

# Wheaton Library and Community Recreation Center

## Traffic Impact Study

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Prepared for



Montgomery County  
Department of General Services

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## 1. Introduction

This report has been prepared to identify any traffic impacts associated with the proposed Wheaton Library and Community Recreation Center. The proposed site is located on the east side of Georgia Avenue (Georgia Avenue) between Parker Avenue and Arcola Avenue in Wheaton, Maryland, as shown in **Figure 1**. The existing site consists of a 45,738 SF library and a 15,724 SF community recreation center separated into two buildings on separate parcels divided by Hermitage Avenue. The proposed site will be a combined 94,000 SF library and community recreation center. This report includes an assessment of existing, background, and total future conditions for the proposed site, as well as an evaluation of traffic impacts to the local neighborhood streets. Figure 1 shows the locations of the existing study intersections.

1. Georgia Avenue at Shorefield Road
2. Georgia Avenue at Henderson Avenue
3. Georgia Avenue at Parker Avenue
4. Georgia Avenue at Hermitage Avenue
5. Georgia Avenue at Arcola Avenue
6. Parker Avenue at Recreation Center Drive
7. Hermitage Avenue at Library Driveway (west)
8. Hermitage Avenue at Recreation Center Drive
9. Hermitage Avenue at Library Driveway (east)
10. Arcola Avenue at Library Driveway
11. Arcola Avenue at Amherst Avenue
12. Arcola Avenue at Nairn Road
13. Georgia Avenue at Blueridge Avenue

The analysis contained in this report is consistent with the Maryland-National Capital Park and Planning Commission (M-NCPPC) January 2013 *Local Area Transportation Review (LATR)* guidelines for traffic impact studies. The study conforms to all M-NCPPC criteria, although comments and requirements are advisory only, since the project is being submitted through the Mandatory Referral Process in Montgomery County.

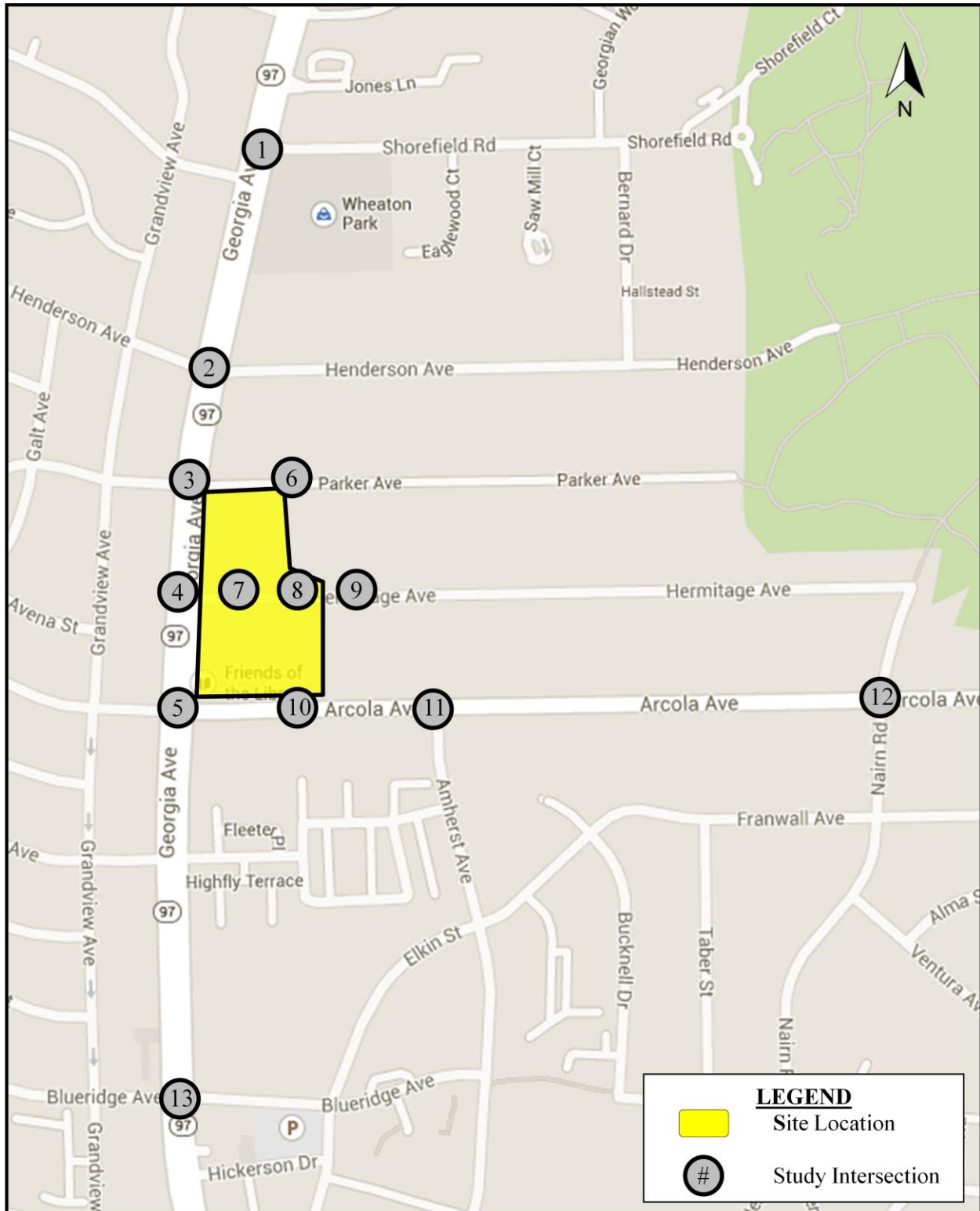


Figure 1: Location Map



## **2. Existing Conditions**

The existing 15,724 SF community recreation center has two vehicular access points, one on Parker Avenue and one on Hermitage Avenue. The existing 45,738 SF library has three vehicular access points, two on Hermitage Avenue, approximately 220 feet apart, and one on Arcola Avenue. The study area includes Georgia Avenue from Shorefield Road to Blueridge Avenue, Arcola Avenue from Georgia Avenue to Nairn Road, and all entrance and exit points to the site. The road network characteristics are presented below.

- According to the Maryland State Highway Administration (SHA) Highway Location Reference, Georgia Avenue is classified as a divided urban other principal arterial that generally runs in the north-south direction.
- According to the Montgomery County Master Plan of Highways and Transitways, Arcola Avenue is classified as an arterial that generally runs in the east-west direction.
- Parker Avenue and Hermitage Avenue are both residential streets that run in the east-west direction and are not assigned a functional classification according to the Montgomery County Master Plan of Highways and Transitways.
- The posted speed limits within the study area are 35 mph on Georgia Avenue, 30 mph on Arcola Avenue, and 25 mph on the local roads.
- Georgia Avenue and Arcola Avenue have sidewalks along both sides. There are no sidewalks on Hermitage Avenue or Parker Avenue.
- The intersection of Georgia Avenue at Shorefield Avenue has marked pedestrian crossings on the north, south, and east legs.
- The intersection of Georgia Avenue at Arcola Avenue has marked pedestrian crossings on all legs.
- There is a marked crosswalk on the north leg of Georgia Avenue at Henderson Road, on the west leg of Arcola Avenue at Amherst Avenue, and on Arcola Avenue approximately 100 feet west of the intersection at Nairn Road.

