

November 14, 2023

Mr. Roman Pronczak, P.E.
Township Manager
Whitpain Township
960 Wentz Road
Blue Bell, PA 19422

RE: Traffic Evaluation Letter – Two Alternative Site Options

Whitpain Township Community Center
Whitpain Township, Montgomery County, PA
Project No. 313807-01-001

Dear Roman:

Per your request, McMahon, a Bowman Company (herein will refer as Bowman), has prepared a Traffic Evaluation Letter to determine the potential traffic impacts from the development of a Township community center in Whitpain Township, Montgomery County, PA, and comparing two potential development sites to determine the traffic impacts and any transportation infrastructure improvements needed at one versus the other. Based on discussions with the Township, the traffic evaluation evaluated the following two (2) potential sites which are illustrated on **Figure 1**.

- **Alternative Site 'A'** – Centre Park Drive and Dekalb Pike (S.R. 0202) with access to Centre Park Drive replacing existing dog park.
- **Alternative Site 'B'** – Arch Street Road and Jolly Road with access to Arch Street Road (east side of Arch on triangle property bordered by PA Turnpike Northeast Extension).

The following development scenarios for the proposed community center for each of the potential development sites referenced above were analyzed:

- Phase 1 Community Center – 30,000 square feet (opening year assumed to be 2025).
- Phase 2 Ultimate Expansion of Community Center – an additional 70,000 square feet (potential future completion year assumed to be 2030).

This letter report evaluated traffic operations at seven (7) identified study intersections mentioned in the next section of this letter for 2023 existing conditions, 2025/2030 future without-development conditions, 2025/2030 future with-development conditions with provision of a 30,000 square-foot community center at each site, and 2025/2030 future with-development conditions with provision of an additional 70,000 square feet of community center space at each site. Below is a general list of the figures prepared for the comparison evaluation of the site options in this letter:

- Figures 2A and 2B – Existing Conditions.
- Figures 3A to 3D – Alternative Site 'A' Trip Distribution/Assignment.
- Figures 4A to 4D – Alternative Site 'B' Trip Distribution/Assignment.
- Figures 5A to 5D – 2025 and 2030 Future Without Development Conditions.

- Figures 6A to 6D – 2025 and 2030 Future With Development Conditions at Alternative Site 'A'.
- Figures 7A to 7D – 2025 and 2030 Future With Development Conditions at Alternative Site 'B'.

The overall levels-of-service at each study intersection are summarized in Table 2 on pages 6 and 7. The recommendations and conclusions for this traffic evaluation are provided on pages 7 – 9 of this letter.

Existing Conditions

Existing Traffic Volumes/Operations

Turning movement traffic counts were conducted on October 12, 2023, during a typical weekday, and on October 21, 2023, during a typical Saturday, at the following intersections:

- Dekalb Pike (S.R. 0202) and Jolly Road/Centre Park Drive
- Jolly Road and Wentz Road
- Jolly Road and Arch Street Road
- Township Line Road (S.R. 3001) and Arch Street Road
- Dekalb Pike (S.R. 0202) and Yost Road
- Yost Road and Centre Park Drive
- Centre Park Drive and Dog Park Access

The results of these traffic counts are tabulated by 15-minute intervals in **Attachment A**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis. In addition, traffic signal permit plans for the signalized study intersections and field sketches for the unsignalized study intersections are included in Attachment A. The resultant 2023 existing weekday morning, weekday afternoon, and Saturday midday peak hours are depicted in **Figure 2A**.

The peak hour traffic volumes at the study intersections were analyzed to determine the existing and future operating conditions, both without and with the community center, in accordance with the standard techniques contained in the current *Highway Capacity Manual (6th Edition)*. These standard capacity/level-of-service analysis techniques, which calculate total control delay, are more thoroughly described in **Attachment B** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type. The results of the capacity/level-of-service analyses are illustrated in **Figure 2B** for the existing peak hour traffic conditions, and detailed capacity/level-of-service analysis worksheets are contained in **Attachment C**.

Site Traffic Characteristics

This section presents the details regarding the proposed sites that involves the incremental increase in traffic volumes generated by the development during the peak hours and the distribution of site traffic to the study area roadways, as well as the proposed site access configuration and traffic control.

Trip Generation

In order to determine the trip generation for both Alternative Site 'A' and Alternative Site 'B', Bowman utilized rates for Land Use Code 495 (Recreational Community Center) contained in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition*. A summary of the anticipated trip generation for both site alternatives is provided in **Table 1**.

Table 1. Vehicular Trip Generation ⁽¹⁾

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour			Saturday Midday Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Phase 1	30,000 s.f.	865	38	19	57	35	40	75	17	15	32
Phase 2	70,000 s.f.	2,017	88	46	134	82	93	175	40	35	75
Total	100,000 s.f.	2,882	126	65	191	117	133	250	57	50	107

(1) Based on rates for Land Use Code 495 (Recreational Community Center) in ITE publication, Trip Generation Manual, 11th Edition.

As can be seen in Table 1, Phase 1 of the development at each site is expected to generate approximately 57 total "new" trips during the weekday morning peak hour, approximately 75 total "new" trips during the weekday afternoon peak hour, approximately 32 total "new" trips during the Saturday midday peak hour.

Phase 2 of the development at each site is expected to generate approximately 134 total additional "new" trips during the weekday morning peak hour, approximately 175 total additional "new" trips during the weekday afternoon peak hour, approximately 75 total additional "new" trips during the Saturday midday peak hour.

Trip Distribution/Assignment

Site-generated traffic will approach and depart each site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site accesses. The distribution percentages for the anticipated directions of approach and departure for Alternative Site 'A' are illustrated in **Figure 3A** while the distribution percentages for the anticipated directions of approach and departure for Alternative Site 'B' are illustrated in **Figure 4A**. Note that for Alternative Site 'A', it was assumed that Centre Park Drive will be fully widened between the St. Helena driveway and the access to Alternative Site 'A' to provide two-way traffic flow. Application of the percentages illustrated in Figures 4A and 5A to the new peak hour trips contained in Table 1, provides an estimate of site traffic to be added to the study area. The site-generated traffic for Phase 1 at Alternative Site 'A' and Alternative Site 'B' are shown in **Figures 3B and 4B** for the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively, while the site-generated traffic with the addition of Phase 2 at Alternative Site 'A' and Alternative Site 'B' are shown in **Figures 3C and 4C** for the weekday morning, weekday afternoon, and Saturday midday peak hours, respectively. The total site generated traffic for the weekday morning, weekday afternoon, and Saturday midday peak hours at Alternative Site 'A' and Alternative Site 'B' are shown in **Figures 3D and 4D**.

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Future Conditions

Future Traffic Volumes/Traffic Operations Without-Development

The existing traffic volumes illustrated in Figure 3A were then projected to the future Phase 1 opening year (2025), and to the future Phase 2 opening year (2030). To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 0.21 percent per year. This growth rate is consistent with the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2023 to July 2024* for similar urban, non-interstate roadways in Montgomery County. The annual growth was then compounded for two years for the 2025 opening year of Phase 1 at each site resulting in a total regional growth of 0.42 percent and compounded for seven years for the 2030 opening year of Phase 2 at each site resulting in a total regional growth of 1.48 percent.

The resultant 2025 opening year peak hour traffic volumes without-development are illustrated in **Figure 5A** for the weekday morning, weekday afternoon, and Saturday midday peak hours and in **Figure 5B** for the 2030 opening year peak hour traffic volumes for the weekday morning, weekday afternoon, and Saturday midday peak hours. The peak hour traffic volumes on Figure 5A and 5B were analyzed to determine the without-development operating conditions.

It should be noted that improvements listed below at the intersections of Dekalb Pike (S.R. 0202)/Jolly Road/Centre Park Drive and Dekalb Pike (S.R. 02020/Yost Road that are currently being constructed as part of the Dekalb Pike (S.R. 0202) widening project, as well as improvements that will be constructed as part of secured grants that the Township has received at the intersection of Jolly Road and Wentz Road, were included in all future traffic conditions.

Dekalb Pike (S.R. 0202) and Jolly Road/Centre Park Drive

- Install a separate 150-foot left-turn lane and separate 400-foot right-turn lane on the northbound Dekalb Pike (S.R. 0202) approach.
- Extend the existing left-turn lane on the southbound Dekalb Pike (S.R. 0202) approach to provide approximately 250 feet of storage.
- Install an additional through lane on the northbound and southbound Dekalb Pike (S.R. 0202) approaches.
- Install a separate 75-foot left-turn lane on the eastbound Centre Park Drive and provide two-way traffic flow on this approach.
- Extend the existing left-turn lane on the westbound Jolly Road approach to provide approximately 300 feet of storage. This approach will consist of a separate left-turn lane, and a shared left-turn/through/right-turn lane.
- Install bicycle lanes on the northbound and southbound Dekalb Pike (S.R. 0202) approaches.
- Upgrade the traffic signal equipment and provide coordination with other signals along Dekalb Pike (S.R. 0202). Please note the signal system along Dekalb Pike (S.R. 0202) will be an adaptive system which adjusts the traffic signal timings to accommodate changing traffic patterns and ease congestion by providing smoother traffic flow along the corridor.
- Upgrade pedestrian facilities at the intersection including provision of ADA ramps on each corner, continental crosswalks on each leg, and sidewalk along the eastern side of Dekalb Pike (S.R. 0202).

Dekalb Pike (S.R. 0202) and Yost Road

- Install an additional through lane on the northbound and southbound Dekalb Pike (S.R. 0202) approaches.
- Extend the existing right-turn lane on the southbound Dekalb Pike (S.R. 0202) approach to provide approximately 390 feet of storage.
- Extend the existing left-turn lane on the northbound Dekalb Pike (S.R. 0202) approach to provide approximately 250 feet of storage.
- Install a left-turn lane on the eastbound Yost Road approach to provide approximately 450 feet of storage. This approach will consist of a separate left-turn lane, and a shared left-turn/right-turn lane.
- Install bicycle lanes on the northbound and southbound Dekalb Pike (S.R. 0202) approaches.
- Upgrade the traffic signal equipment and provide coordination with other signals along Dekalb Pike (S.R. 0202). Please note the signal system along Dekalb Pike (S.R. 0202) will be an adaptive system which adjusts the traffic signal timings to accommodate changing traffic patterns and ease congestion by providing smoother traffic flow along the corridor.
- Upgrade pedestrian facilities at the intersection including provision of ADA ramps on each corner, continental crosswalks on the southern and western legs, and sidewalk along the eastern side of Dekalb Pike (S.R. 0202) and along the western side of Dekalb Pike (S.R. 0202) to the south of Yost Road.

