9	32.9	22.7	19.7
Incremental Delay (d_2), s/veh	2.1	4.8		0.2	12.9	0.4		4.4	1.9	18.8	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	54.1	41.4		43.4	51.9	9.9		50.9	7.8	51.7	22.7	19.7
Level of Service (LOS)	D	D		D	D	A		D	A	D	C	B
Approach Delay, s/veh / LOS	42.9	D		29.9	C		29.5	C		45.7	D	
Intersection Delay, s/veh / LOS	37.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	2.0	A	0.9	A	1.8	A

HCS 2010 Signalized Intersection Results Summary

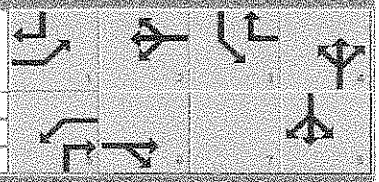
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2038 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2038 Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	37	292	9	150	230	608	2	74	54	357	86	30

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	23.4	4.3	7.6	29.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



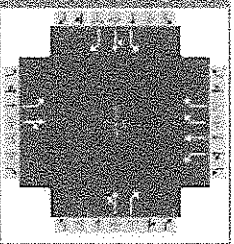
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	39.7	10.3	40.0		14.0		36.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.2		2.0			6.2		21.3
Green Extension Time (g_e), s	0.0	0.0	0.7	0.0		0.0		0.6
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.04

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	40	327		163	250	661		83	59	388	93	33
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1852		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	2.2	14.3		0.0	10.0	11.3		4.2	3.4	19.3	3.7	1.4
Cycle Queue Clearance Time (g_c), s	2.2	14.3		0.0	10.0	11.3		4.2	3.4	19.3	3.7	1.4
Capacity (*c*), veh/h	72	619		327	640	1786		144	184	530	557	527
Volume-to-Capacity Ratio (*X*)	0.556	0.529		0.498	0.390	0.370		0.573	0.318	0.732	0.168	0.062
Available Capacity (c_a), veh/h	72	619		327	640	1786		144	184	530	557	527
Back of Queue (*Q*), veh/ln (50th percentile)	1.1	6.7		3.7	4.7	3.2		2.1	1.1	8.8	1.6	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.11	0.00		0.38	0.00	0.36		0.00	0.16	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.1	26.9		36.7	25.3	8.9		44.6	8.8	31.8	26.3	22.7
Incremental Delay (d_2), s/veh	5.5	3.2		0.4	1.8	0.6		3.5	0.4	4.5	0.1	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	52.7	30.2		37.2	27.1	9.5		48.2	9.2	36.3	26.3	22.7
Level of Service (LOS)	D	C		D	C	A		D	A	D	C	C
Approach Delay, s/veh / LOS	32.6	C		17.8	B		32.0	C		33.7	C	
Intersection Delay, s/veh / LOS	25.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.1	A	2.3	B	0.7	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

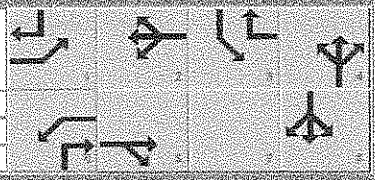
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2038 Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2038 Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	34	247	2	85	370	459	4	145	146	641	114	55

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

Green	4.0	18.4	4.3	12.6	49.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



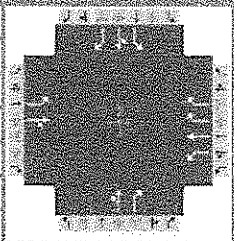
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	34.7	10.3	35.0		19.0		56.0
Change Period, ($Y+R_c$), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.4		2.0			13.6		46.3
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		0.7
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.96

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	37	271		92	402	499		162	159	697	124	60
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	2.4	15.6		0.0	24.5	9.0		10.0	11.6	44.3	4.9	2.6
Cycle Queue Clearance Time (g_c), s	2.4	15.6		0.0	24.5	9.0		10.0	11.6	44.3	4.9	2.6
Capacity (*c*), veh/h	60	440		222	454	1846		199	219	743	781	702
Volume-to-Capacity Ratio (*X*)	0.613	0.615		0.417	0.885	0.270		0.813	0.723	0.937	0.159	0.085
Available Capacity (c_a), veh/h	60	440		222	454	1846		199	219	743	781	702
Back of Queue (*Q*), veh/ln (50th percentile)	1.3	7.8		2.7	14.1	2.7		5.9	4.3	22.7	2.2	1.0
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.13	0.00		0.28	0.00	0.30		0.00	0.62	0.00	0.00	0.12
Uniform Delay (d_1), s/veh	57.2	40.9		50.2	44.1	8.9		52.5	6.1	33.9	22.3	19.3
Incremental Delay (d_2), s/veh	12.7	6.3		0.5	21.5	0.4		20.7	9.8	19.1	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	69.9	47.2		50.7	65.6	9.3		73.2	15.9	52.9	22.3	19.3
Level of Service (LOS)	E	D		D	E	A		E	B	D	C	B
Approach Delay, s/veh / LOS	49.9	D		35.9	D		44.9	D		46.4	D	
Intersection Delay, s/veh / LOS	42.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	1.0	A	1.9	A