A field visit was performed on May 9, 2013 and the following conditions were observed:

- Significant queuing occurred in the southbound direction during the AM peak hour and in the northbound direction during the PM peak hour on Georgia Avenue.
- Neighborhood cut-through traffic was observed utilizing the existing community center and library parking lots to bypass traffic congestion on Georgia Avenue en route to and from Arcola Avenue. Additional discussion of site circulation can be found on Page 15.
- Minimal queuing was observed along Arcola Avenue.
- Most pedestrians crossing Arcola Avenue at Nairn Street crossed at the intersection, rather than using the marked crosswalk approximately 100 feet west of the intersection. This intersection is located nearly ½ mile from the Library site and does not directly impact pedestrian circulation adjacent to the site.
- Few bicyclists were observed in the study area during peak hours.

### **2.1. Existing Peak Hour Traffic Volumes**

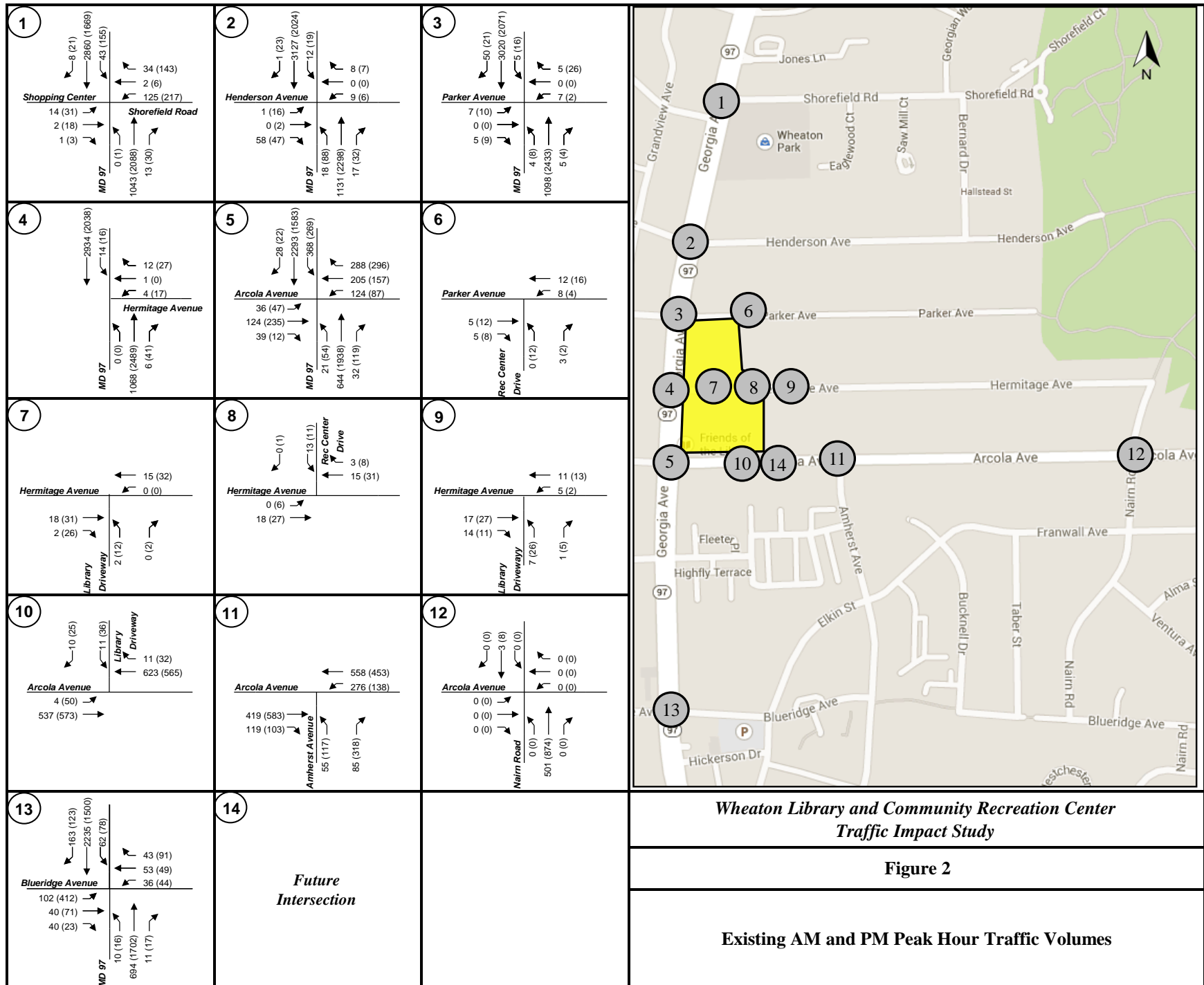
Existing peak hour traffic volumes were obtained from turning movement counts collected in April 2013. At the request of M-NCPPC, updated turning movement counts were conducted at the Georgia Avenue at Shorefield Road and Georgia Avenue at Arcola Avenue intersections in May 2014 in order to determine whether volumes increased during a delay in completion of the TIS. The 2014 counts were compared to the 2013 counts and found to be similar or slightly

