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VILLAGE OF GLENDALE

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## 1. Executive Summary

The Village of Glendale takes great pride in being a well developed, historic community with a small town feel. The purpose of this document is to help ensure future development can be weaved into existing infrastructure seamlessly. The Village has taken this step to evaluate the transportation impact of potential future development in the area adjacent to I-75, between Glendale Milford Road and East Sharon Road. This report analyzes projected generated traffic based on future land use assumptions and then is distributed onto the existing collector streets.

This report will provide a “worst case scenario” projection in order to account for high intensity development within the study area and present the most appropriate improvement recommendations. It is important to note that the land uses suggested in this document are not a direct reflection of the Village’s vision for the property, and are solely being used to aid in traffic projections.

In an effort to assist in future recommendations based on development, this study concludes the following potential improvements may be necessary to provide adequate traffic flow in the area:



- The current allowable access along Sharon Road should be reviewed in detail when development plans are in for review, as this existing curb cut may be problematic due to the proximity of the on and off ramp from I-75.
- In order to allow traffic to complete a northbound left onto Sharon Road at the signal with Chester Road, a direct southern extension of Chester Road into the development is recommended.
- The current alignment of Chester Road and Oak Road needs to be improved. Improvements to the alignment could be completed through the design of a new intersection or roundabout.
- The private drive along the south intersecting with Glendale Milford Road should be dedicated as future development occurs.

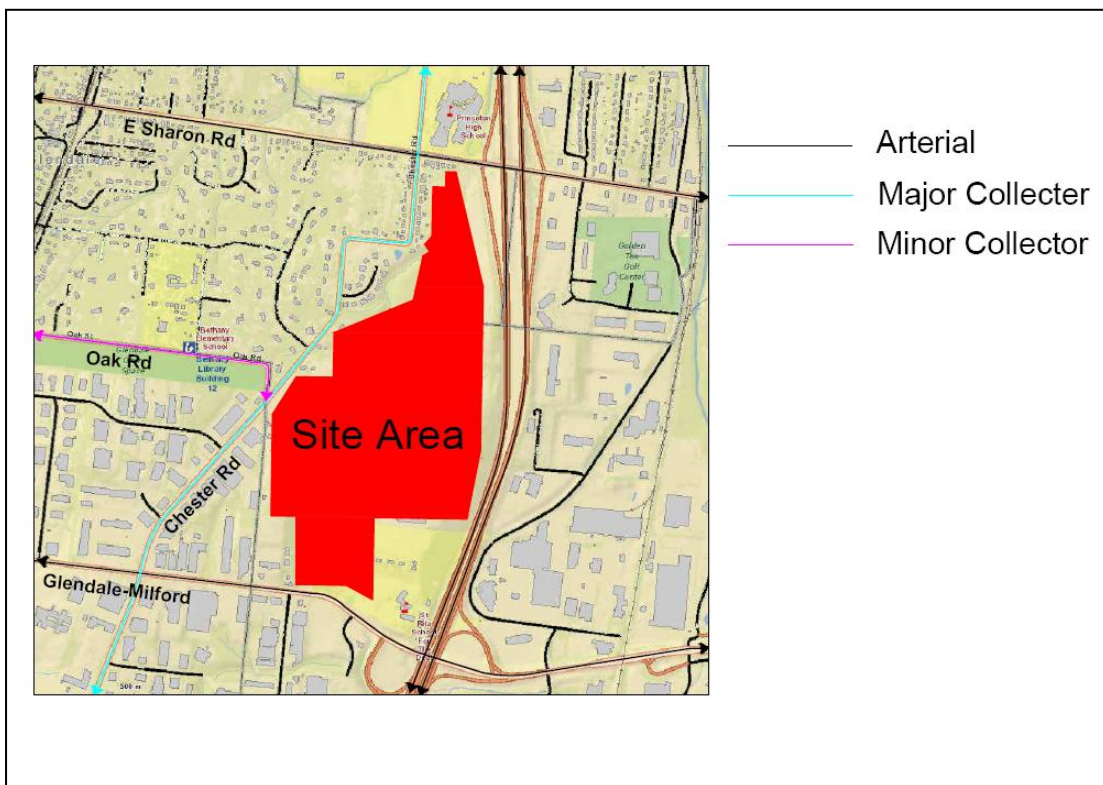
The analysis of future development patterns in conjunction with projected roadway improvements will allow for a well planned design that provides for adequate transportation and pedestrian needs for the community. The findings and recommendations within this document are to serve as guidelines as the area develops.

## 2. Introduction

The objective of this study is to provide recommendations for transportation improvements surrounding the undeveloped or underdeveloped properties within the study area based upon future land use assumptions. The plan will focus on creating strategies to allow development and redevelopment to happen in a manner that meets the needs of potential developers as well as the community as a whole, while at the same time creating a unique environment for this area of Glendale.

