



## VILLAGE of GLENDALE

GLENDALE, OHIO 45246

### Village Gate Traffic Impact

Glendale statutes require that an application for development using the Planned Development Overlay (PDO) code must include a traffic study assessing the impact on roadway traffic near the proposed development. In addition, the developer must provide funds so that the Village can utilize a second engineering firm to make an independent traffic impact evaluation. See the following pages for highlights from the traffic report prepared for Drees Homes by Bayer Becker and comment by TEC Engineering, retained by the Village.

**Bayer Becker states: "Based on engineering judgement and the analysis contained in this report, the proposed Village Gate development will not significantly impact operations on the adjacent roadway network."**

**TEC Engineering states: "TEC agrees with the overall methodology of the (Bayer Becker) study and that the resulting traffic impact on the roadway network from the development will be minimal."**

Following this cover page, an aerial graphic shows the projected traffic increase on Chester and Oak Roads and the increased 4-way stop delay at the Chester/Oak intersection.

**On Chester Road** the AM Peak Hour traffic increase is projected to be 23 vehicles, **less than one car every two minutes**. The PM Peak Hour increase is projected as 39 vehicles, **significantly less than one additional car every minute**.

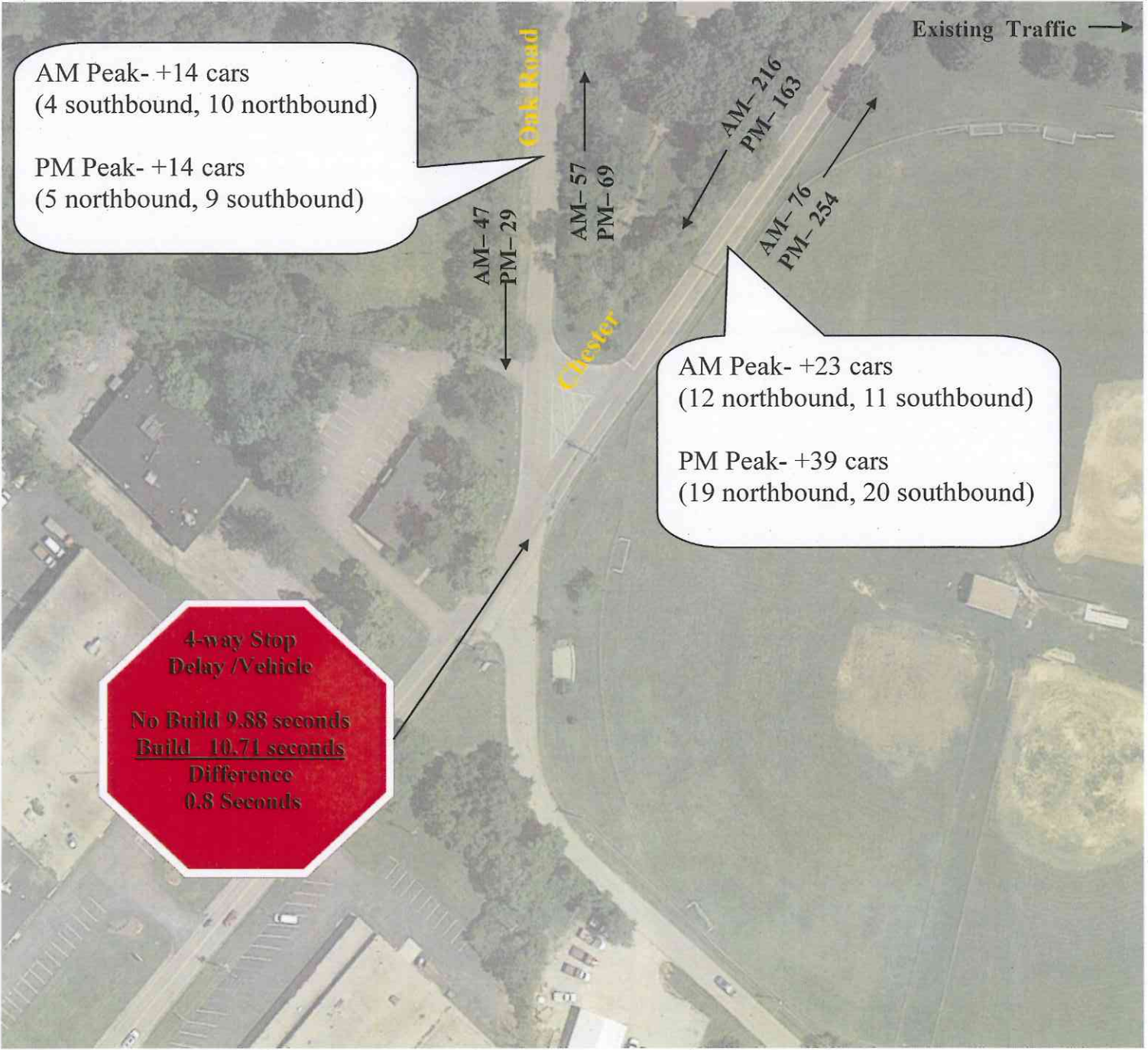
**On Oak Road** both the AM and PM Peak Hour traffic increase is projected to be 14 vehicles, **less than one car every four minutes**.