HCS 2010 Signalized Intersection Results Summary

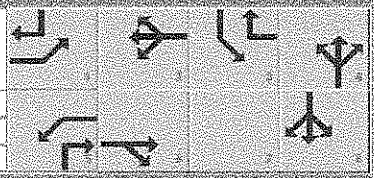
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	AM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2038 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2038 No Build AM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	37	292	9	143	230	608	2	67	49	357	82	30

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	23.4	4.3	6.6	30.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



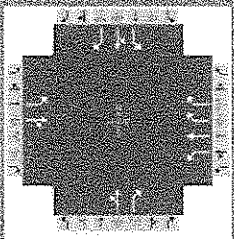
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	39.7	10.3	40.0		13.0		37.0
Change Period, $(Y+R_c)$, s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway *(MAH)*, s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.2		2.0			5.8		21.0
Green Extension Time (g_e), s	0.0	0.0	0.7	0.0		0.0		0.7
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.02

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate *(v)*, veh/h	40	327		155	250	661		75	53	388	89	33
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1810	1852		1810	1900	1411		1897	1578	1810	1900	1578
Queue Service Time (g_s), s	2.2	14.3		0.0	10.0	11.0		3.8	3.1	19.0	3.4	1.4
Cycle Queue Clearance Time (g_c), s	2.2	14.3		0.0	10.0	11.0		3.8	3.1	19.0	3.4	1.4
Capacity *(c)*, veh/h	72	619		327	640	1814		125	169	548	576	543
Volume-to-Capacity Ratio *(X)*	0.556	0.529		0.475	0.390	0.364		0.599	0.316	0.708	0.155	0.060
Available Capacity (c_a), veh/h	72	619		327	640	1814		125	169	548	576	543
Back of Queue *(Q)*, veh/ln (50th percentile)	1.1	6.7		3.5	4.7	3.1		2.0	1.0	8.6	1.5	0.5
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)* (50th percentile)	0.11	0.00		0.36	0.00	0.35		0.00	0.15	0.00	0.00	0.06
Uniform Delay (d_1), s/veh	47.1	26.9		36.4	25.3	8.5		45.4	8.8	30.9	25.5	22.0
Incremental Delay (d_2), s/veh	5.5	3.2		0.4	1.8	0.6		5.5	0.4	3.6	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	52.7	30.2		36.8	27.1	9.0		50.9	9.2	34.5	25.5	22.1
Level of Service (LOS)	D	C		D	C	A		D	A	C	C	C
Approach Delay, s/veh / LOS	32.6	C		17.3	B		33.6	C		32.1	C	
Intersection Delay, s/veh / LOS	24.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.1	A	2.2	B	0.7	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

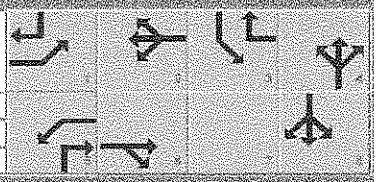
General Information				Intersection Information	
Agency	Bayer Becker			Duration, h	0.25
Analyst	CPT	Analysis Date	2/25/2015	Area Type	Other
Jurisdiction	Glendale	Time Period	PM Peak	PHF	0.92
Intersection	Sharon Rd & Chester Rd	Analysis Year	2038 No Build	Analysis Period	1> 7:00
File Name	14M095-000 Sharon & Chester 2038 No Build PM.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	34	247	2	76	370	459	3	136	137	641	103	55

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

Green	4.0	18.4	4.3	11.6	50.3	0.0
Yellow	3.0	3.6	3.0	3.7	3.6	0.0
Red	3.0	2.7	3.0	2.7	3.1	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	4.0	1.3	3.0		11.0		9.0
Phase Duration, s	10.0	34.7	10.3	35.0		18.0		57.0
Change Period, (*Y+Rc*), s	6.0	6.3	6.3	6.3		6.4		6.7
Max Allow Headway (*MAH*), s	2.9	0.0	2.9	0.0		3.0		2.9
Queue Clearance Time (g_s), s	4.4		2.0			12.9		45.6
Green Extension Time (g_e), s	0.0	0.0	0.6	0.0		0.0		1.0
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		0.50