Jolly Road and Wentz Road

- Restripe Jolly Road to provide a 200-foot separate left-turn lane on the eastbound approach.
- Install a 450-foot separate right-turn lane on the westbound Jolly Road approach.
- Upgrade the traffic signal equipment and provide an upgrade to pedestrian crossing.

The traffic signal permit plans and system plan for these intersections with the Dekalb Pike (S.R. 0202) widening project are included in Attachment A. In addition, all future conditions analysis included a redistribution of existing traffic utilizing Yost Road and Centre Park Drive to access the athletic fields and dog park to account for the addition of ingress movements along Centre Park Drive at Dekalb Pike (S.R. 0202) currently being constructed as part of the Dekalb Pike (S.R. 0202) widening project previously mentioned. A figure showing the redistributed traffic is contained in **Attachment D**.

The results of the 2025 without-development capacity/level-of-service analyses are illustrated in **Figure 5C** for the peak hour traffic conditions while the 2030 without development capacity/levels-of-service analyses are illustrated in **Figure 5D** and detailed capacity/level-of-service analysis worksheets are contained in **Attachments E and F**. Please note that since the traffic signals at the intersections of Dekalb Pike (S.R. 0202)/Yost Road and Dekalb Pike (S.R. 0202)/Jolly Road/Centre Park Drive will be part of an adaptive system, both intersections are expected to operate better than what is shown on Figures 5C and 5D. The adaptive system will adjust to changing traffic volumes and patterns during the peak hours to ease congestion and optimize levels-of-service for Dekalb Pike (S.R. 0202) and the approaches of intersecting streets at signalized intersections.

Future Traffic Volumes/Traffic Operations With-Development

The site generated traffic trips for Phase 1 and Phase 2 of Alternative Site 'A', as shown in Figures 3B and 3C, were added to the future 2025 and 2030 without-development traffic volumes, resulting in the future

2025 and 2030 with-development traffic volumes. The resultant 2025 and 2030 future weekday morning, weekday afternoon, and Saturday midday peak hours with development traffic volumes for Phases 1 and 2 at the Alternative Site 'A' are depicted in **Figures 6A and 6B**. The site generated traffic trips for Phase 1 and Phase 2 of Alternative Site 'B', as shown in Figures 4B and 4C, were added to the future 2025 and 2030 without-development traffic volumes, resulting in the future 2025 and 2030 with-development traffic volumes. The resultant 2025 and 2030 future weekday morning, weekday afternoon, and Saturday midday peak hours with development traffic volumes for Phases 1 and 2 at the Alternative Site 'B' are depicted in **Figures 7A and 7B**.

The results of the capacity/level-of-service analyses are illustrated in **Figures 6C and 6D** for the 2025 and 2030 future peak hour traffic conditions with Phase 1 and Phase 2 at Alternative Site 'A', and detailed capacity/level-of-service analysis worksheets are contained in **Attachments G and H**. The results of the capacity/level-of-service analyses for the 2025 and 2030 future peak hour traffic conditions with Phase 1 and Phase 2 at Alternative Site 'B' are illustrated in **Figures 7C and 7D** for the 2025 and 2030 future peak hour traffic conditions and detailed capacity/level-of-service analysis worksheets are contained in **Attachments I and J**.

As illustrated in Figures 6C, 6D, 7C, and 7D with the construction of each proposed site, all study intersections will satisfy PennDOT's level-of-service criteria. Please note that since the traffic signals at the intersections of Dekalb Pike (S.R. 0202)/Yost Road and Dekalb Pike (S.R. 0202)/Jolly Road/Centre Park Drive will be part of an adaptive system, both intersections are expected to operate better than what is shown on Figures 6C, 6D, 7C, and 7D. The adaptive system will adjust to changing traffic volumes and patterns during the peak hours to ease congestion and optimize levels-of-service for Dekalb Pike (S.R. 0202) and the approaches of intersecting streets at signalized intersections. **Table 2** below summarizes the overall levels of service for the study intersections while levels-of-service and 95th percentile queue matrices summarizing all traffic conditions by movement are provided in **Attachment K**.

Table 2. Overall Intersection Levels-of-Service
Weekday Morning Peak Hour

Intersection				Alternative Site 'A'		Alternative Site 'B'	
	Existing	2025 Without Development	2030 Without Development	Phase 1 With Development (2025)	Phase 2 With Development (2030)	Phase 1 With Development (2025)	Phase 2 With Development (2030)
Dekalb Pike and Jolly Road/Centre Park Drive	B (18.1)	B (13.4)	B (13.4)	B (14.4)	B (16.4)	B (13.7)	B (14.1)
Jolly Road and Wentz Road	B (14.8)	B (14.6)	B (14.7)	B (14.8)	B (15.2)	B (14.6)	B (14.8)
Jolly Road and Arch Street Road	B (10.3)	B (10.3)	B (10.4)	B (10.5)	B (10.7)	B (10.4)	B (10.7)
Township Line Road and Arch Street Road	B (11.7)	B (11.7)	B (11.8)	B (11.8)	B (12.0)	B (11.8)	B (11.9)
Dekalb Pike and Yost Road	A (8.6)	A (7.3)	A (7.3)	A (7.5)	A (8.2)	A (7.5)	A (8.0)
Yost Road and Centre Park Drive	B (10.6)	B (10.6)	B (10.6)	B (10.5)	B (11.1)	B (10.6)	B (10.9)
Centre Park Drive and Dog Park Access	A (0.0)	A (0.6)	A (0.6)	A (3.8)	A (4.8)	A (0.6)	A (0.6)

Table 2. Overall Intersection Levels-of-Service (continued)

Weekday Afternoon Peak Hour

Intersection				Alternative Site 'A'		Alternative Site 'B'	
	Existing	2025 Without Development	2030 Without Development	Phase 1 With Development (2025)	Phase 2 With Development (2030)	Phase 1 With Development (2025)	Phase 2 With Development (2030)
Dekalb Pike and Jolly Road/Centre Park Drive	C (34.9)	C (22.0)	C (22.0)	C (23.3)	C (28.2)	C (22.3)	C (25.6)
Jolly Road and Wentz Road	D (43.3)	C (22.1)	C (22.2)	C (22.2)	C (22.5)	C (22.0)	C (22.0)
Jolly Road and Arch Street Road	B (15.6)	B (15.8)	B (16.0)	B (15.9)	B (16.4)	B (16.2)	B (17.9)
Township Line Road and Arch Street Road	B (13.5)	B (13.5)	B (13.7)	B (13.6)	B (14.0)	B (13.7)	B (14.2)
Dekalb Pike and Yost Road	C (23.7)	B (12.4)	B (12.4)	B (12.7)	B (13.3)	B (12.5)	B (12.8)
Yost Road and Centre Park Drive	A (9.3)	A (9.0)	A (9.0)	A (9.2)	A (9.6)	A (9.0)	A (9.2)
Centre Park Drive and Dog Park Access	A (0.0)	A (0.6)	A (0.6)	A (3.4)	A (7.6)	A (0.6)	A (0.6)

Saturday Midday Peak Hour

Intersection				Alternative Site 'A'		Alternative Site 'B'	
	Existing	2025 Without Development	2030 Without Development	Phase 1 With Development (2025)	Phase 2 With Development (2030)	Phase 1 With Development (2025)	Phase 2 With Development (2030)
Dekalb Pike and Jolly Road/Centre Park Drive	B (11.4)	A (7.6)	A (7.7)	A (10.0)	B (12.2)	A (8.0)	A (8.7)
Jolly Road and Wentz Road	B (16.5)	B (18.1)	B (18.3)	B (18.2)	B (18.5)	B (18.1)	B (18.3)
Jolly Road and Arch Street Road	B (17.6)	B (17.7)	B (17.9)	B (17.8)	B (18.5)	B (18.2)	B (19.8)
Township Line Road and Arch Street Road	B (13.6)	B (13.7)	B (13.9)	B (13.7)	B (14.1)	B (13.7)	B (14.1)
Dekalb Pike and Yost Road	E (77.3)	B (17.6)	B (17.7)	B (17.8)	B (18.3)	B (17.6)	B (17.6)
Yost Road and Centre Park Drive	B (12.8)	B (12.2)	B (12.4)	B (12.4)	B (13.2)	B (12.3)	B (12.5)
Centre Park Drive and Dog Park Access	A (0.0)	A (1.0)	A (1.0)	A (2.8)	A (4.4)	A (0.7)	A (1.0)

Site Accesses

This traffic evaluation assumed access to Alternative Site 'A' will be provided via one (1) full-movement driveway along Centre Park Drive, while access to Alternative Site 'B' will be provided via one (1) full-movement driveway along Arch Street Road.

Based on the results of this evaluation, the following access configurations and traffic controls are initially recommended, subject to the detailed land development engineering of each site and the location of the access(es):

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Centre Park Drive and Alternative Site 'A' Access

- Widen Centre Park Drive between Site 'A' and the driveway for St. Helena Church to provide two-way traffic flow for access to Site 'A'.
- Provide one ingress and one egress lane on the Site 'A' access approach.
- Provide stop control on the site access approach.
- Based on turn lane warrant analysis, a left-turn lane and right-turn deceleration lane are not warranted along Centre Park Drive.
- Plan and consider providing a pedestrian path along Centre Park Drive from Dekalb Pike (S.R. 0202) to Site 'A' to connect with the new sidewalk along Dekalb Pike (S.R. 0202) and pedestrian crossings at the intersection of Dekalb Pike (S.R. 0202) and Jolly Road being provided by PennDOT.
- Longer term, consider extending the sidewalk along the south side of Yost Road to Centre Park Drive, providing a pedestrian path along Centre Park Drive between Yost Road and Site 'A' and enhance the existing pedestrian crossing at Centre Park Drive and Yost Road to improve pedestrian accessibility.
- It should be noted that an eastbound left-turn lane and westbound right-turn lane on Yost Road at Center Park Drive are not warranted based on turn lane warrant analysis completed for 2030 future with-development conditions.

Arch Street Road and Alternative Site 'B' Access

- Provide on ingress and one egress lane on the site access approach.
- Provide stop control on the site access approach.
- Based on turn lane warrant analysis, a 75-foot left-turn lane is warranted on the southbound Arch Street Road approach.
- Plan and consider providing pedestrian facilities along the Arch Street frontage, as well as Jolly Road to connect with existing pedestrian facilities on Jolly Road to the east of Site 'B'. Also, pedestrian facilities and more specific design needs should be considered crossing Arch Street Road and the potential access location to/from the Mermaid Lake area to be redeveloped.