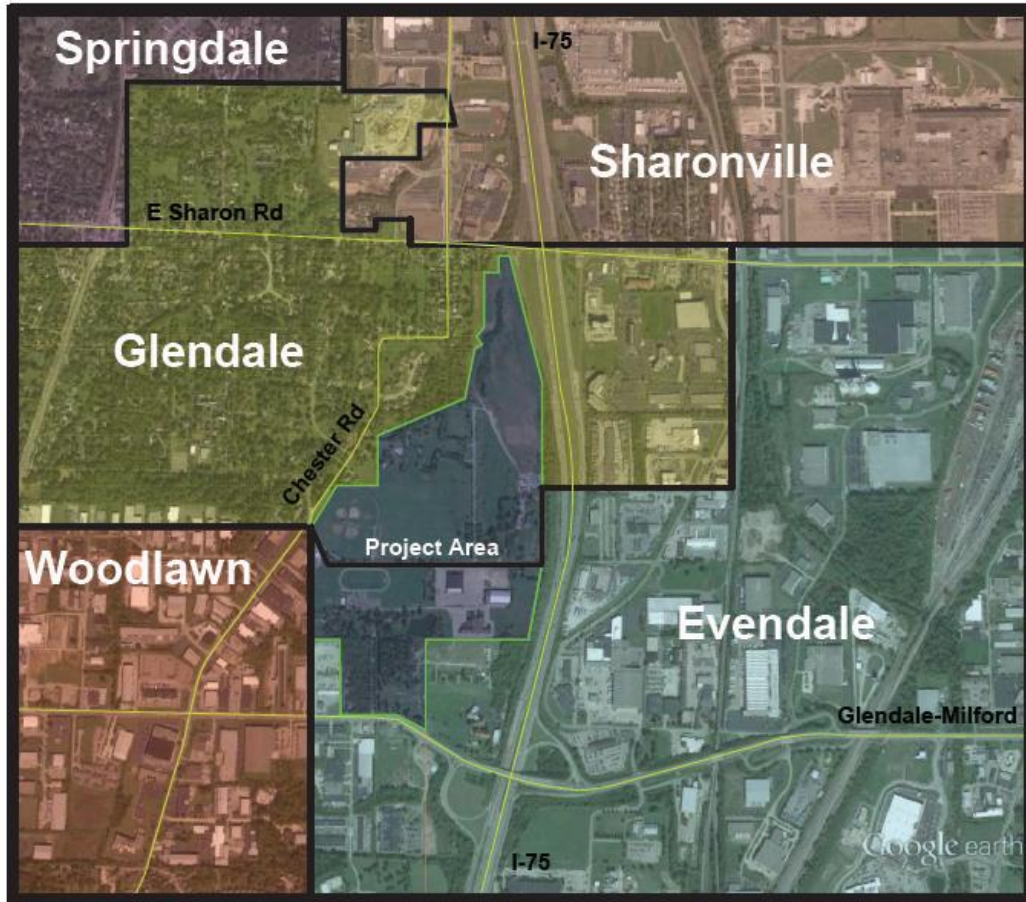
### Plan Area

The plan area encompasses properties located within and around the Landmark Church site, including portions within the neighboring community of Evendale. With three roadways surrounding the site, Chester Road to the west, Glendale Milford Road to the south and East Sharon Road to the north, it is important to determine the potential impacts any new development may have on this roadway network. There is no outlet for this development to the east, as I-75 extends the length of the eastern portion of the properties.



*Adjacent Jurisdictions*

The study area is located in the southeast corner of Glendale and abuts the neighboring communities of Evendale and Woodlawn. All three of these communities are Villages within Hamilton County, providing services to approximately 8,216 residents, according to the 2010 census. While these are three small communities, there is a significant day time population that is drawn to the area with the number of businesses around the I-75 interchanges with Glendale Milford Road and Sharon Road. These businesses include a mix of light industrial, as well as a major corporation, General Electric, on the east side of I-75.





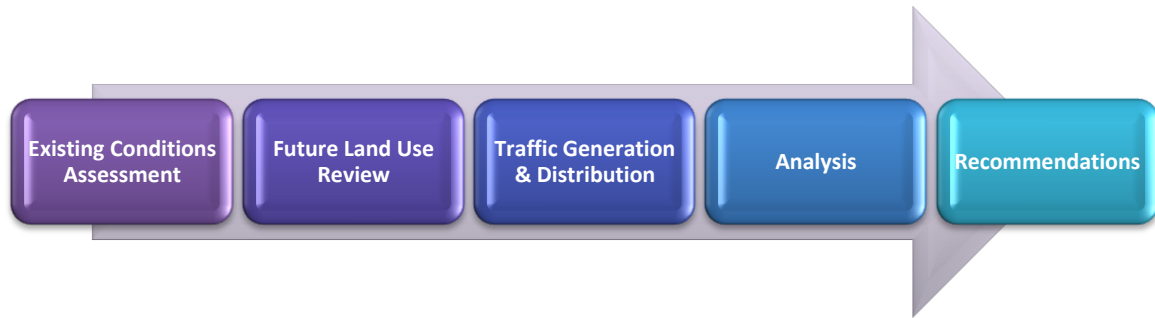
### *Overlay District*

In order to encourage good development within the Village, Glendale has recently adopted zoning text amendments to allow for the use of a Planned Development Overlay District (PDO). Building on this zoning code change, the Village has initiated the adoption of a Planned Development Overlay District for a majority of the parcels within this study area.