Finally, **the 4-way Stop Delay/Vehicle is shown as increasing by 0.8 seconds for northbound delay** at the Chester/Oak intersection during the PM Peak Hour if Village Gate is developed.

A tabulation of key data from the Bayer Becker traffic study is shown on a display titled "Village Gate Traffic Impact Summary". In addition to the above information the display also includes current traffic levels on Chester and Oak Roads.

Bayer Becker Figure 6 shows that **additional Village Gate Site Trips after Full Build-Out would be 75 during the AM Peak Hour and 98 during the PM Peak Hour**. Note that the study was based on 93 Single-Family Detached Homes while the 08/27/15 revised Drees Application is for only 80 homes.

**In summary, both Bayer Becker and TEC conclude that development of the proposed 80-93 homes at Village Gate would not significantly deteriorate traffic conditions in the vicinity of the development.**



## Village Gate Traffic Impact Summary

### Chester Road Traffic between Oak Rd & Sharon Rd

	2015 Vehicles/hour	2018 Village Gate Buildout Vehicles/hour	
AM Peak Hour (Oak/Sharon intersections)	292/314	315/456	23 additional vehicles/hour
PM Peak Hour (Oak/Sharon intersections)	417/408	456/447	39 additional vehicles/hour

Peak Hour Chester Rd traffic is combined northbound and southbound between Oak Rd & Sharon Rd

### Oak Road Traffic at Chester Intersection

	2015 Vehicles/hour	2018 Village Gate Buildout Vehicles/hour	
AM Peak Hour	104	118	14 additional vehicles/hour
PM Peak Hour	98	112	14 additional vehicles/hour

Peak Hour Oak Rd traffic is combined eastbound and westbound at Chester intersection

### Intersection Delay Chester/Oak

	2018 without Village Gate Seconds Delay	2018 Village Gate Buildout Seconds Delay	
Northbound delay	9.88	10.71	0.8 seconds additional delay
Southbound delay	8.48	9.05	0.6 seconds additional delay

PM Peak Hour traffic

# Memo

To: Loretta Rokey, Village of Glendale  
From: Andrea Harth, P.E.  
Date: 6/10/15  
Re: Village Gate TIS Review

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This memo will serve as TEC's review of the Village Gate TIS dated May 2015.

## 1. Trip Distribution

a. Trips show entering and exiting in opposite directions for each peak.

- i. AM Peak- 60% enter from the north, and 22% exit to the north. 22% enter from the south, 60% exit to the south
- ii. PM Peak- 32% enter from the north, 53% exit to the north. 53% enter from the south and 32% exit to the south.

Typically, trips would enter and exit to the same direction, usually towards a major thoroughfare. The trips appear to be based on the existing distribution along Chester, which are heavier in the morning. These trips are likely trips from the north to the commercial/industrial area.

- b. The percentage of thru vehicles for westbound Oak Road seems high. We would assume 5-10%.
- c. The percentage of northbound thru vehicles seems high at Sharon and Chester. We would assume most trips would be towards the interstate.

## 2. Site Circulation

We are concerned about the location of the roundabout on Oak Road. The proposed roundabout is only 270' from Chester Road. Given the trips generated by Village Gate, future development may cause longer queues at Oak and Chester which could potentially back up into the roundabout.

## 3. Future Intersection Consideration

As discussed, the ROW needs should be considered for the future intersection improvements, such as widening Chester to add turn lanes or some other intersection treatment. The site plans shows a 30' half ROW. (Existing ROW is shown as 40' Total) The proposed ROW should accommodate future widening.

TEC agrees with the overall methodology of the study and that the resulting traffic impact on the roadway network from the development will be minimal.