A copy of the turn lane warrant analysis for each Alternative Site is provided in **Attachment L**. With the site access configuration listed above, the site accesses for both Alternative Site 'A' and Alternative Site 'B' are expected to operate at acceptable LOS C or better both overall and for each movement under 2025 and 2030 future with-development conditions during all three peak hours.

Conclusions/Summary

The traffic analyses contained herein reveals that efficient access to and from both Alternative Site 'A' and Alternative Site 'B' can be provided, and furthermore, site generated traffic can be accommodated at the study area intersections, especially with the capacity and multimodal infrastructure improvements already under construction or to be designed and installed that are known. The Dekalb Pike (S.R. 0202) widening project, as mentioned on page 4 of this letter that is currently being constructed by PennDOT is expected to provide additional capacity and traffic signal equipment and corridor coordination upgrades at the intersections of Dekalb Pike (S.R. 0202)/Jolly Road and Dekalb Pike (S.R. 0202)/Yost Road which will mitigate the impact of the development at either of the sites. In addition, the proposed improvements to be installed by the Township at the intersection of Jolly Road/Wentz Road will help to mitigate the impact of the development at this intersection at either of the sites. Based on information provided in Table 2, the 2025 and 2030 future with-development traffic operations for both Alternative Site 'A' and Alternative Site 'B" are

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expected to be similar to the 2025 and 2030 future without-development traffic operations at all of the study intersections with acceptable overall levels-of-service provided at the study intersections during the weekday morning, weekday afternoon, and Saturday midday peak hours.

Therefore, it is expected that the provision of a Community Center at either Alternative Site 'A' and Alternative Site 'B' should have minimal overall traffic operational impact on the study intersections of the surrounding roadway network and be able to produce acceptable traffic operations at these intersections within the vicinity of each site. Alternative Site 'A' will be located adjacent to a Township Park, along a major multi-lane highway that provides higher visibility for the community center and will provide turn lanes into the site along with pedestrian and bicycle facilities. Therefore, the new traffic generated by Alternative Site 'A' may have less impact on residential areas. While Alternative Site 'B' may be more walkable for the nearby residents as a community center, it is located away from Dekalb Pike (S.R. 0202) along a two-lane road located in a residential area and near the former Mermaid Lake property recreational area. In addition, Alternative site 'B' will require some additional improvements on Arch Street Road at the site access which may need to be extended north to tie in the Jolly Road intersection, the extent of which can be better determined with site and access plans and the site access location. If Alternative Site 'B' is selected as the preferred location by the Township, our office can prepare conceptual plans with a better-defined site plan to determine the Jolly Road improvements and limits, considering vehicles, pedestrians and bicycles.

We trust that this evaluation responds to your requests as related to the operation and safety of the two potential site locations. If you have any questions, or require further clarification, please feel free to contact me or Chad Dixson, AICP, PP.

Sincerely,



Casey A. Moore, P.E.
Executive Vice President

cc: David Mrochko, Assistant Township Manager
 Jim Blanch, P.E., Whitpain Township Engineer

Q:\PA-FTWA-MC\MCM\eng\WHITPTO1\313807-01-001_Community Ctr Traffic Eval\Traffic\Working Documents\2023-11-14 Traffic Evaluation Letter_Whitpain Township Community Center.docx