A few of the key requirements for a PDO designation include that the project area is required to contain a minimum of 30% residential use and 20% be dedicated to greenspace. The calculations developed for this report meet these requirements.

### 3. Methodology

In an effort to view the roadway network comprehensively, an initial look at the current functionality was conducted. Key points along the roadways were identified and were looked at in greater depth to help guide the analysis, along with the future land use of various areas. Building on the review of vacant land, traffic was generated and distributed along surrounding roadways. This information was analyzed to develop the appropriate recommendations for the existing roadway network.



### 4. Previous Plans

#### *Glendale Village Plan 2000*

The Village of Glendale developed an updated comprehensive plan and set goals and objectives for categories such as historic resources, land-use, recreation, municipal services and transportation. These goals and objectives were established to guide future development and decision making. With the potential for development within the study area selected for this report, the following goals and objectives were taken into consideration:

#### **LAND-USE**

##### **GOAL ONE**

Keep Glendale a primarily residential village with significant green space.

##### **OBJECTIVES**

2. Manage building density to retain ample open space, light, and air.

#### **TRANSPORTATION**

##### **GOAL ONE**

Minimize the impact of vehicular and rail traffic and insure a safe, peaceful, and quiet Village.

##### **OBJECTIVES**

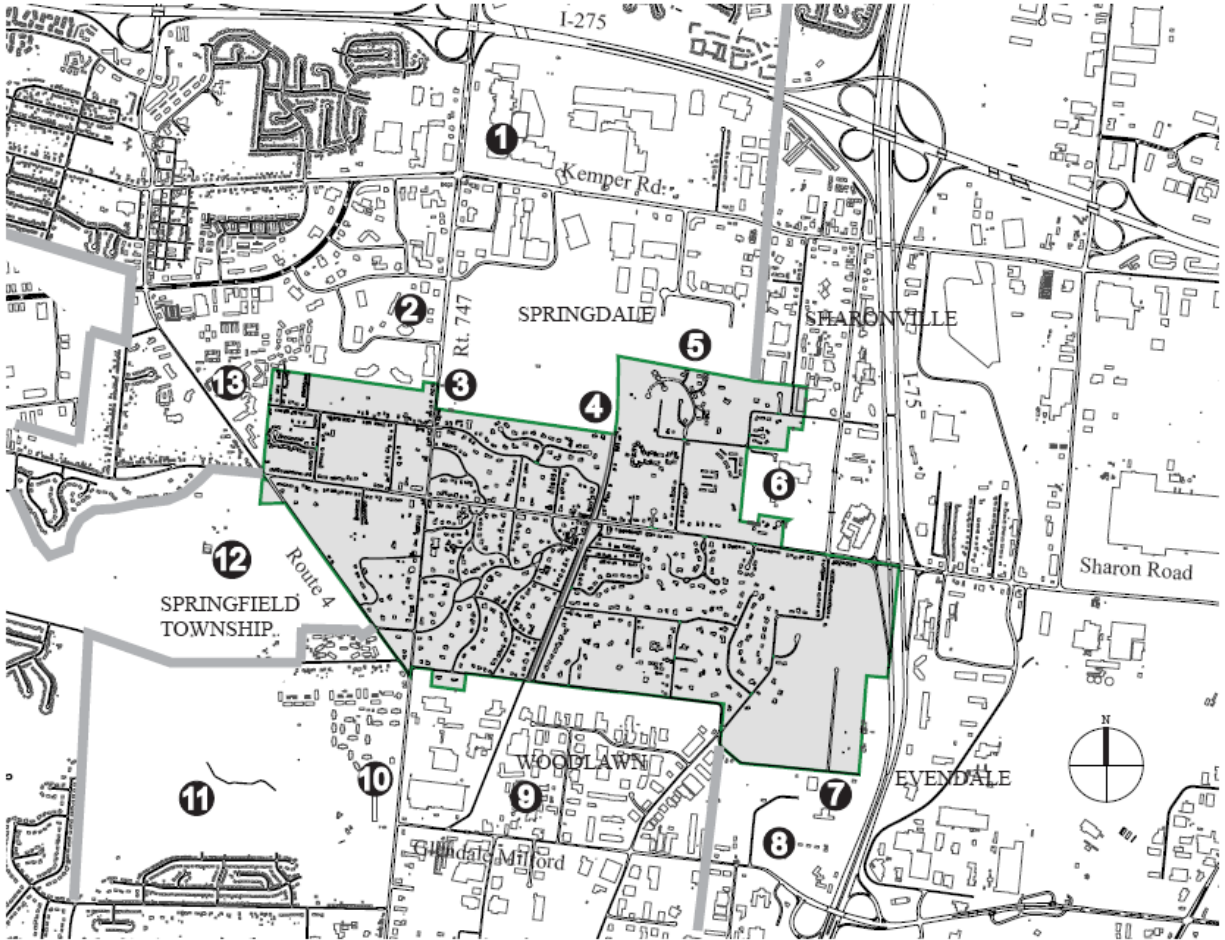
1. Preserve the residential nature and historic integrity of Glendale, realizing an increase in traffic due to development.