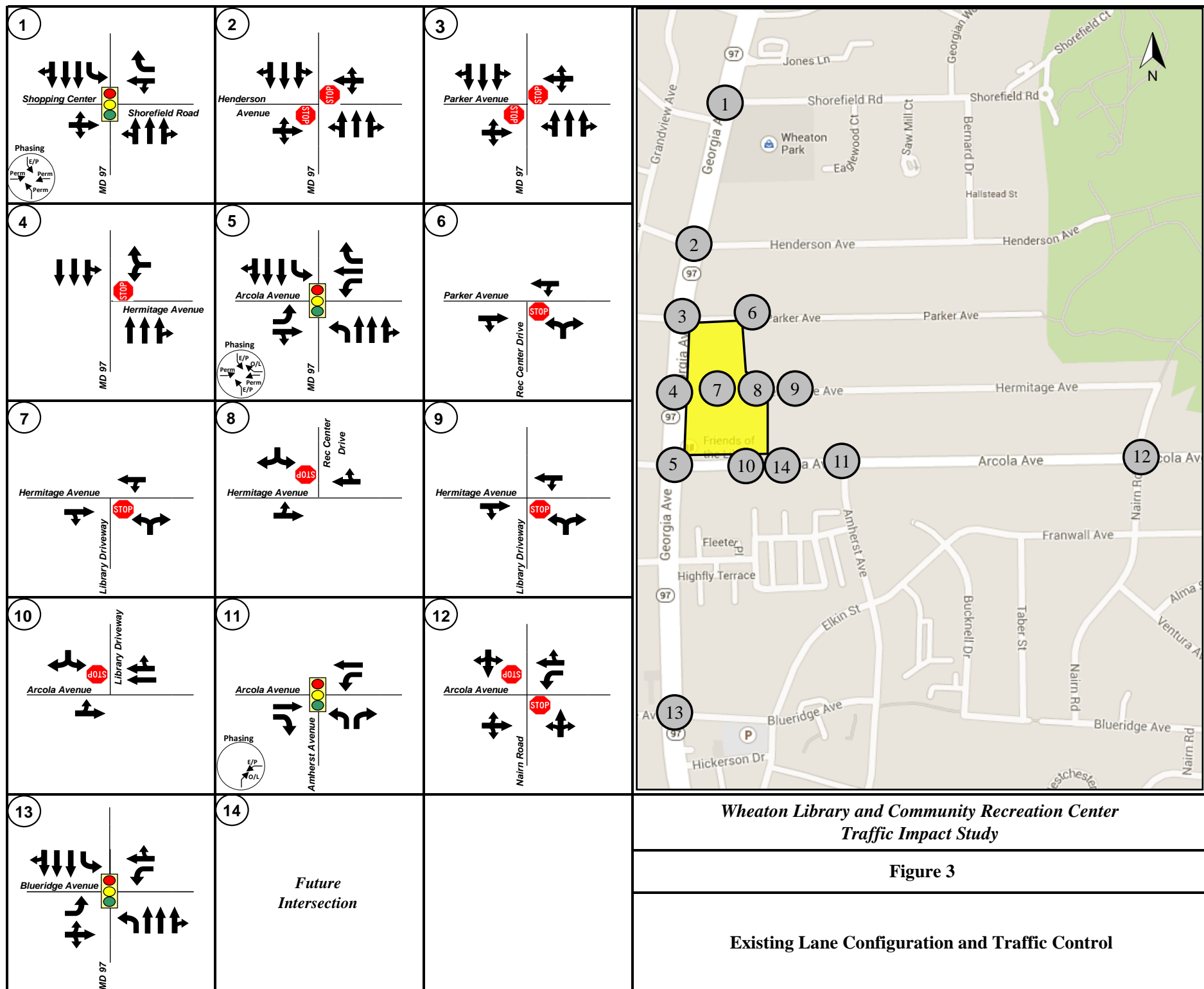


lower during the AM and PM peak hours. Therefore, no additional turning movement counts were conducted.

In addition to turning movement counts, 48-hour volume and classification counts were performed on Parker Avenue and Hermitage Avenue to document conditions within the neighborhood. Parker Avenue has an ADT of approximately 450 vehicles with less than one percent trucks. Hermitage Avenue has an ADT of approximately 800 vehicles with less than one percent trucks. The turning movement counts collected at the existing driveways on Parker Avenue and Hermitage Avenue indicated that neighborhood cut-through traffic was utilizing the site parking lots to access Georgia Avenue or Arcola Avenue.

Existing AM and PM peak hour turning movement volumes were balanced to within 10 percent and are shown in **Figure 2** and existing lane configurations are shown in **Figure 3**. Detailed peak period turning movement counts and the 48-hour classification count data are located in **Appendix A**.





## 2.2. Existing Intersection Capacity Analysis

Existing intersection capacity was analyzed using the Critical Lane Volume (CLV) methodology. According to M-NCPPC's *Local Area Transportation Review (LATR)* guidelines, the Policy Area of Kensington-Wheaton requires mitigation for a CLV greater than 1,600. Existing AM and PM peak periods were analyzed based on the volumes in Figure 2. **Table 1** provides a summary of the findings for each intersection. **Appendix B** contains the existing capacity analysis worksheets.

**Table 1: Existing Intersection Capacity Analysis**

Intersection	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)
1. Georgia Avenue at Shorefield Road	1,216/C	1,231/C
2. Georgia Avenue at Henderson Avenue	1,273/C	1,117/B
3. Georgia Avenue at Parker Avenue	1,174/C	971/A
4. Georgia Avenue at Hermitage Avenue	1,127/B	996/A
5. Georgia Avenue at Arcola Avenue	1,176/C	1,368/D
6. Parker Avenue at Rec Center Drive	24/A	38/A
7. Hermitage Avenue at Library Driveway (west)	22/A	71/A
8. Hermitage Avenue at Rec Center Drive	31/A	57/A
9. Hermitage Avenue at Library Driveway (east)	44/A	71/A
10. Arcola Avenue at Library Driveway	570/A	734/A
11. Arcola Avenue at Amherst Avenue	750/A	901/A
12. Arcola Avenue at Nairn Road	867/A	941/A
13. Georgia Avenue at Blueridge Avenue	1,090/B	1,122/B

Table 1 shows that under existing conditions all intersections operate below the CLV threshold established by M-NCPPC during both the AM and PM peak hours.

### 3. Background Conditions

In order to isolate the impact of the proposed development, it is necessary to evaluate conditions in the build year prior to the completion of the subject development. For the purposes of this analysis, the build year was assumed to be 2017. Background conditions include developments which have been approved but not yet built and any programmed transportation improvements.