FIGURE 1

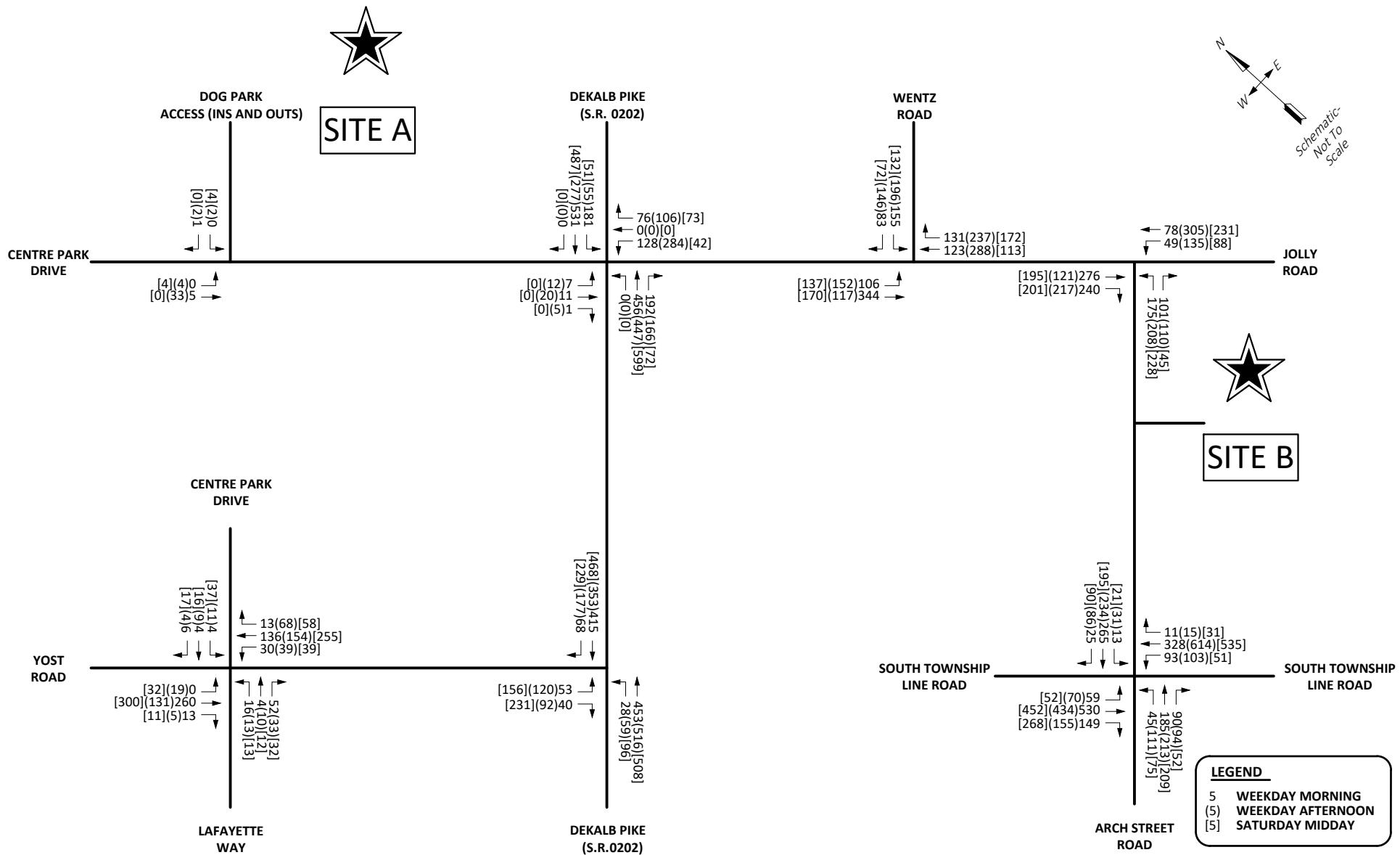
Site Location Map

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON

a Bowman company



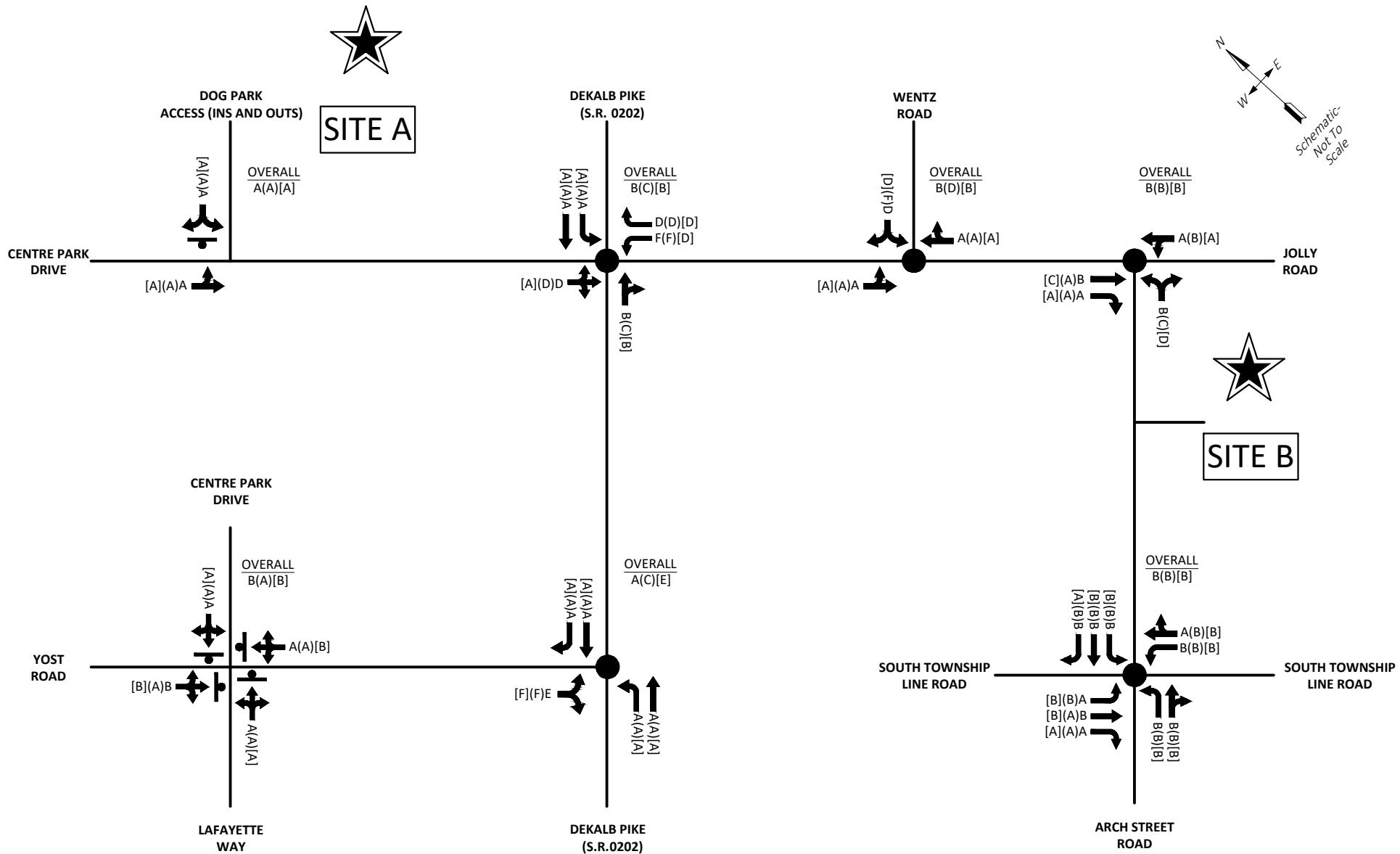


FIGURE 2B

2023 Existing Peak Hour Levels of Service

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

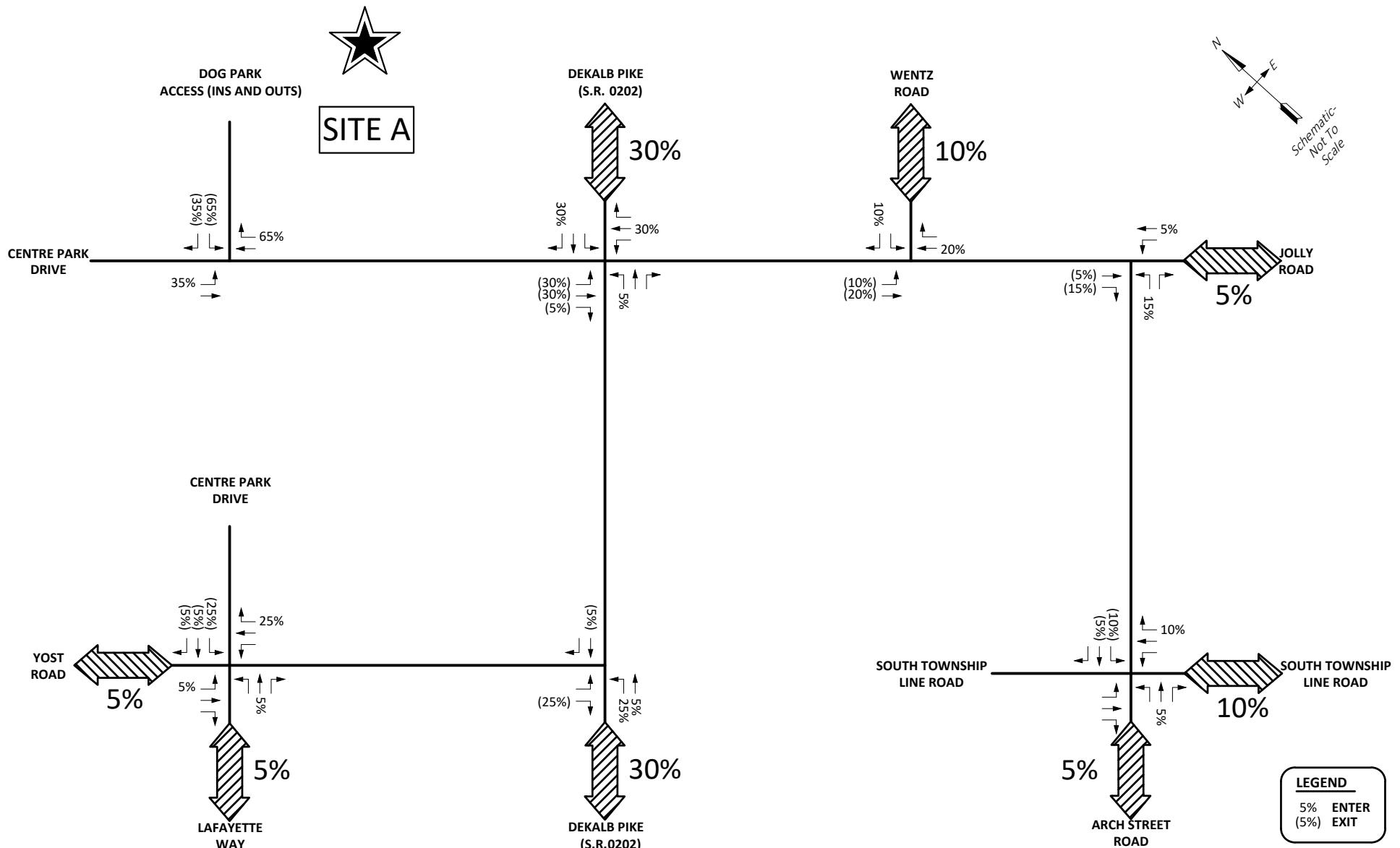


FIGURE 3A

New Trip Distributions - Alternative site "A"

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

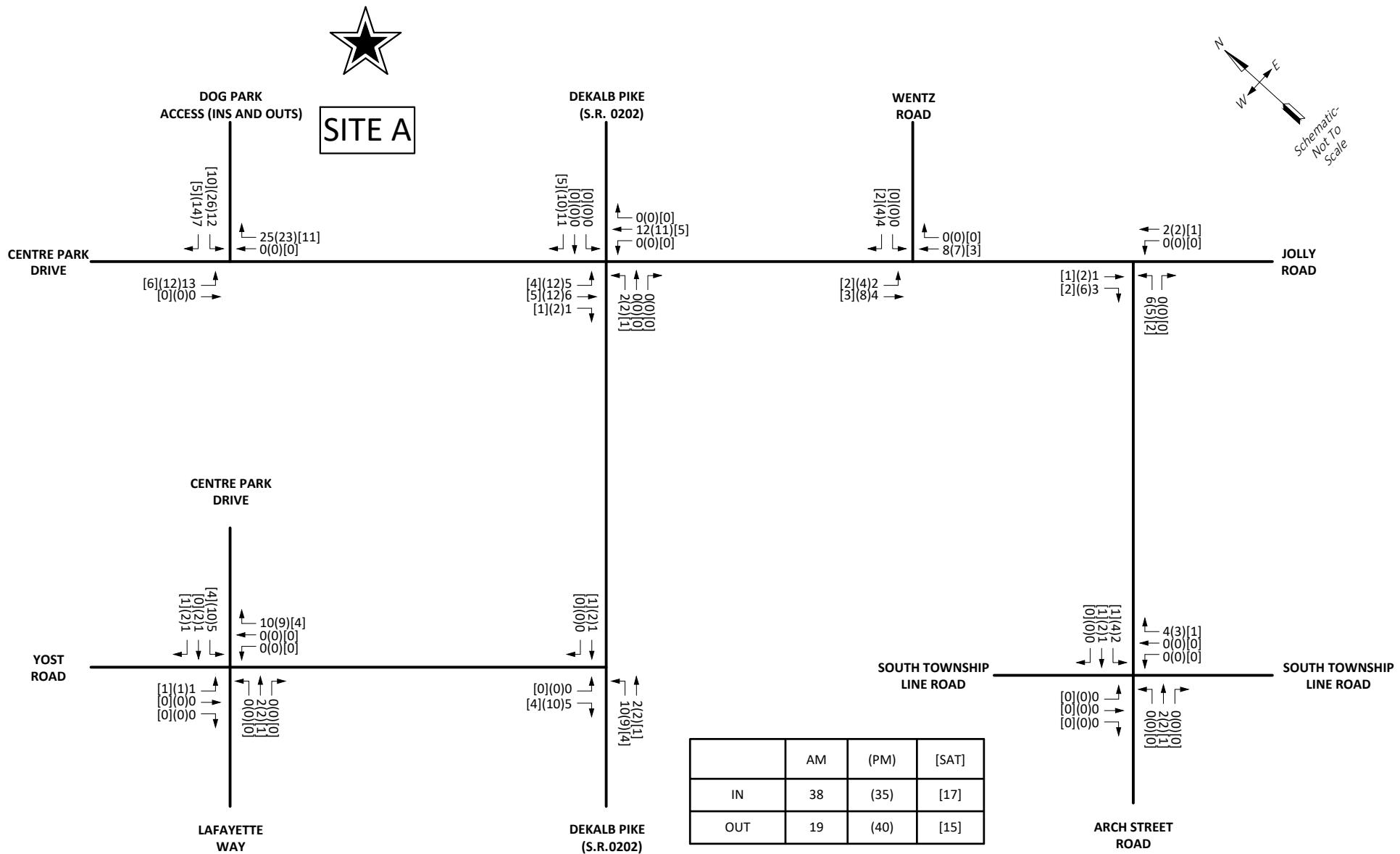


FIGURE 3B

"New" Trip Assignments - Phase 1 Alternative Site A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