The following map from the Village Plan depicts land uses from 2000:

### Distribution and Change in Land Uses surrounding the Village

- |  |  |
|--|--|
| 1. Tri County Mall and Regional Commercial Areas | 7. Landmark Christian School               |
| 2. Springdale Office Park                        | 8. St. Rita's School                       |
| 3. Oak Hill Cemetery                             | 9. Woodlawn Manufacturing District         |
| 4. Golf Ranch Golf Course (Public)               | 10. Glenwood Crossing (Commercial/Housing) |
| 5. The Vineyard Church                           | 11. Hamilton County Parklands              |
| 6. Princeton Schools                             | 12. Glenview Golf Course (Public)          |
|  | 13. Maple Knoll Retirement Village         |

	1938	1950	1974	2000
Agriculture/Park	8219.48	8075.25	1203.34	991.99
Commercial	0.00	0.00	719.29	1145.21
Industrial	0.00	101.70	1586.95	1831.59
Single Multi Family	0.00	47.80	1224.41	1372.19
Educational	0.00	0.00	665.71	600.78



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## 5. Existing Conditions

### a. Land Use and Zoning

#### Glendale

The current zoning classifications within the Village of Glendale are “A” and “AA-1”, which are both defined as:

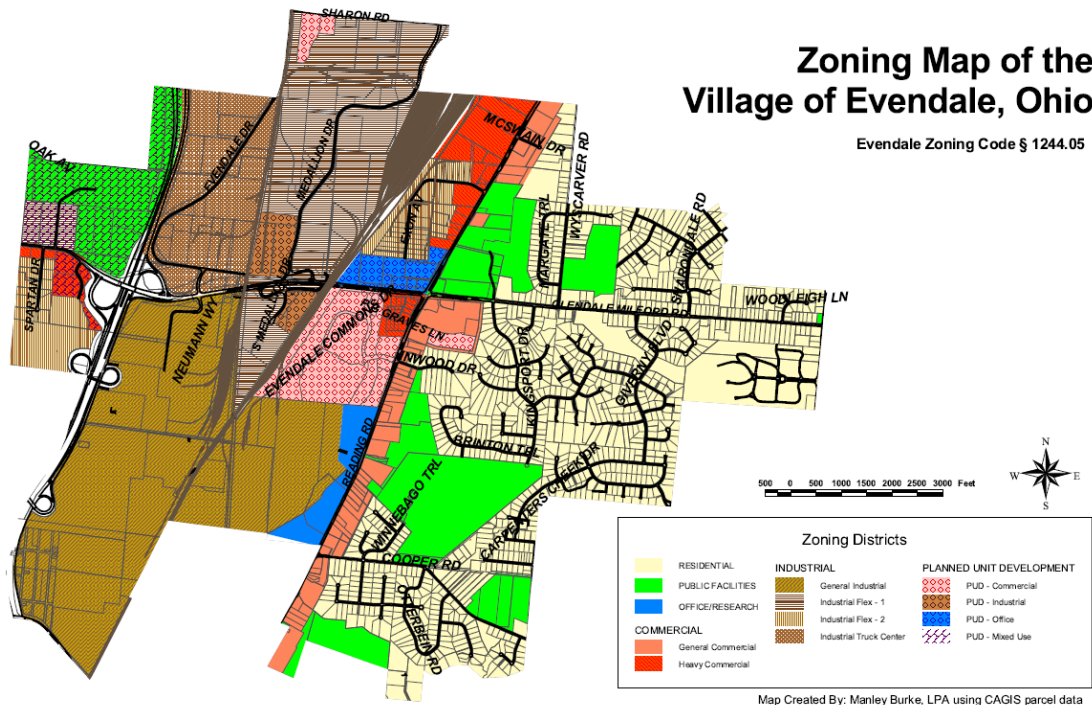
“Single family dwellings, parks churches, public schools, educational and other institutions, clubs and certain other unusual uses by special permit”

While these current zoning classifications limit the land use, the PDO will provide a greater flexibility with the range and mix of uses.