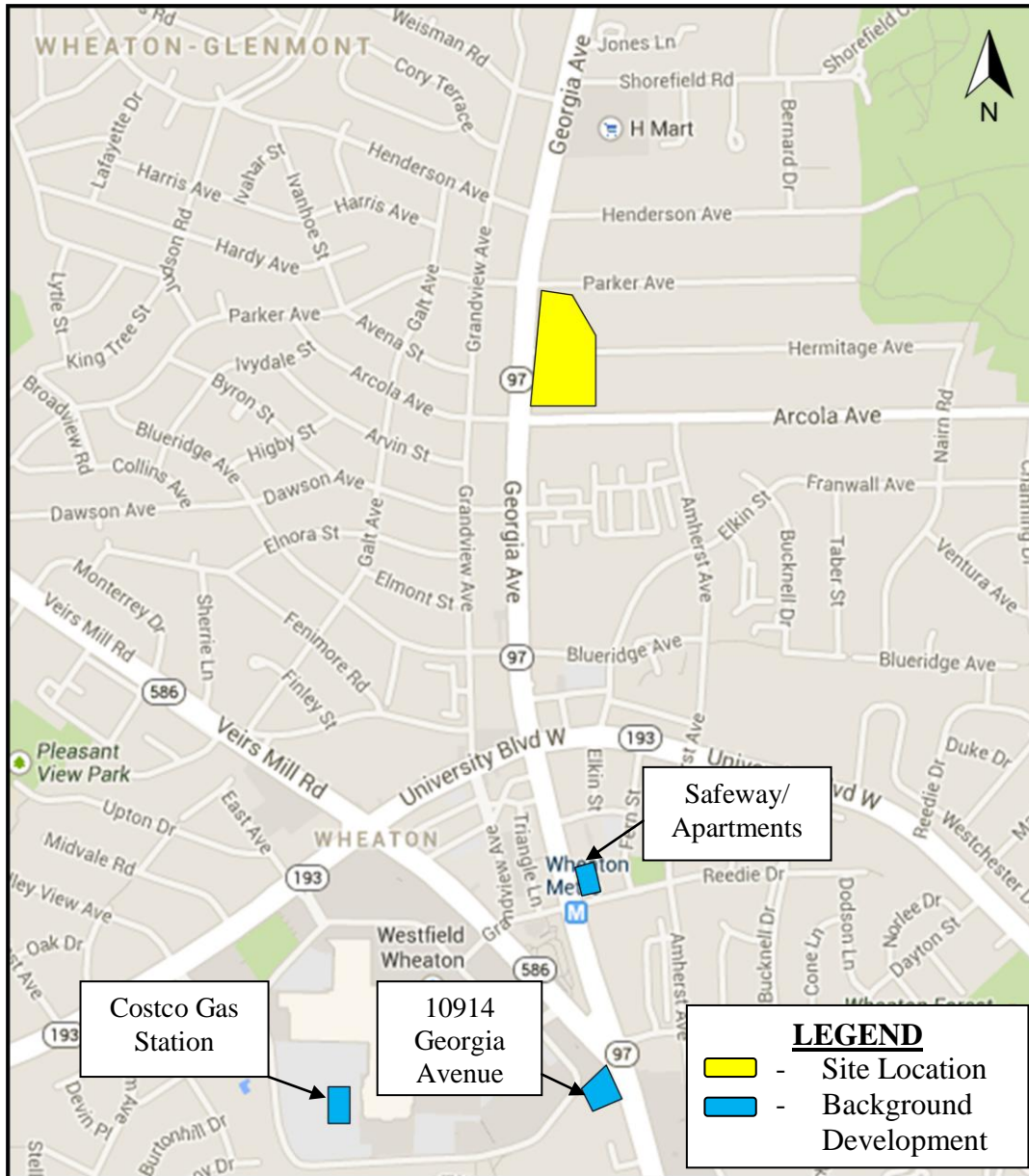
#### 3.1. Background Developments

Background development information was provided by M-NCPPC. However, based on discussions with M-NCPPC staff, none of the background developments affect the study intersections. The background developments provided for this study are listed in **Table 2** below. The locations of these developments are shown in **Figure 4**.

**Table 2: Background Development Summary**

Development		Type/ Size
1	10914 Georgia Avenue	245 Units Residential – Multi Family
2	Safeway/Apartments	57,500 SF Supermarket, 500 Units Residential – High Rise
3	Costco Gas Station	33,000 gallons per day

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**Figure 4: Location of Background Developments**



### **3.2. Background Trip Generation and Assignment**

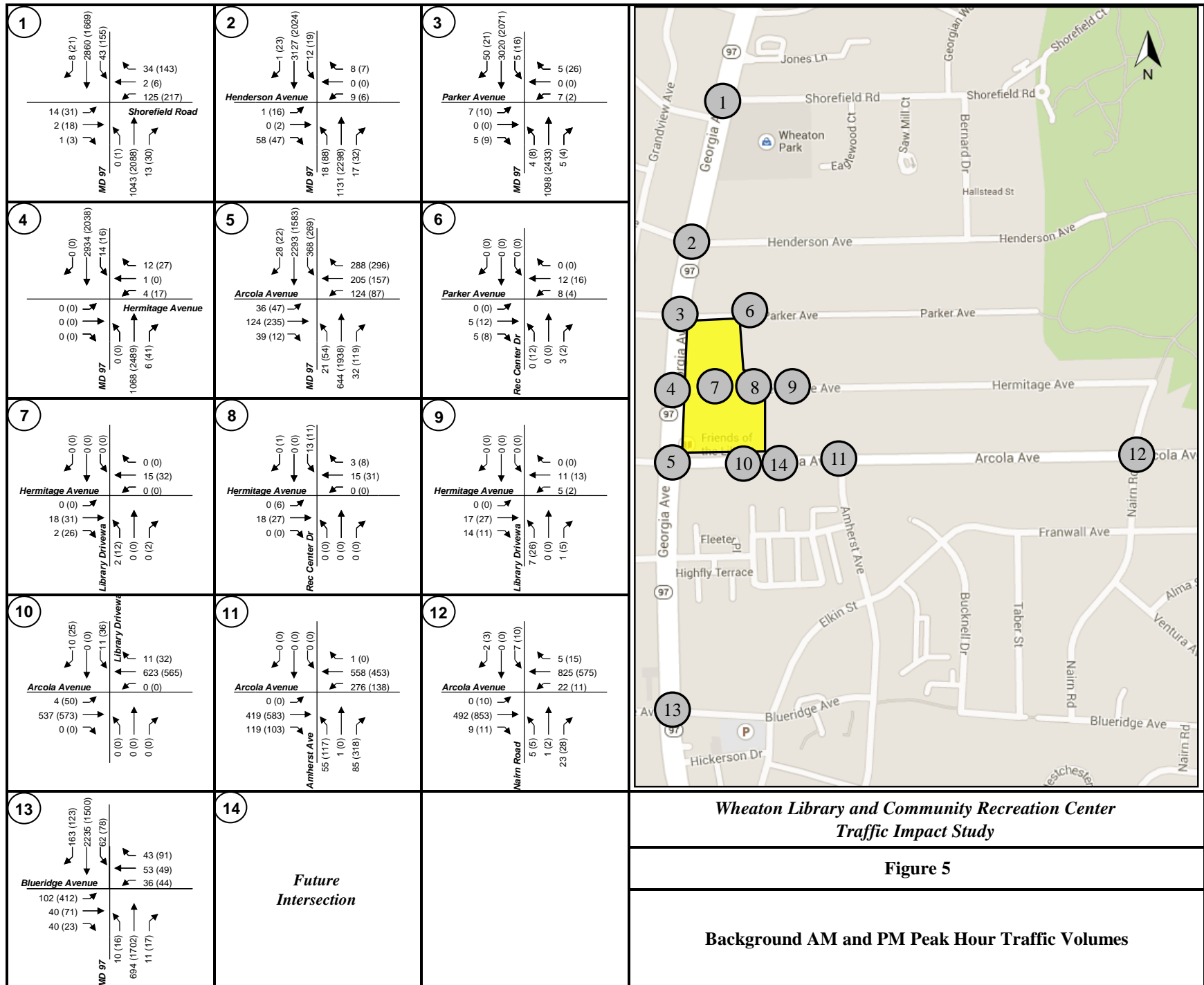
Background trip information was provided by M-NCPPC. According to M-NCPPC, based on the location of the background developments, all traffic generated by the developments will utilize roadways outside of the study area, thus no increase in volumes was assumed at any of the study intersections.

### **3.3. Programmed Improvements**

According to Montgomery County's Capital Improvement Projects (CIP), there are no specific programmed improvements that will affect any of the intersections within the study area. One project was identified as part of SHA's 2013-2018 Consolidated Transportation Plan (CTP) that could affect roadways or intersections within the study area. The project was found in the Secondary Development and Evaluation Program of the CTP and is the Georgia Avenue Bus Rapid Transit from Glenmont Metro Station to Olney; however this project is funded for planning only and was therefore not included in this analysis.

### **3.4. Background Peak Hour Traffic Volumes**

Background traffic volumes represent the future peak hour conditions within the study area without the proposed Wheaton Library and Community Recreation Center. Since no increase in volume is anticipated at any of the study intersections due to background developments, the background AM and PM peak hour traffic volumes as shown in **Figure 5** are identical to the existing volumes shown in Figure 2.



### 3.5. Background Intersection Capacity Analysis

Background condition intersection capacity was analyzed using the CLV methodology described previously. **Table 3** provides a summary of the results. **Appendix C** contains the Background Condition capacity analysis worksheets.