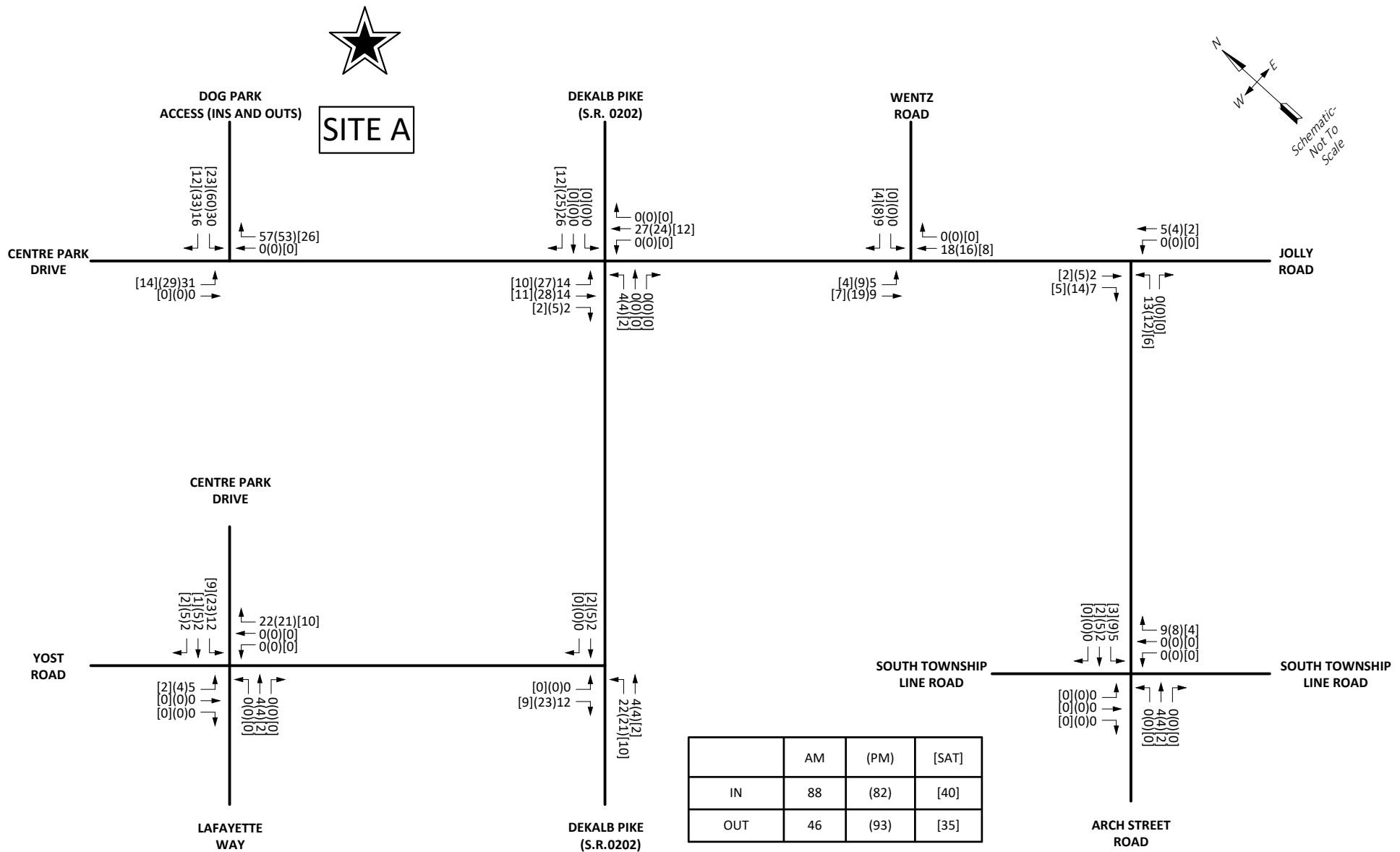


FIGURE 3C

"New" Trip Assignments - Phase 2 Alternative Site A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company



**DOG PARK
ACCESS (INS AND OUTS)**

SITE A

**DEKALB PIKE
(S.R. 0202)**

WENTZ

Schematic
Not To
Scale

CENTRE
DRIV

[20](41)44 ↑
[0/0]0

[33](86)42
[17](47)23 —
82(76)[37]

↑ 0(0)[0]
 ← 39(35)[1]
 ↓ 0(0)[0]

$$[6](12)_{13} = \begin{array}{c} [0][0]0 \\ \uparrow \\ 0(0)[0] \end{array}$$

← 7(6)[
└ 0(0)[

JOLLY
ROAD

CENTRE PARK DRIVE

YOST
ROA

$$\begin{bmatrix} 3 \\ 0 \\ 0 \end{bmatrix} \begin{bmatrix} 5 \\ 0 \\ 0 \end{bmatrix} \begin{matrix} \square \\ \rightarrow \\ \square \end{matrix}$$

[13](33)17
[1](73)
[3](73) -
32(30)[14]
0(0)[0]

$$[3](7)3 \\ 00$$

SOUTH TOWNSHIP LINE ROAD

**SOUTH TOWNSHIP
LINE ROAD**

LAFAYETTE WAY

**DEKALB PIKE
(S.R.0202)**

	AM	(PM)	[SAT]
IN	126	(117)	[57]
OUT	65	(133)	[50]

**ARCH STREET
ROAD**

FIGURE 3D

Total "New" Trip Assignments - Alternative Site A

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a **Bowman** company

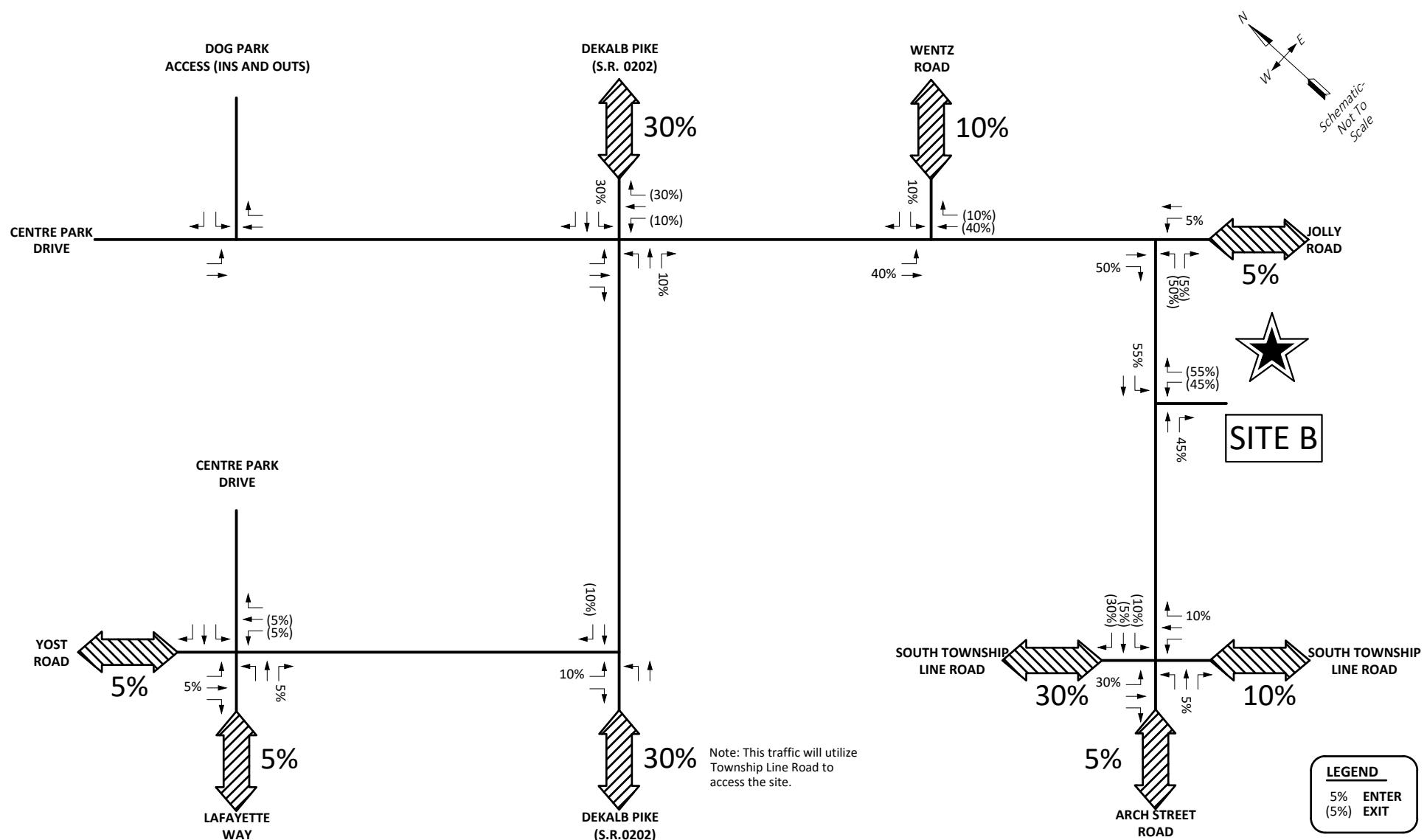


FIGURE 4A

New Trip Distributions - Alternative site "B"