#### Evendale

With portions of the study area encompassing the adjacent jurisdiction of Evendale, the current zoning for the properties within the study area was reviewed. The area along Glendale Milford Road is currently zoned "PF" Public Facilities District. The “PF” zoning category is intended to provide for a mix of institutional and commercial uses in a unique geographic area of the Village. In addition to the underlying zoning is an overlay for Mixed-Use, allowing for additional uses for the property.

The Village of Evendale Zoning Map is shown below.



## b. Road Network

The study area is encompassed by two collector streets, Sharon Road and Oak Road and one minor arterial, Glendale Milford Road. Both Glendale Milford Road and Sharon Road have direct access to I-75. In addition, Oak Road serves as an east/west access to the study area. While Sharon Road and Glendale Milford Road serve as key east/west roadways and provide access to I-75 and containing commercial and industrial developments, Chester Road serves as the north/south connector between the two with primarily single family homes and some light industrial within the Village of Woodlawn.

## 6. Future Land Use Assumptions

Various land uses were assumed for developable areas based upon the planned future land use, as well as adjacent or nearby development. The development pattern has been divided into six different categories in coordination with the categories found in the ITE Trip Generation Manual. A variety of uses were included near a maximum development amount in order to evaluate traffic impact at its greatest. The following tables show the land use breakdown and assumptions used to determine traffic growth based on the potential developments:

Land Use	Area
Single Family Detached Housing	17.25 acres
Attached Dwelling	17.25 acres
Cemetery	12 acres
General Office Building	33 acres
Shopping Center (Glendale)	35.5 acres
Shopping Center (Evendale)	46 acres
General Light Industrial (Evendale)	22 acres

Land Use	Value for Traffic Generation	Assumptions
Single Family Detached Housing	46 units	Based on 20% green space and .3 acres lots
Attached Dwelling	150 units	Based on 20 % green space, 30 % building footprint and 1200 sq. ft units
Cemetery	12 acres	
General Office Building	431,244 sq. ft.	Based on 30% building foot print (two stories)
Shopping Center (Glendale)	231,957 sq. ft.	Based on 15 % building footprint
Shopping Center (Evendale)	300,564 sq. ft.	Based on 15 % building footprint
General Light Industrial (Evendale)	383,328 sq. ft.	Based on 40% building footprint

## 7. Traffic Impact

### a. Trip Generation

Traffic was generated for the entire development using the ITE Trip Generation 9<sup>th</sup> Edition based on the planned land uses and sizes. Trips were based on the following land uses:

- General Light Industrial
- Single-Family Detached Housing
- Attached Dwellings (Defined as Low-Rise Residential Condos by ITE)
- Cemetery
- General Office Building
- Shopping Center

The generated traffic was distributed onto Glendale-Milford Road, Chester Road, and Sharon Road based on the AM and PM peak distributions. The AM and PM directional distributions were determined based on turning movement counts performed at the intersections of Glendale-Milford at St. Rita's and Chester at Sharon in 2010 and 2011 respectively. There were no records to predict distribution for Chester Road at Glendale-Milford Road.

In total, the proposed development area will have likely have three accesses: one proposed access (currently a private drive) on Glendale-Milford Road, one existing access (currently named Oak Road) on Chester Rd, and one proposed access at the north end of the property on Sharon Rd. While the entirety of the development will be mixed-use with interconnecting roads, for the purpose of traffic impact analyses, it was assumed that trips generated will use the access point closest to their generator. The access points will serve the land uses as follows:

- Proposed Northern Access (R/L turn in, no left turn out) – Offices
- Existing Western Access, Oak Rd (R/L turn in, R/L turn out) – Residential and Cemetery
- Proposed Southern Access (R/L turn in, R/L turn out) – Light Industrial and Commercial/Retail

It should be noted that the access to the north must become a dedicated roadway, in addition to making the southern access a dedicated roadway instead of a private drive.