**Table 3: Background Intersection Capacity Analysis**

Intersection	Existing		Background	
	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)
1. Georgia Avenue at Shorefield Road	1,216/C	1,231/C	1,216/C	1,231/C
2. Georgia Avenue at Henderson Avenue	1,273/C	1,117/B	1,273/C	1,117/B
3. Georgia Avenue at Parker Avenue	1,174/C	971/A	1,174/C	971/A
4. Georgia Avenue at Hermitage Avenue	1,127/B	996/A	1,127/B	996/A
5. Georgia Avenue at Arcola Avenue	1,176/C	1,368/D	1,176/C	1,368/D
6. Parker Avenue at Rec Center Drive	24/A	38/A	24/A	38/A
7. Hermitage Avenue at Library Driveway (west)	22/A	71/A	22/A	71/A
8. Hermitage Avenue at Rec Center Drive	31/A	57/A	31/A	57/A
9. Hermitage Avenue at Library Driveway (east)	44/A	71/A	44/A	71/A
10. Arcola Avenue at Library Driveway	570/A	734/A	570/A	734/A
11. Arcola Avenue at Amherst Avenue	750/A	901/A	750/A	901/A
12. Arcola Avenue at Nairn Road	867/A	941/A	867/A	941/A
13. Georgia Avenue at Blueridge Avenue	1,090/B	1,122/B	1,090/B	1,122/B

Table 3 shows that under background conditions all intersections continue to operate below the CLV threshold established by M-NCPPC during both the AM and PM peak hours. It should be noted that the Background Condition CLV values are the same as existing CLV values since the provided background developments are not anticipated to impact the study intersections.

In addition to the listed background developments, the approved Wheaton Mixed Use Development TIS was also reviewed because it contains more recent count data and updated background developments, and overlaps this study at the intersection of Georgia Avenue at Blueridge Avenue. Counts for the Wheaton Mixed Use Development TIS were conducted in January 2015 and the study included several developments not considered in this study, including the AVA Wheaton residential development, and other developments which contribute approximately 100 peak hour trips to the Georgia Avenue at Blueridge Avenue intersection. While the Wheaton Mixed Use Development TIS used more recent count data and included updated background developments, the Background CLVs reported (1,084 AM and 1,016 PM) are similar to those reported in Table 3 above for this study and are considerably below the 1,600 threshold. The more recent count for Georgia Avenue at Blueridge Avenue and the CLV summary table from the Wheaton Mixed Use Development TIS are included in **Appendix D** for reference.

## 4. Total Future Conditions

This section describes the total future traffic conditions that represent anticipated traffic in the study area with the proposed combined Wheaton Library and Community Recreation Center.

### 4.1. Trip Generation

The existing library is 45,738 SF and the existing community recreation center is 15,724 SF. The proposed combined site would consist of 39,812 SF library and 54,188 SF community recreation center. Based on discussions with DGS and M-NCPPC, the following was determined:

- No new trips are anticipated for the library use since the proposed library use will be the same as the existing and the square footage of the proposed library is less than that of the existing library.
- The community recreation center will not generate new trips during the AM peak since the proposed use will be the same as the existing and trips for this type of land use do not typically correlate to the adjacent street AM peak hour (it is not anticipated that the recreation center would be open during the AM peak period).
- The community recreation center will generate new trips during the PM peak as a result of the additional basketball courts and social hall and PM trips for this land use are more closely correlated to the adjacent street PM peak hour.

*LATR* guidelines do not include library or community recreation center land use rates. The existing driveway counts at each intersection could be used to derive trip rates; however, cut-through traffic is currently using the driveways to bypass Georgia Avenue and would skew the data. Therefore, the Institute of Transportation Engineers (ITE) *Trip Generation* rates were used to calculate the new trips for the Community Recreation Center during the PM peak hour. **Table 4** contains a summary of new trips for peak hour of the adjacent street.

**Table 4: Site Trip Generation Summary**

Peak Hour of:	Trip Type	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
<b>Adjacent Street Traffic</b> (7:00 - 8:00 AM) (5:30 - 6:30 PM)	Library	0	0	0	0
	Community Recreation Center	0	0	21	35
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>35</b>

### 4.2. Trip Distribution

Directional trip distributions were estimated based on M-NCPPC *LATR* guidelines for office development in Super District 5: Kensington/Wheaton. **Figure 6** illustrates the distribution of trips within the study area. **Appendix E** contains the data collection and methodology to derive the trip generation and trip distribution estimates.

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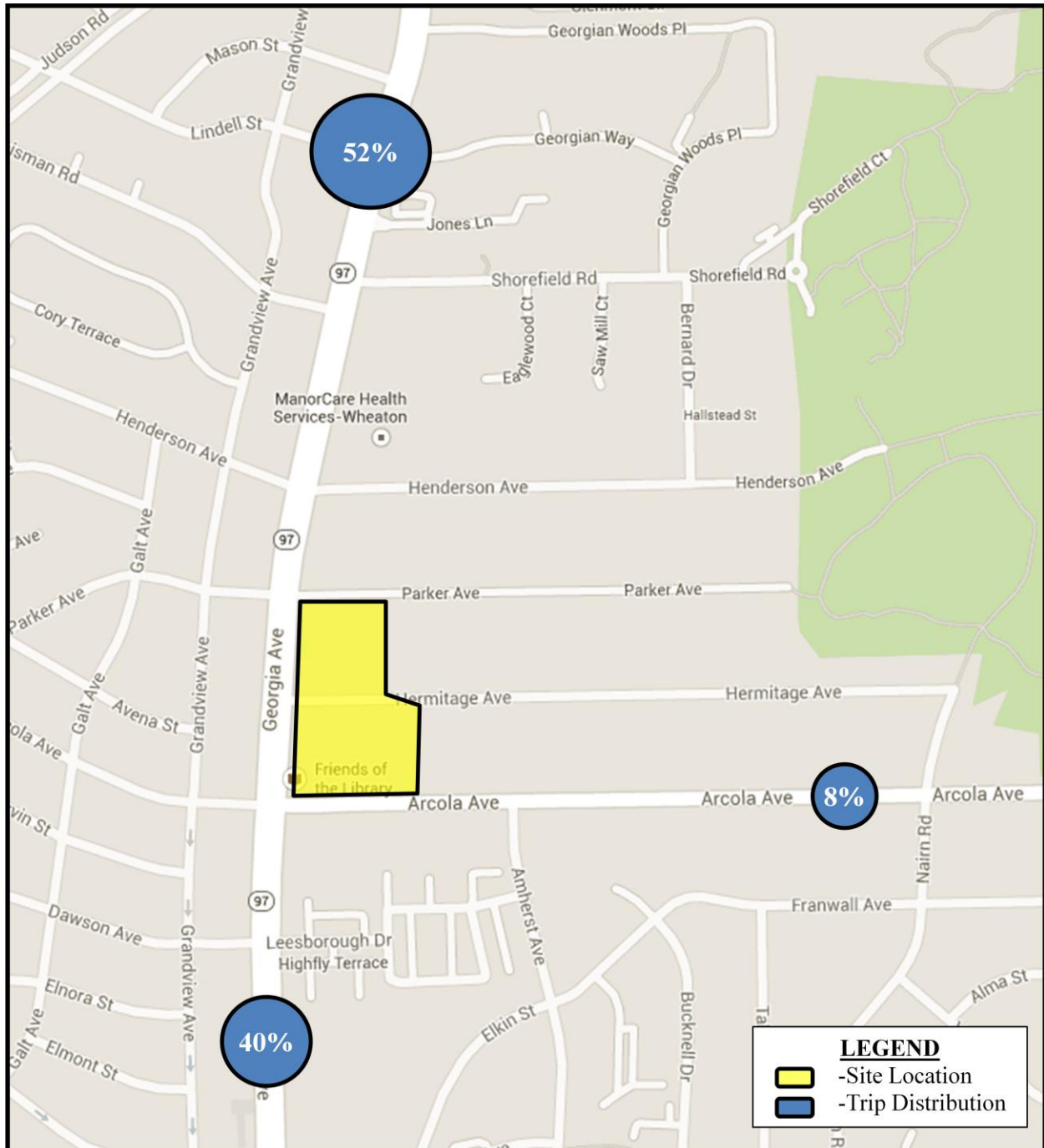