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (*v*), veh/h	37	271		83	402	499		151	149	697	112	60
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1859		1810	1900	1411		1898	1578	1810	1900	1578
Queue Service Time (g_s), s	2.4	15.6		0.0	24.5	8.8		9.4	10.9	43.6	4.4	2.6
Cycle Queue Clearance Time (g_c), s	2.4	15.6		0.0	24.5	8.8		9.4	10.9	43.6	4.4	2.6
Capacity (*c*), veh/h	60	440		222	454	1869		183	206	758	796	715
Volume-to-Capacity Ratio (*X*)	0.613	0.615		0.373	0.885	0.267		0.824	0.722	0.919	0.141	0.084
Available Capacity (c_a), veh/h	60	440		222	454	1869		183	206	758	796	715
Back of Queue (*Q*), veh/ln (50th percentile)	1.3	7.8		2.4	14.1	2.6		5.6	4.1	21.8	1.9	0.9
Overflow Queue (Q_3), veh/ln	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.13	0.00		0.25	0.00	0.29		0.00	0.59	0.00	0.00	0.12
Uniform Delay (d_1), s/veh	57.2	40.9		49.8	44.1	8.5		53.2	6.1	32.9	21.5	18.7
Incremental Delay (d_2), s/veh	12.7	6.3		0.4	21.5	0.4		23.8	10.3	15.9	0.0	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	69.9	47.2		50.2	65.6	8.9		77.0	16.3	48.8	21.5	18.7
Level of Service (LOS)	E	D		D	E	A		E	B	D	C	B
Approach Delay, s/veh / LOS	49.9	D		35.5	D		46.9	D		43.2	D	
Intersection Delay, s/veh / LOS	41.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.8	C	2.6	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	2.1	B	1.0	A	1.9	A

APPENDIX E
EXISTING TRAFFIC SIGNAL TIMING

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Controller Timing Plan (MM)2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	EBLT	WB		SB	WBLT	EB		NB								
Min Green	4	15	0	10	4	23	0	5	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	5	0	5	0	5	0	5	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	24	0	17	0	16	0	24	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	2.0	2.0	0.0	2.0	2.0	2.0	0.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	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
Max 1	10	40	0	45	10	40	0	20	35	35	35	35	35	35	35	35
Max 2	15	45	0	40	15	45	0	25	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	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
Yellow	3.0	3.6	3.0	3.6	3.0	3.6	3.0	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	3.0	2.7	0.0	3.1	3.0	2.7	0.0	2.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	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
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Controller Overlaps

Vehicle Overlaps (MM)2-2

Overlap	Type	Lag Green	Yellow	Red	Advance Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phase	Lag 2 Phase	Flash Green
A	2	Yes	No	Yes	No		No	No	0
A	4	Yes	No	No	No		No	No	0
B	1	Yes	No	No	No		No	No	0
C	5	Yes	No	No	No		No	No	0

PPLT FYA

Overlap	Protected Phase	Permissive Phase	Flash Arrow Output	Flash Arrow Channel	FYA Delay	FYA Clearance	Special Function Disable

Guaranteed Minimum Time Data (MM) 2-4

Phase Time Data

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	0	0	0	3.0	0.0	0
B02	0	0	7	3.0	0.0	0
C03	0	0	0	3.0	0.0	0
D04	0	0	7	3.0	0.0	0
E05	0	0	0	3.0	0.0	0
F06	0	0	7	3.0	0.0	0
G07	0	0	0	3.0	0.0	0
H08	0	0	7	3.0	0.0	0
I09	0	0	0	3.0	0.0	0
J10	0	0	0	3.0	0.0	0
K11	0	0	0	3.0	0.0	0
L12	0	0	0	3.0	0.0	0
M13	0	0	0	3.0	0.0	0
N14	0	0	0	3.0	0.0	0
O15	0	0	0	3.0	0.0	0
P16	0	0	0	3.0	0.0	0

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Controller Options

Controller Options (MM)2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Green Phase																
Guaranteed Passage																
Non Act 1		X				X										
Non Act 2																
Dual Entry		X				X										
Conditional Service																
Conditional Reservice																
Ped Reservice																
Rest In Walk																
Flashing Walk																
Ped Clear Yellow																
Ped Clear Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Act Pre-Time (MM)2-7

Pre-Time Mode Enable: No Free Input Enables Pre-Timed: Yes

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed Phase																

Phase Recall Options (MM)2-8

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector	X	X				X										
Vehicle Recall		X				X										
Ped Recall						X										
Max Recall																
Soft Recall																
No Rest																
Al Calc																