**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*

## 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.

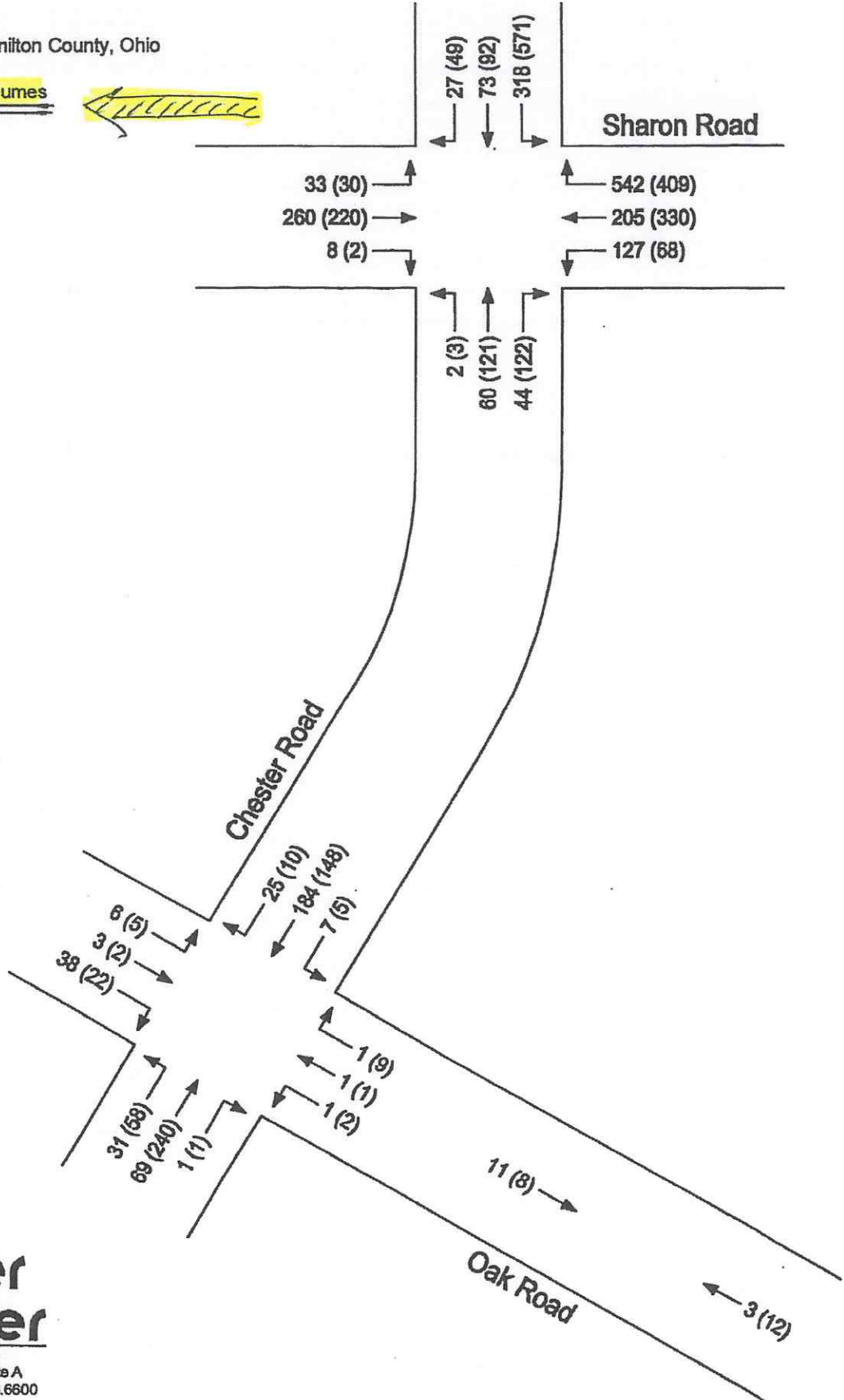
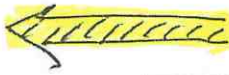
Based upon engineering judgment and the analysis contained in this report, the proposed Village Gate development will not significantly impact operations on the adjacent roadway network.

Figure 3

Village Gate  
 Village of Glendale, Hamilton County, Ohio

2015 Existing Traffic Volumes

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



N.T.S.