Figure 6: Trip Distribution



#### **4.3. Site Access Concept**

The proposed combined recreation center and library will require the elimination of the Hermitage Avenue connection to Georgia Avenue. Hermitage Avenue will be realigned to connect with Arcola Avenue along the eastern boundary of the site, as shown in **Figure 7**, and the existing driveway on Arcola Avenue will be removed. As shown, there will be two driveways along the relocated Hermitage Avenue and one access on Parker Avenue. Due to the realignment of Hermitage Avenue, existing traffic utilizing the Georgia Avenue at Hermitage Avenue connection was reassigned based on the location and characteristics of the proposed roadway connection, as shown in **Figure 8**.

#### **4.4. Site Trip Assignment**

The site generated trips were assigned based on the directional distribution shown in Figure 6. The resulting volumes were combined with the reassigned site trips as discussed above and are shown in **Figure 9**.

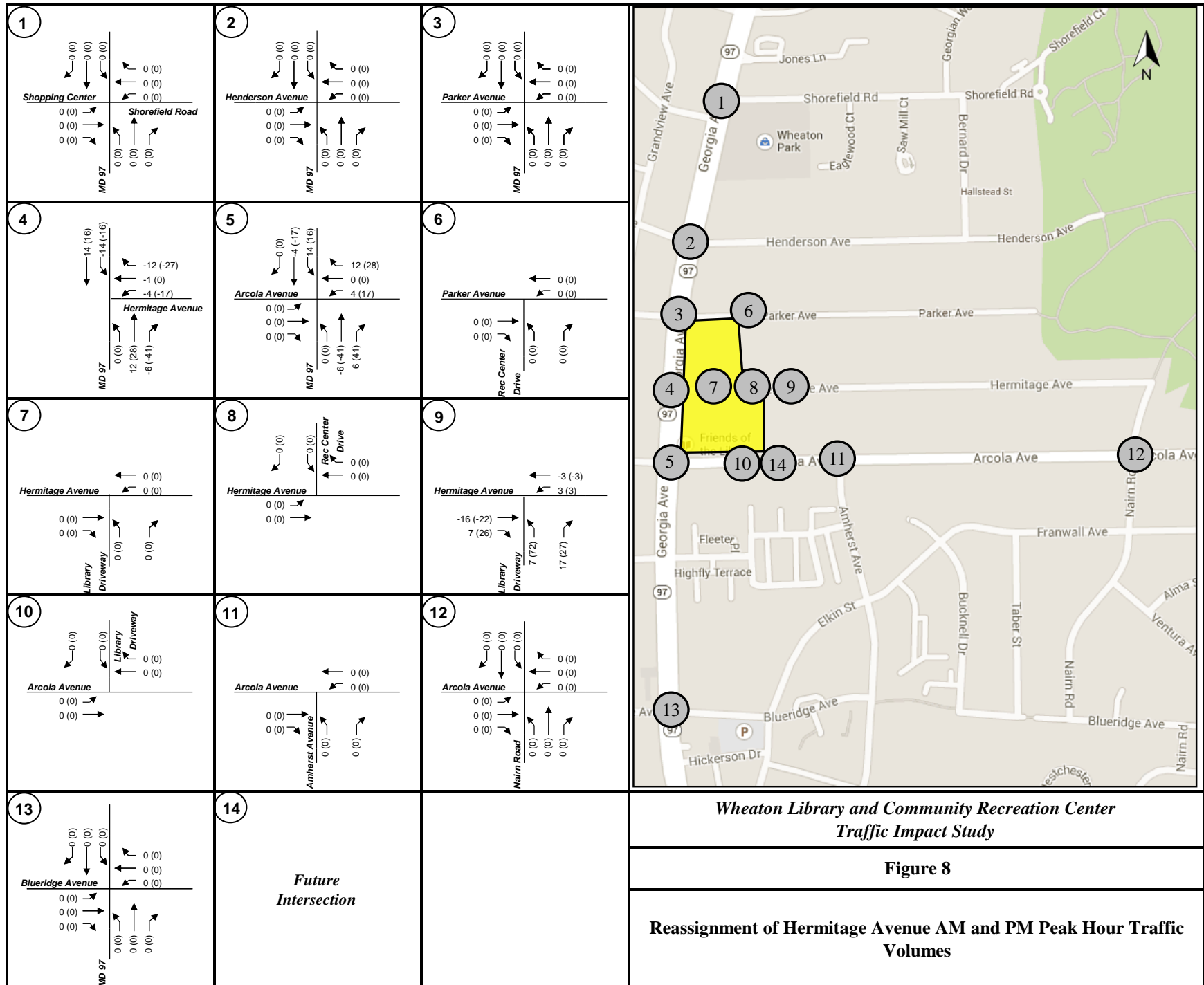
#### **4.5. Total Future Peak Hour Traffic Volumes**