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Coordination Options

Coordination Options (MM)3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	SYS	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell/Add Time	0		
Delay Coord Walk to LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	Yes
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Initial Green	No
Re-Sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM)3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM)3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Coordination Pattern Data
Pattern Data (MM)3-2

Pattern - 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits in	Seconds
Cycle	100	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 1)	11	36	0	32	11	36	0	21	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	47s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits in	Seconds
Cycle	100	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 2)	11	36	0	32	11	36	0	21	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	47s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits in	Seconds
Cycle	100	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 3)	13	36	0	30	13	36	0	21	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 4

Split Pattern	4	TS2 (Pat-Off)	1-1	Splits in	Seconds
Cycle	100	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 4)	11	36	0	32	11	36	0	21	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	47s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 5

Split Pattern	5	TS2 (Pat-Off)	1-2	Splits in	Seconds
Cycle	100	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 5)	11	36	0	32	11	36	0	21	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	47s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 6

Split Pattern	6	TS2 (Pat-Off)	1-3	Splits in	Seconds
Cycle	110	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 6)	12	38	0	35	12	38	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	110s	50s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 7

Split Pattern	7	TS2 (Pat-Off)	2-1	Splits in	Seconds
Cycle	110	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 7)	12	38	0	35	12	38	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	110s	50s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 8

Split Pattern	8	TS2 (Pat-Off)	2-2	Splits in	Seconds
Cycle	110	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 8)	12	38	0	38	12	38	0	22	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	110s	50s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 9

Split Pattern	9	TS2 (Pat-Off)	2-3	Splits in	Seconds
Cycle	110	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 9)	12	38	0	38	12	38	0	22	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	110s	50s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 10

Split Pattern	10	TS2 (Pat-Off)	3-1	Splits in	Seconds
Cycle	110	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 10)	12	36	0	40	17	31	0	22	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	110s	48s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 11

Split Pattern	11	TS2 (Pat-Off)	3-2	Splits in	Seconds
Cycle	120	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 11)	12	37	0	46	14	35	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	120s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 12

Split Pattern	12	TS2 (Pat-Off)	3-3	Splits in	Seconds
Cycle	120	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 12)	12	37	0	46	14	35	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	120s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 13

Split Pattern	13	TS2 (Pat-Off)	4-1	Splits in	Seconds
Cycle	120	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 13)	12	37	0	46	14	35	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	120s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 14

Split Pattern	14	TS2 (Pat-Off)	4-2	Splits in	Seconds
Cycle	120	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 14)	12	37	0	46	14	35	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	120s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 15

Split Pattern	15	TS2 (Pat-Off)	4-3	Splits in	Seconds
Cycle	120	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 15)	12	37	0	46	14	35	0	25	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	120s	49s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 16

Split Pattern	16	TS2 (Pat-Off)	5-1	Splits in	Seconds
Cycle	130	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 16)	13	42	0	49	16	39	0	26	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	130s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 17

Split Pattern	17	TS2 (Pat-Off)	5-2	Splits in	Seconds
Cycle	130	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 17)	13	42	0	49	16	39	0	26	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	130s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 18

Split Pattern	18	TS2 (Pat-Off)	5-3	Splits in	Seconds
Cycle	130	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 18)	13	42	0	49	16	39	0	26	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	130s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 19

Split Pattern	19	TS2 (Pat-Off)	6-1	Splits in	Seconds
Cycle	130	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 19)	13	42	0	49	16	39	0	26	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	130s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

Pattern - 20

Split Pattern	20	TS2 (Pat-Off)	6-2	Splits in	Seconds
Cycle	130	Std (COS)	0	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		SB	WBLT	EB		NB								
Splits (Split Pat 20)	13	42	0	49	16	39	0	26	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	130s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

City of Sharonville, OH

Sharon & Chester - Sharon Rd @ Chester Rd - Econolite Type - ASC3

Time Base Day Plan/Schedule
Day Plan (MM)5-3

Day Plan - 1

Event	Action Plan	Start Time
1	100	12:00 AM
2	6	6:00 AM
3	11	6:45 AM
4	8	9:00 AM
5	13	11:00 AM
6	8	1:00 PM
7	15	2:00 PM
8	20	4:30 PM
9	10	6:30 PM
10	3	7:30 PM
11	100	10:30 PM

Day Plan - 2

Event	Action Plan	Start Time
1	100	12:00 AM
2	3	9:00 AM
3	100	6:00 PM

Schedule (MM)5-4

Schedule Number - 1

Day Plan Number: 1

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan Number: 2

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		