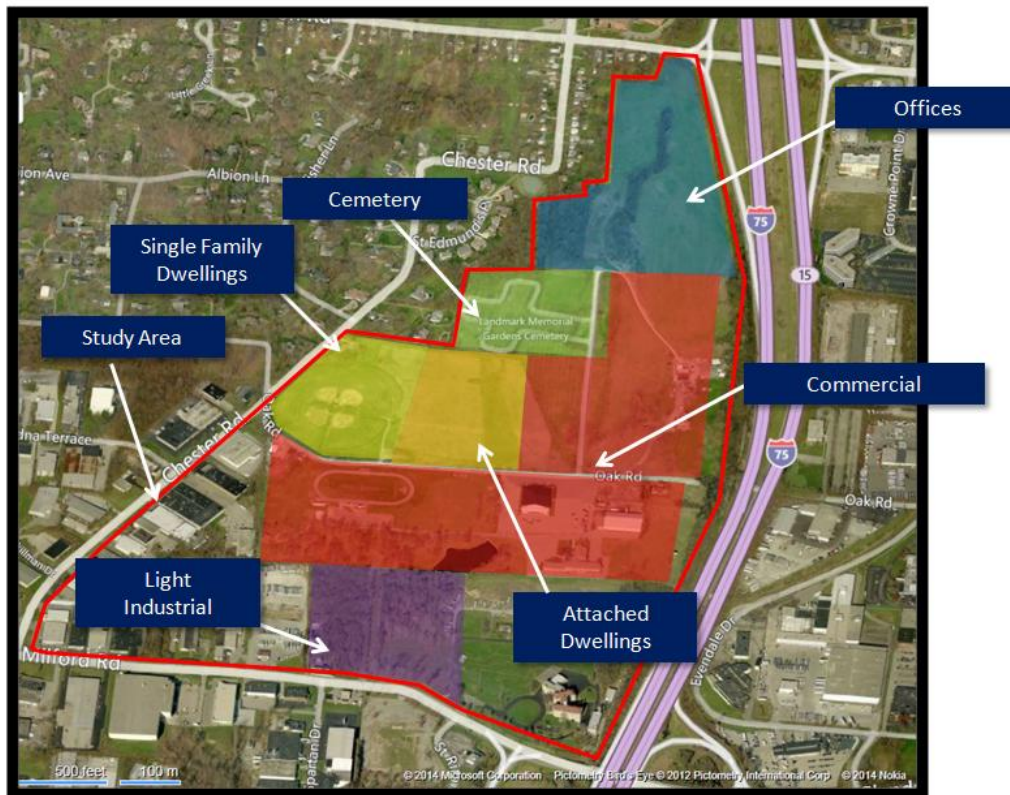
Though vehicles may use access points other than the one closest to their generator, it was assumed that these trips would cancel out and therefore balance as is listed above. Any traffic turning left out of the Northern Access was moved to the Western Access at Oak Road due to the proposed, restricted left turn onto Sharon Road. The tables below contain each land use and its generated trips, with the first table depicting number of

trips (peak hour) created based on the property within the Village of Glendale and the second representing the entire study area:

Village of Glendale Land Use	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Shopping Center	161	99	505	547
Single Family Detached Housing	10	32	33	19
Attached Dwellings	21	62	68	107
Cemetery	1	1	3	7
General Office Building	814	217	304	782
<b>TOTAL Peak Hour Trips</b>	<b>1007</b>	<b>411</b>	<b>913</b>	<b>1462</b>



Glendale & Evendale	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
General Light Industrial	319	44	47	344
Single Family Detached Housing	10	32	33	19
Attached Dwelling	21	62	68	107
Cemetery	1	1	3	7
General Office Building	814	217	304	782
Shopping Center (Evendale)	189	116	601	651
Shopping Center (Glendale)	161	99	505	547
<b>TOTAL Peak Hour Trips</b>	<b>1515</b>	<b>571</b>	<b>1561</b>	<b>2457</b>



## **b. Analysis**

Amongst all the land uses, the greatest generators will be the Light Industrial, Office Buildings, and the Shopping Center. The majority, if not all of these trips will enter and exit using the Northern Access and the Southern Access. The most stress on existing intersections will likely come from traffic entering and exiting from and to I-75. The existing intersection that will experience the most change in traffic will be Glendale-Milford Road and St. Rita's Lane, with the major change coming in the thru traffic on Glendale-Milford Road. Currently, this signalized intersection has three lanes of thru traffic in both the east and westbound directions with only a school and an industrial business on the northern and southern legs of the intersection. This gives most of the green time during the signal cycle to the east and westbound directions.

The second intersection to be impacted will be the signalized intersection of Chester Road at Sharon Road. This intersection was already widened recently to be more efficient for traffic coming to and from the school located just north of the intersection.

Lastly, the third intersection to be directly affected by future development would be the intersection of Oak Road and Chester Road on the western side of the development. Currently this intersection operates as a 4-way stop with a 35 degree skew on each Oak Road approach.