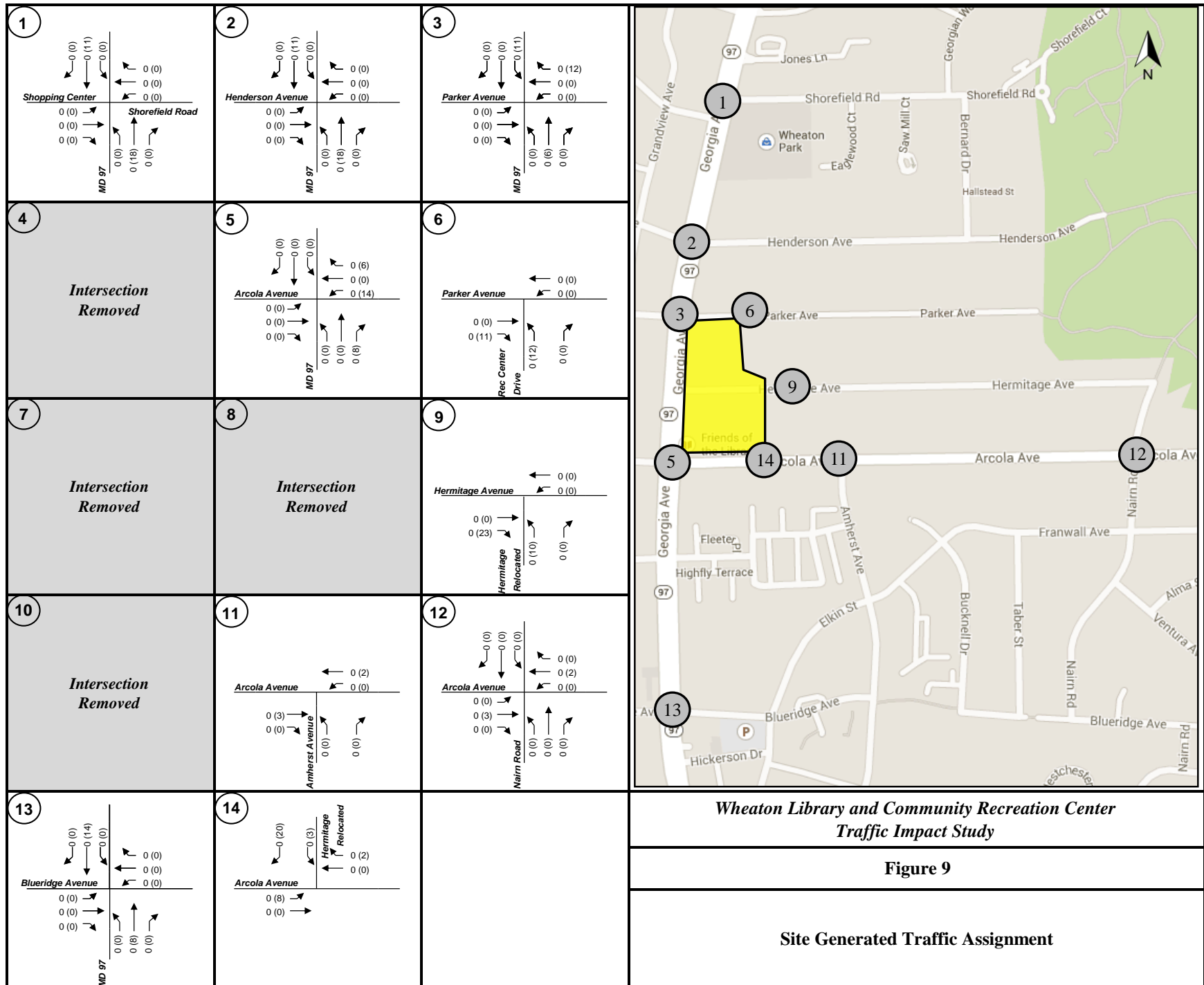
The total future traffic volumes include volumes under the background condition plus the new and reassigned site traffic anticipated to be generated by the renovation of the Wheaton Library and Community Recreation. The total future peak hour traffic volumes for the AM and PM peak hours are shown in **Figure 10**. The lane configurations for the proposed roadway network are shown in **Figure 11**.

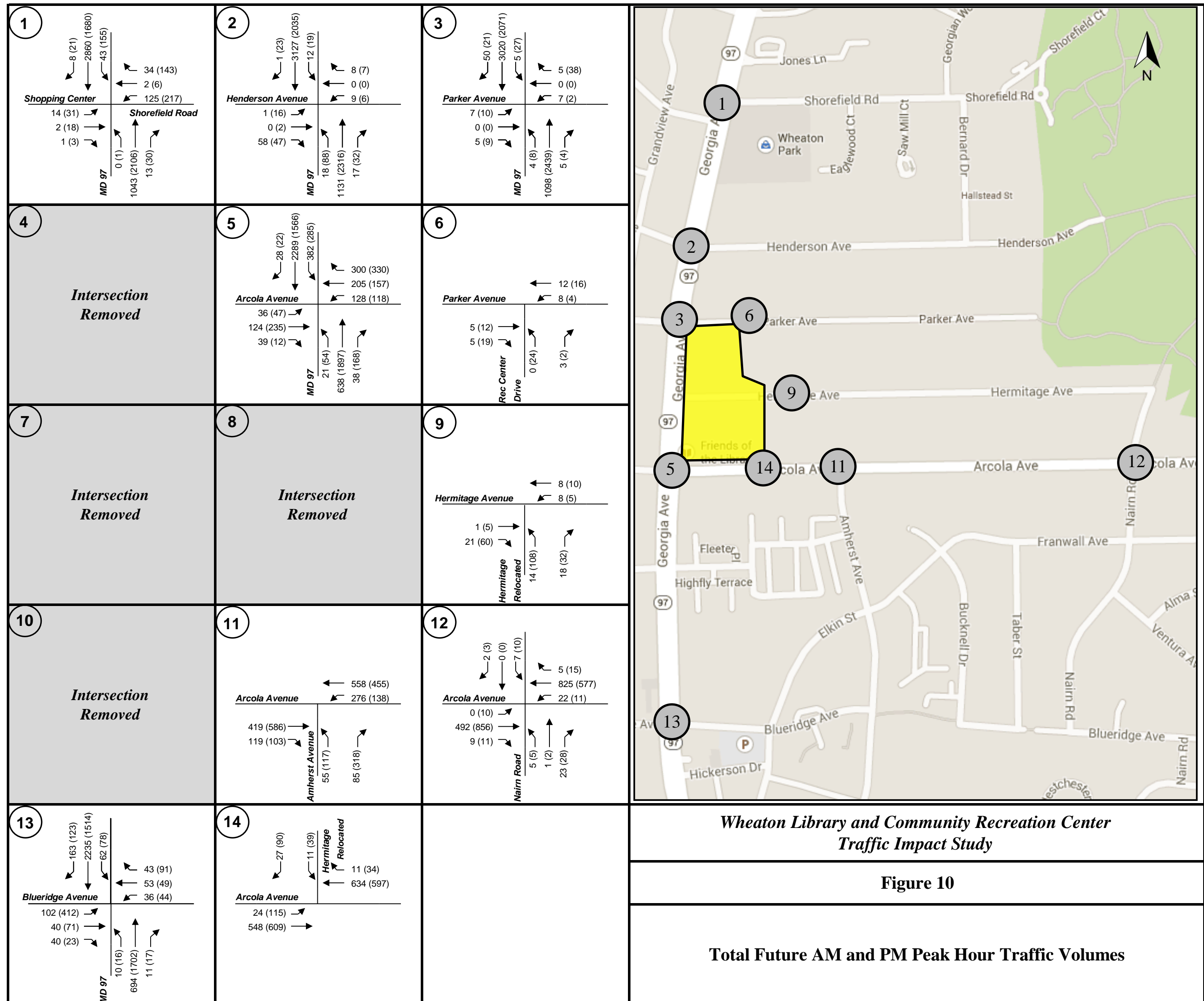
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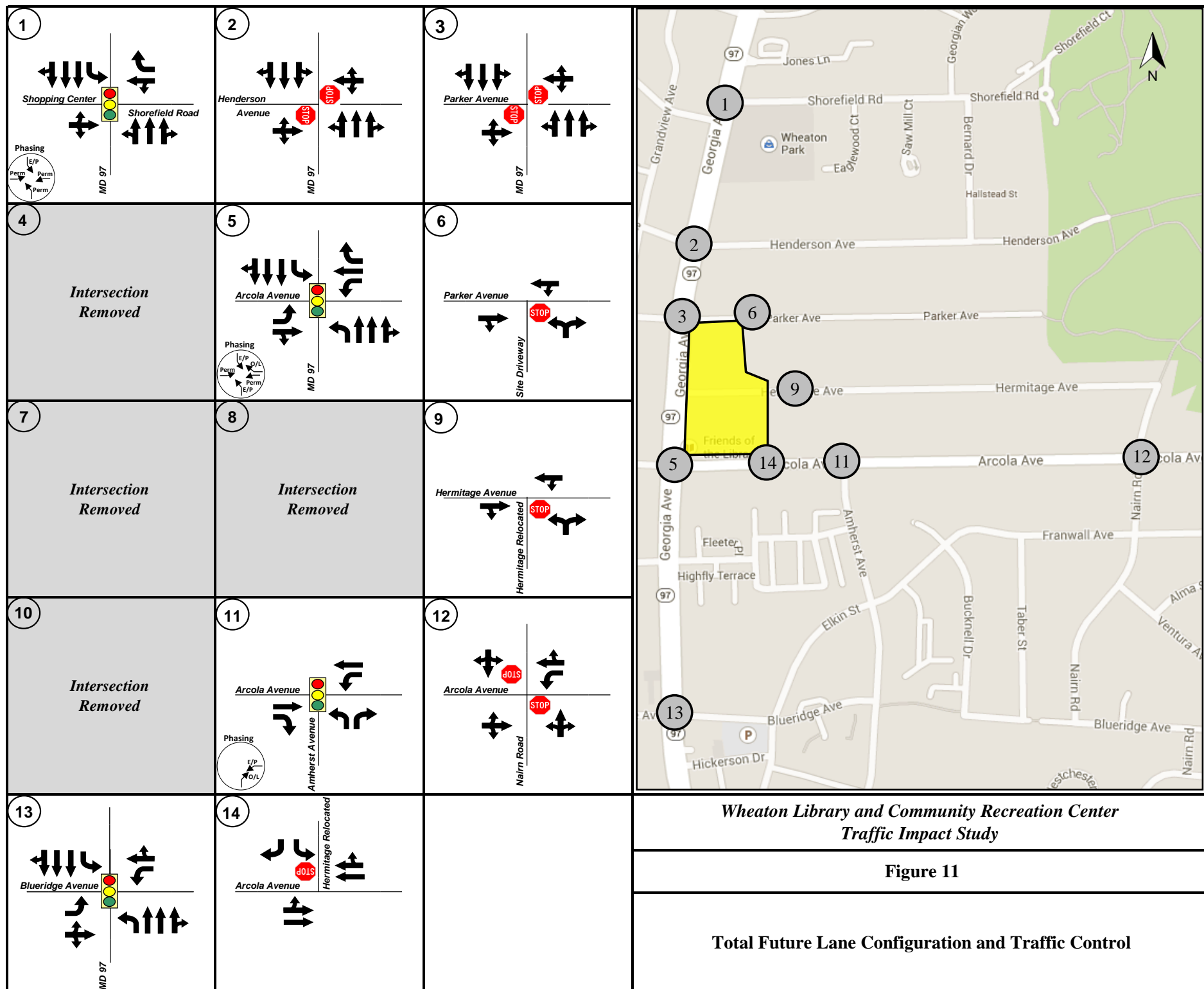