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

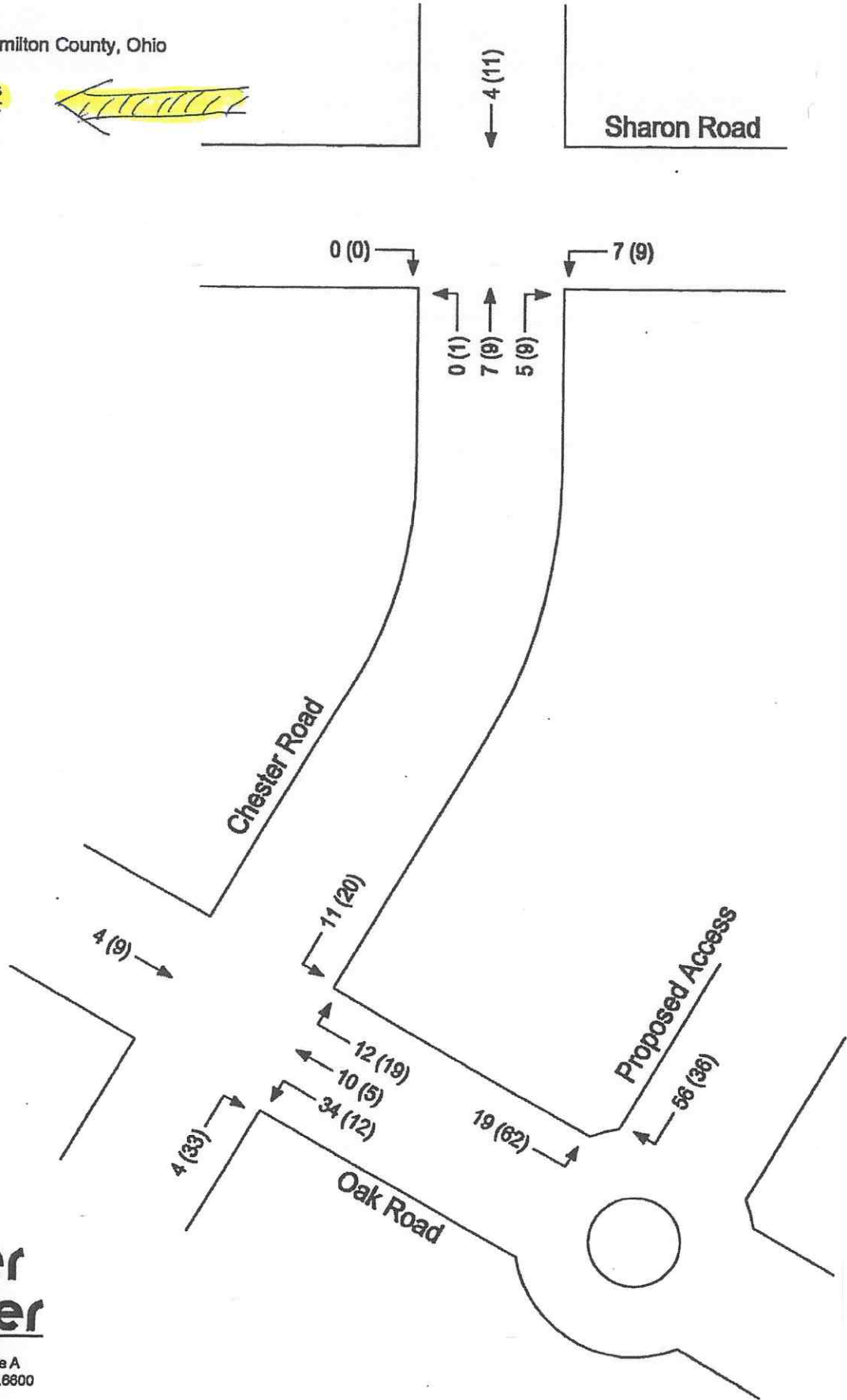
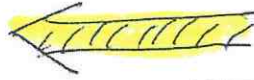


Figure 6

Village Gate  
Village of Glendale, Hamilton County, Ohio

Full Build-Out Site Trips

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



**bayer  
becker**  
www.bayerbecker.com  
6900 Tylersville Road, Suite A  
Mason, OH 45040 - 513.336.6800

### ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	CPT	Intersection	Chester Rd & Oak Rd
Agency/Co.	Bayer Becker	Jurisdiction	Glendale
Date Performed	2/25/2015	Analysis Year	2018 No Build
Analysis Time Period	PM Peak		

Project ID	Village Gate
East/West Street:	Oak Rd
North/South Street:	Chester Rd

Volume Adjustments and Site Characteristics						
Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Volume (veh/h)	5	2	22	2	1	9
%Thrus Left Lane						
Approach	Northbound			Southbound		
	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 <sub>s</sub> (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							

[Handwritten Signature]

### ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	CPT	Intersection	Chester Rd & Oak Rd
Co.	Bayer Becker	Jurisdiction	Glendale
Performed	2/25/2015	Analysis Year	2018 Build
Analysis Time Period	PM Peak		

Project ID: Village Gate  
 East/West Street: Oak Rd      North/South Street: Chester Rd

Volume Adjustments and Site Characteristics						
Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	5	11	22	14	6	28
% Thrus Left Lane						
Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
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 <sub>s</sub> (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							