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

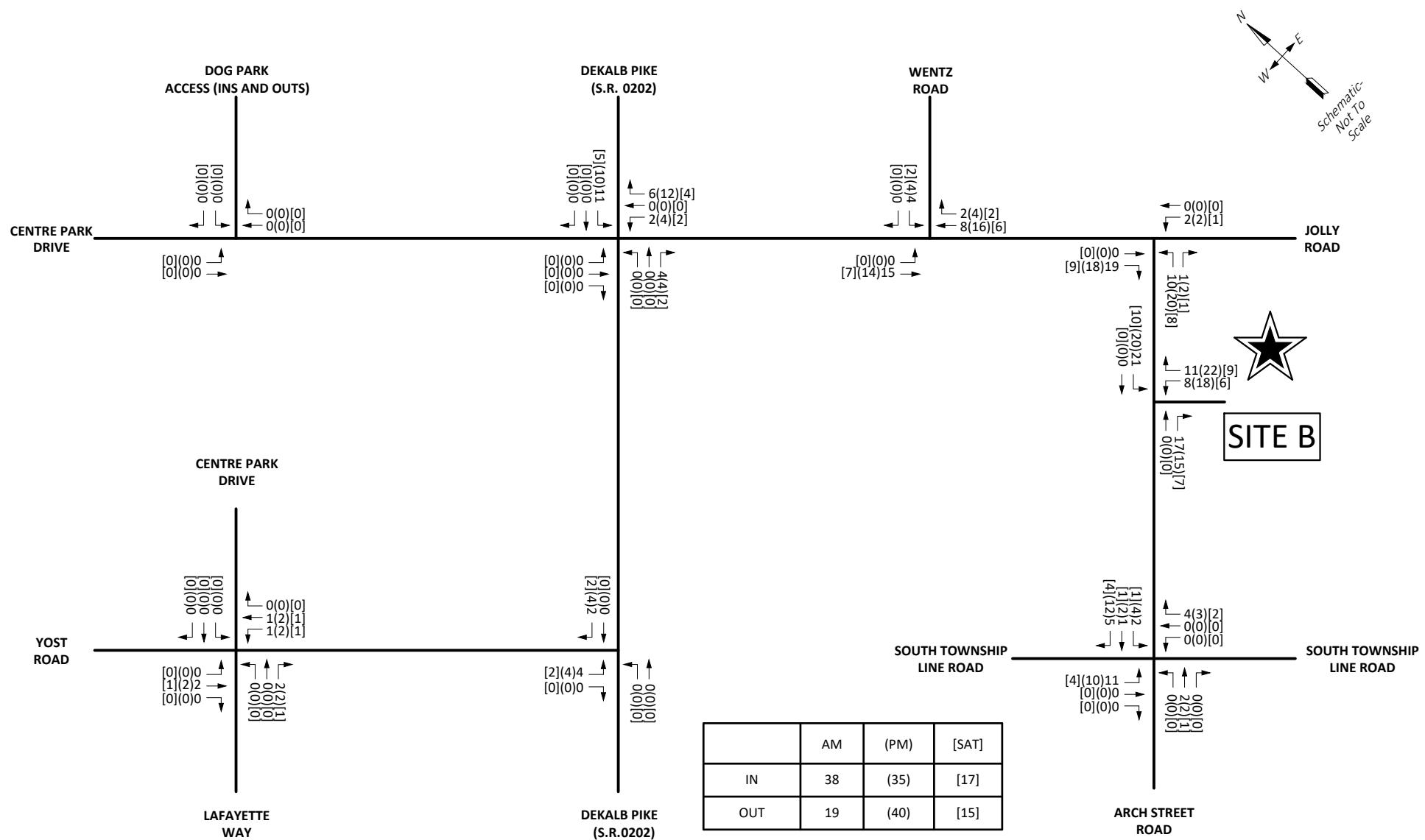


FIGURE 4B

"New" Trip Assignments - Phase 1 Alternative Site B

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON a **Bowman** company

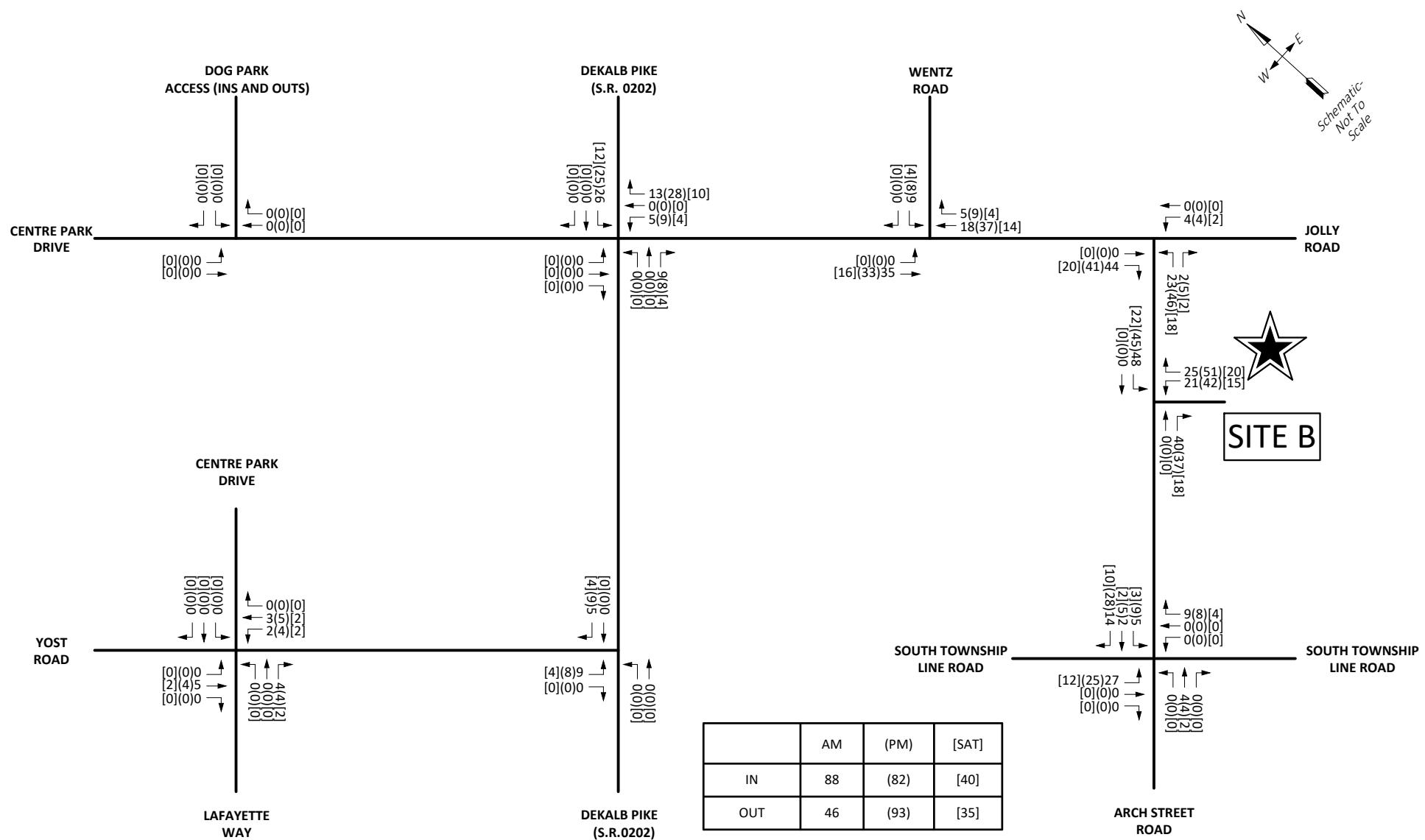


FIGURE 4C

"New" Trip Assignments - Phase 2 Alternative Site B

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMahon a **Bowman** company

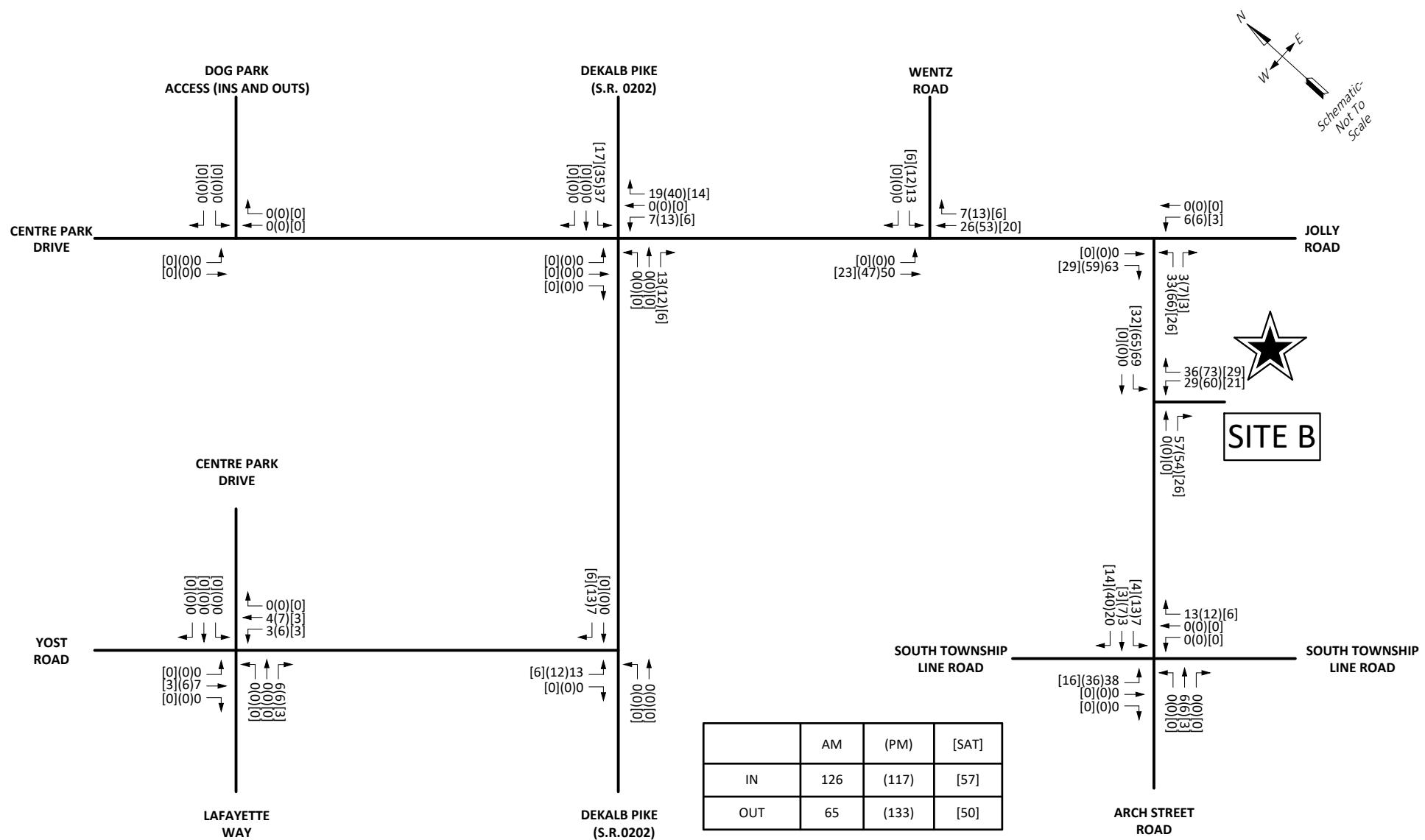


FIGURE 4D

Total "New" Trip Assignments - Alternative Site B