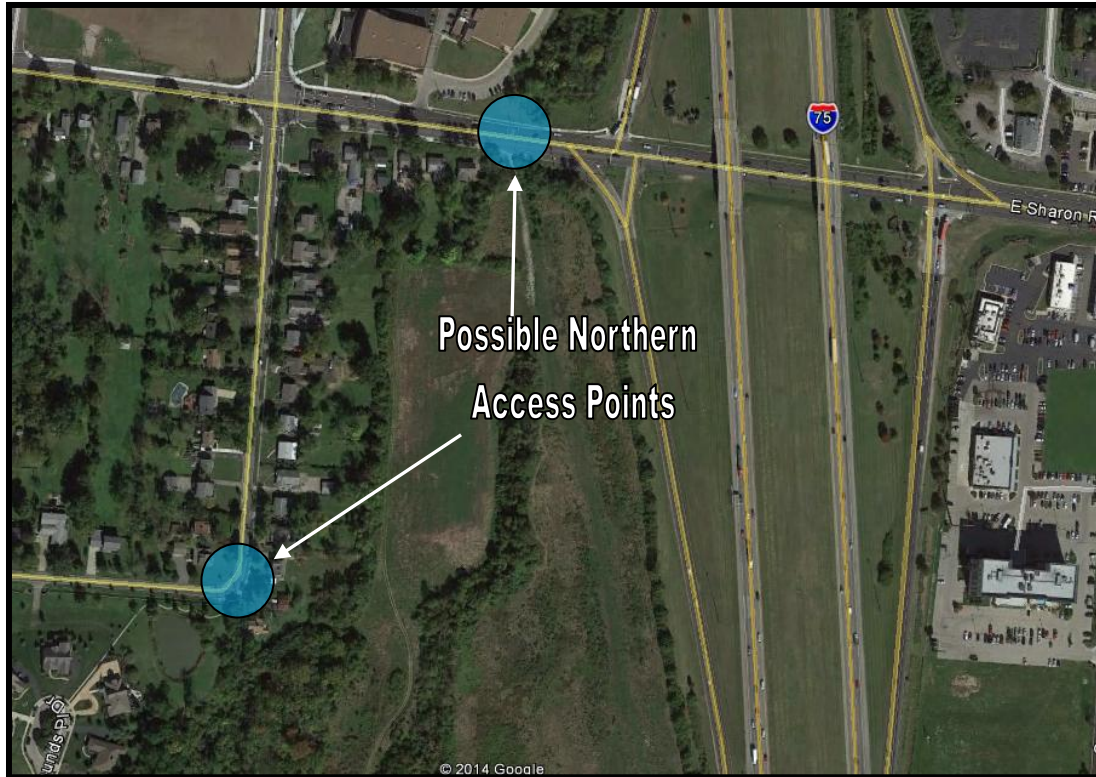
## **8. Recommendations**

Under the current proposed access points, each provides direct access to the major traffic generators of the development. While these access points have convenient locations, they lack accessibility. As stated previously, the majority of traffic will use I-75 to access the development, stressing the Northern and Southern access points.

### **a. Northern Access**

Currently, a natural access point is situated between Chester Road and the I-75 Southbound Ramps. During the AM peak, the majority of vehicles accessing the proposed office buildings will be turning left into the development. The high volume of vehicles would require a dedicated left turn lane that would stretch past the I-75 SB ramps. This would make accessing the offices extremely difficult and may impede traffic traveling west from I-75.

TEC recommends that a different possible access point be considered on Chester Road as seen below:



Using this possible access, eastbound traffic on Chester would be stop controlled and traffic entering/exiting the development would be free-flow.

#### **b. Southern Access**

The proposed Southern Access is currently a private drive that would have to become a dedicated roadway under development. Under existing conditions, Glendale-Milford Road has three thru lanes of EB and WB traffic each and a two-way left-turn lane. With the high volume of traffic turning right into the proposed Southern Access, it is recommended that a dedicated right-turn lane be added to the WB direction. The most northern thru lane at this access point could be turned into the dedicated right-turn lane. Currently this third westbound thru lane is dropped just west of the access. In addition to a dedicated right-turn lane, the EB approach would warrant a dedicated left-turn lane which can be done in the existing two-way left-turn lane.

Due to the large volume of traffic on Glendale-Milford Road in both the EB and WB directions, turning left out of the development to get to the interstate would prove to be very difficult with high delay, especially during the PM Peak. Taking into consideration the exiting traffic from the development and combined traffic on Glendale-Milford Road, a traffic signal is warranted and recommended at the Southern Access. This signal would need to be coordinated with the existing signal at Glendale Milford and St. Rita due to the close proximity.

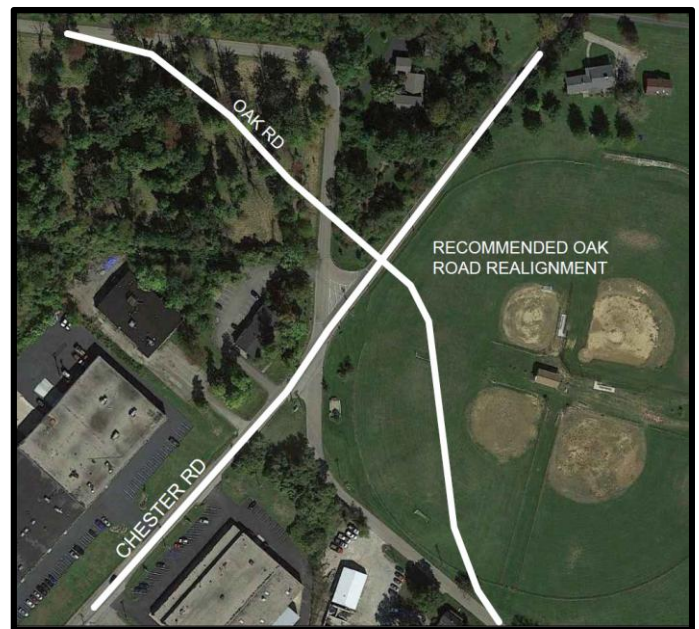
As an alternative to using this private drive as the sole southern entrance to the development, the signalized intersection at St. Rita Lane would provide a safer and more efficient access point for the development. This intersection currently provides three lanes of EB and WB thru traffic in addition to a dedicated left turn lane for both the EB and WB traffic.