Figure 7: Site Access Concept











#### 4.6. Local Street Traffic Impacts

The local neighborhood street traffic volume is relatively low; however, the closure of Georgia Avenue at Hermitage Avenue would have an impact to residents on the local neighborhood streets. The impacts are described below:

- Parker Avenue is currently less than 20 feet wide. It is recommended that Parker Avenue be widened from Georgia Avenue to the new site access point to provide adequate width for efficient and safe site ingress.
- The proposed site access concept would increase volume entering and exiting Georgia Avenue at Arcola Avenue.

#### 4.7. Total Future Intersection Capacity Analysis

Total future intersection capacity was analyzed using the CLV methodology identified previously. **Table 5** provides a summary of the results utilizing the total future traffic volumes as shown in Figure 10 and the proposed lane configurations as shown in Figure 11.

Table 5 shows that under total future conditions all intersections continue to operate below the CLV threshold established by M-NCPPC during both the AM and PM peak hours. As noted previously, the Wheaton Mixed Use Development TIS overlaps the Wheaton Library and Recreation Center study area at the Georgia Avenue at Blueridge Avenue intersection. While the Wheaton Mixed Use Development TIS used more recent count data, the Background CLVs reported (1,084 AM and 1,016 PM) are similar to those listed in Table 5 below, and therefore, the resultant total future condition with the subject site for this project would remain well below the 1,600 CLV threshold established by M-NCPPC. **Appendix F** contains total future capacity analysis worksheets for the study intersections.

Table 5: Total Future Capacity Analysis

Intersection	Existing		Background		Total Future	
	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)	AM Peak Hour (CLV/LOS)	PM Peak Hour (CLV/LOS)
1. Georgia Avenue at Shorefield Road	1,216/C	1,231/C	1,216/C	1,231/C	1,216/D	1,238/D
2. Georgia Avenue at Henderson Avenue	1,273/C	1,117/B	1,273/C	1,117/B	1,273/C	1,123/B
3. Georgia Avenue at Parker Avenue	1,174/C	971/A	1,174/C	971/A	1,174/C	996/A
4. Georgia Avenue at Hermitage Avenue	1,127/B	996/A	1,127/B	996/A	-	-
5. Georgia Avenue at Arcola Avenue	1,176/C	1,368/D	1,176/C	1,368/D	1,178/C	1,418/D
6. Parker Avenue at Rec Center Drive	24/A	38/A	24/A	38/A	24/A	61/A
7. Hermitage Avenue at Library Driveway (west)	22/A	71/A	22/A	71/A	-	-
8. Hermitage Avenue at Rec Center Drive	31/A	57/A	31/A	57/A	-	-
9. Hermitage Avenue at Library Driveway (east)	44/A	71/A	44/A	71/A	62/A	210/A
10. Arcola Avenue at Library Driveway	570/A	839/A	570/A	839/A	-	-
11. Arcola Avenue at Amherst Avenue	750/A	901/A	750/A	901/A	750/A	904/A
12. Arcola Avenue at Nairn Road	867/A	941/A	867/A	941/A	867/A	954/A
13. Georgia Avenue at Blueridge Avenue	1,090/B	1,122/B	1,090/B	1,122/B	1,090/B	1,125/B
14. Arcola Avenue at Hermitage Relocated	-	-	-	-	393/A	539/A



## **5. Summary of Findings**

Based on the analysis of existing, background, and total future traffic conditions, the following findings and conclusions can be made:

- Under existing conditions, there are no intersections that operate above M-NCPPC's Kensington-Wheaton Policy Area CLV threshold of 1,600.
- No approved but unbuilt developments near the study area affect the study intersections.
- The proposed site will only generate new PM peak hour trips resulting from the expansion of the community recreation center. AM peak hour trips are forecasted to remain constant.
- Roadway widening on Parker Avenue between Georgia Avenue and the proposed sight access is recommended to provide safe and efficient site ingress.
- Under total future conditions there are no intersections that operate above M-NCPPC's Kensington-Wheaton Policy Area CLV threshold of 1,600.

The proposed consolidation and expansion of the Wheaton Library and Community Recreation Center does not have significant impact on surrounding roadways per M-NCPPC *LATR* Guidelines. Since Montgomery County is proposing this re-development, all requirements of the *LATR* Guidelines are advisory under the Mandatory Review Process.