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

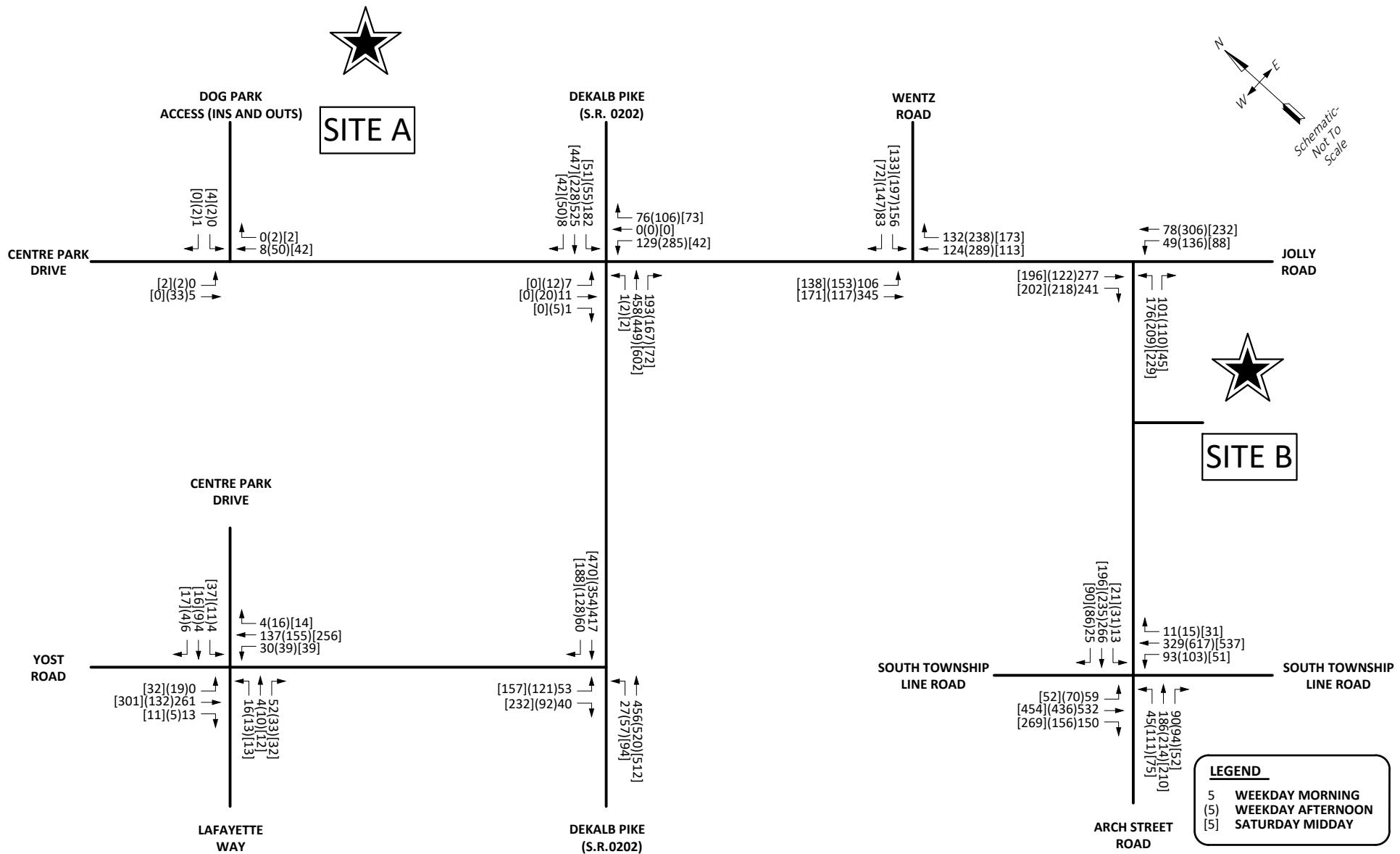


FIGURE 5A

2025 without Development Peak Hour Traffic Volumes

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

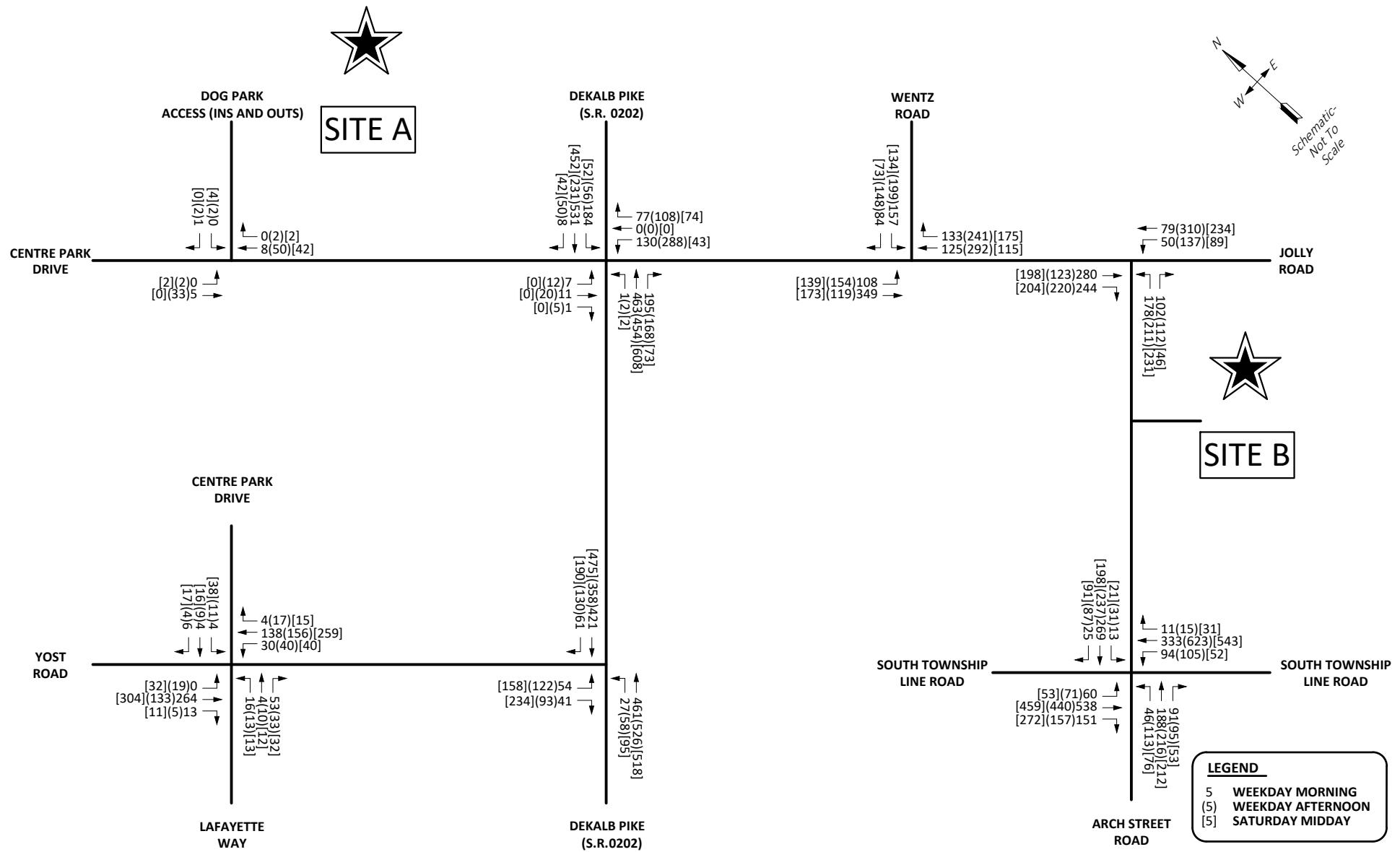


FIGURE 5B

2030 without Development Peak Hour Traffic Volumes

WHITPAIN TOWNSHIP COMMUNITY CENTER

WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

McMahon a **Bowman** company

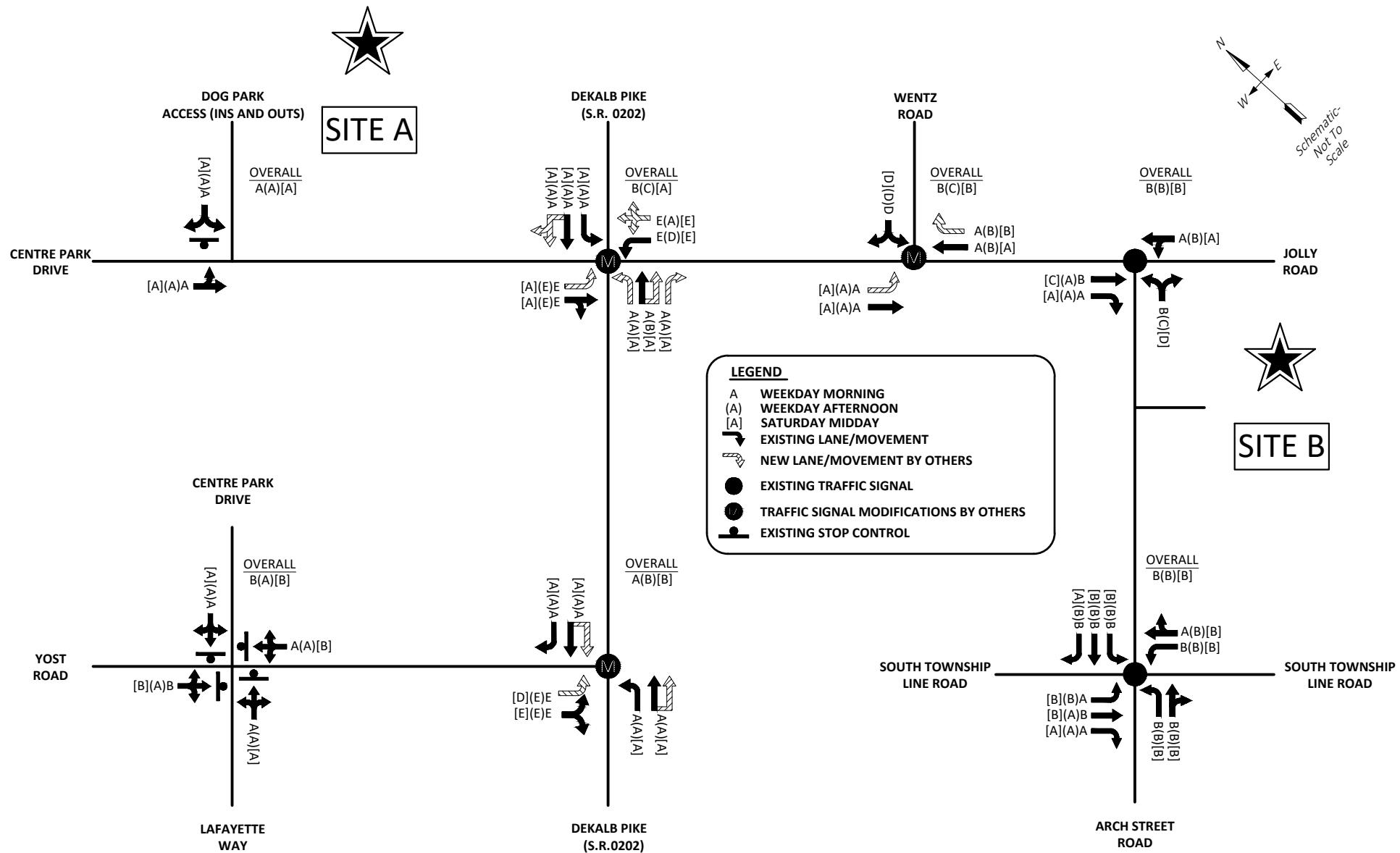


FIGURE 5C

2025 without Development Levels of Service