### c. Western Access (Oak Road)

Due to its positioning, this access point will not be as highly impacted as the Southern and Northern access points. The most current Average Daily Traffic (ADT) was conducted by in 2012 with an ADT of 7,279 vehicles. Although, it will not be affected as much as the other two access points, it is still recommended that changes be made to this intersection due to the skew of Oak Road on each side of Chester Road. It is recommended that the Oak Road approaches be made more perpendicular to Chester Road to increase visibility. After doing so, this intersection could be left as a 4-way stop or turned into a roundabout. For examples, see the pictures below:

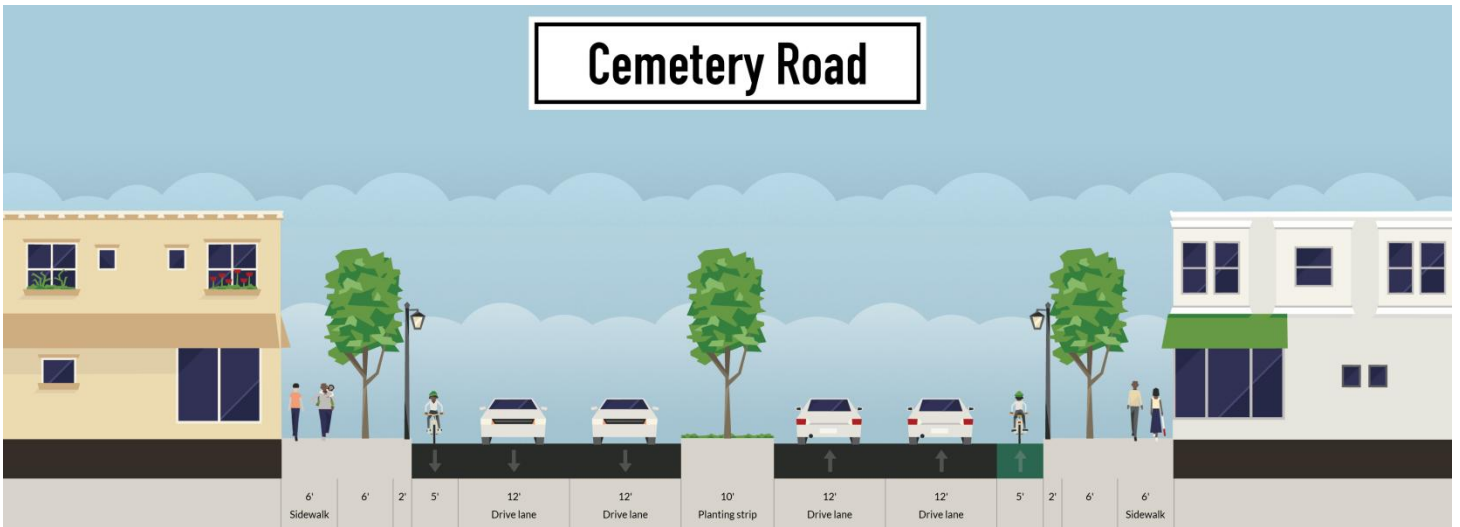


This intersection is a key point in the development and should be analyzed carefully in order to ensure adequate capacity. Alternatives such as these should be evaluated as potential developments are discussed.

#### d. North/South Roadway

The proposed roadway running north/south through the development will follow the existing Cemetery Road pathway. It is recommended the future road serve as the spine of the development and carry traffic north/south; reducing the number of vehicles along Chester Road. With the existing homes along Chester Road, it is important to maintain the residential character of the roadway and minimize any potential negative impacts from future development.

To further enhance the importance of this roadway and provide character to the new developments along it, a boulevard style road is suggested. An example cross section showing a 96' right of way can be found below.



## 9. Overview of Findings

This report was intended to provide the Village with information regarding the potential impact of development along major roadways in the community and give a better understanding of how to handle these impacts. This document has provided recommendations for key intersections surrounding any potential development within the study area. It is important to note that these findings were also developed on the assumption that there will be connectivity throughout the entire development.

It is understood that this document will be used as a reference for the Village as development occurs. With today's economy, development is becoming more piece meal, which allows the Village to review developments on an individual basis. While this document outlines broad recommendations, it is imperative that each development conduct a more detailed traffic impact study to further fine tune any recommendations found in this document.