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

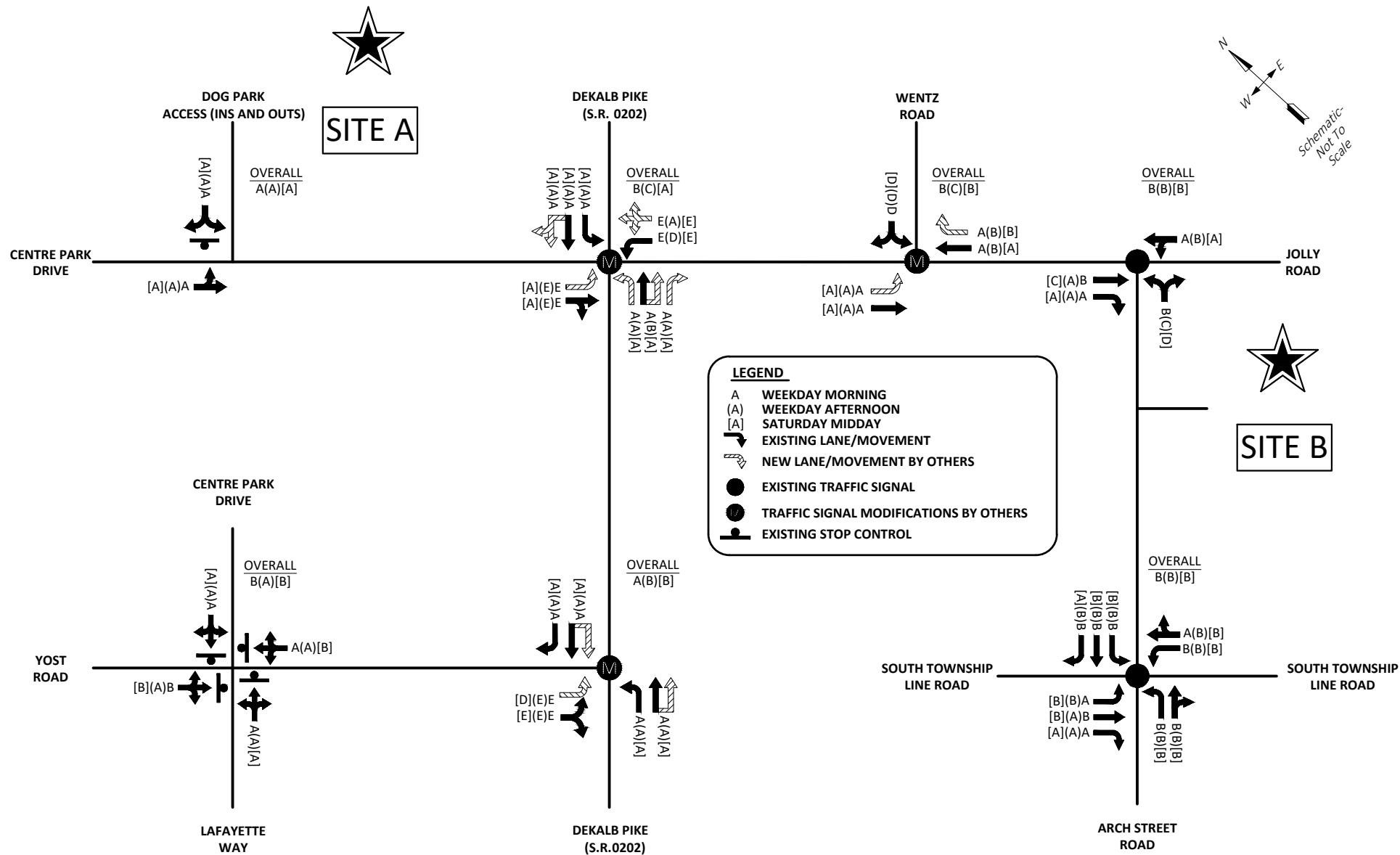


FIGURE 5D

2030 without Development Levels of Service

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

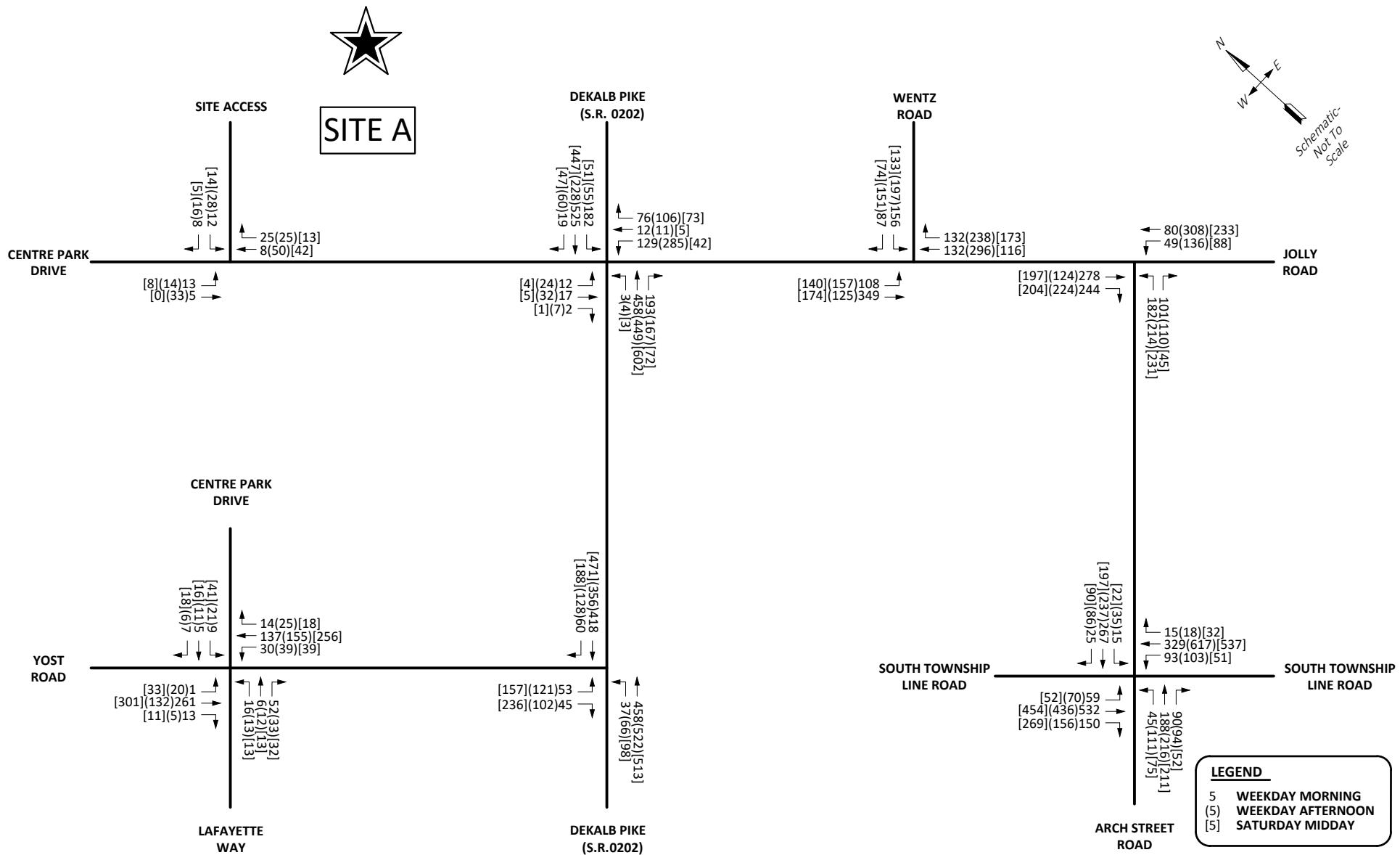


FIGURE 6A

2025 with Development Peak Hour Traffic Volumes - Alternative A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

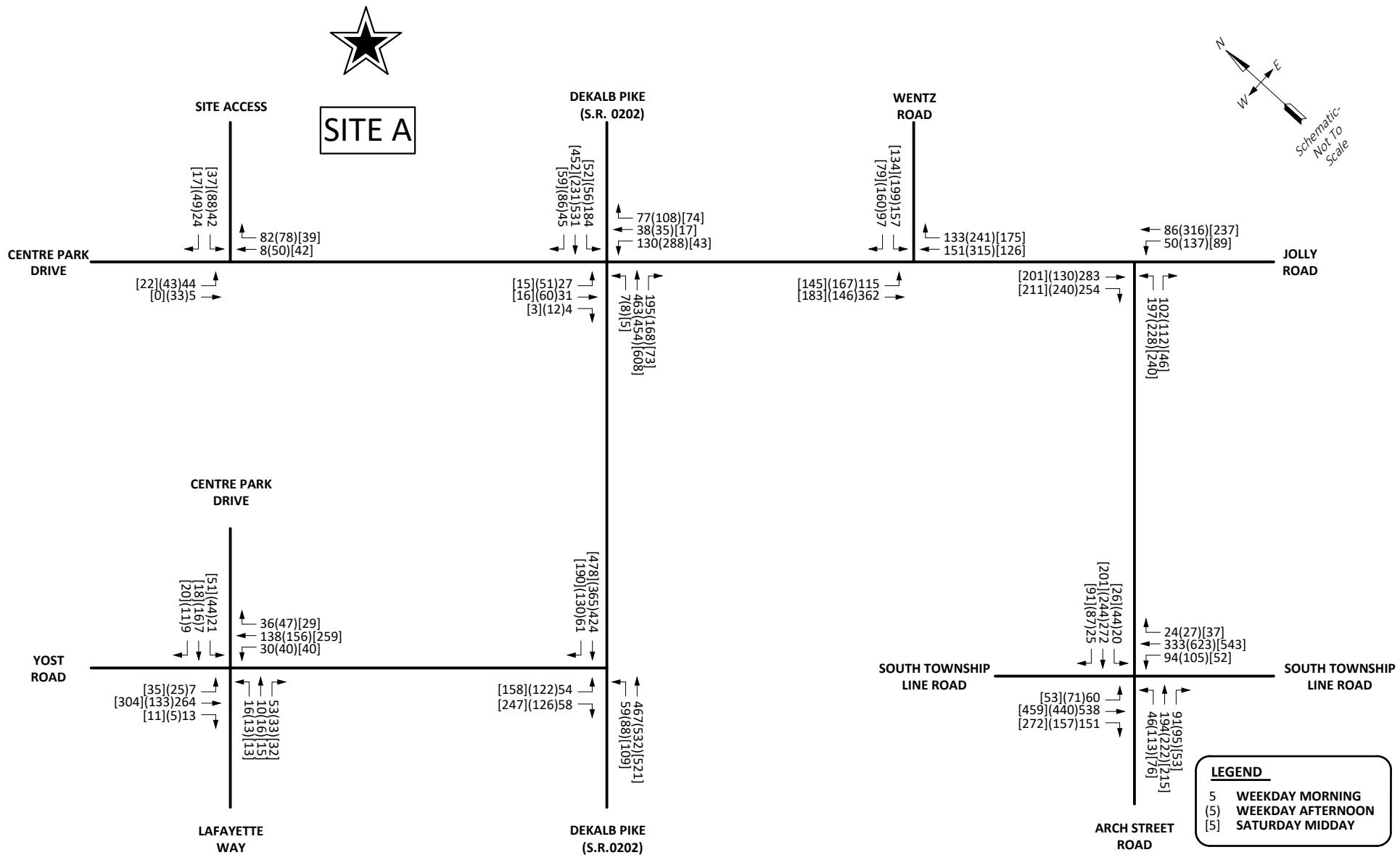


FIGURE 6B

2030 with Development Peak Hour Traffic Volumes - Alternative A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

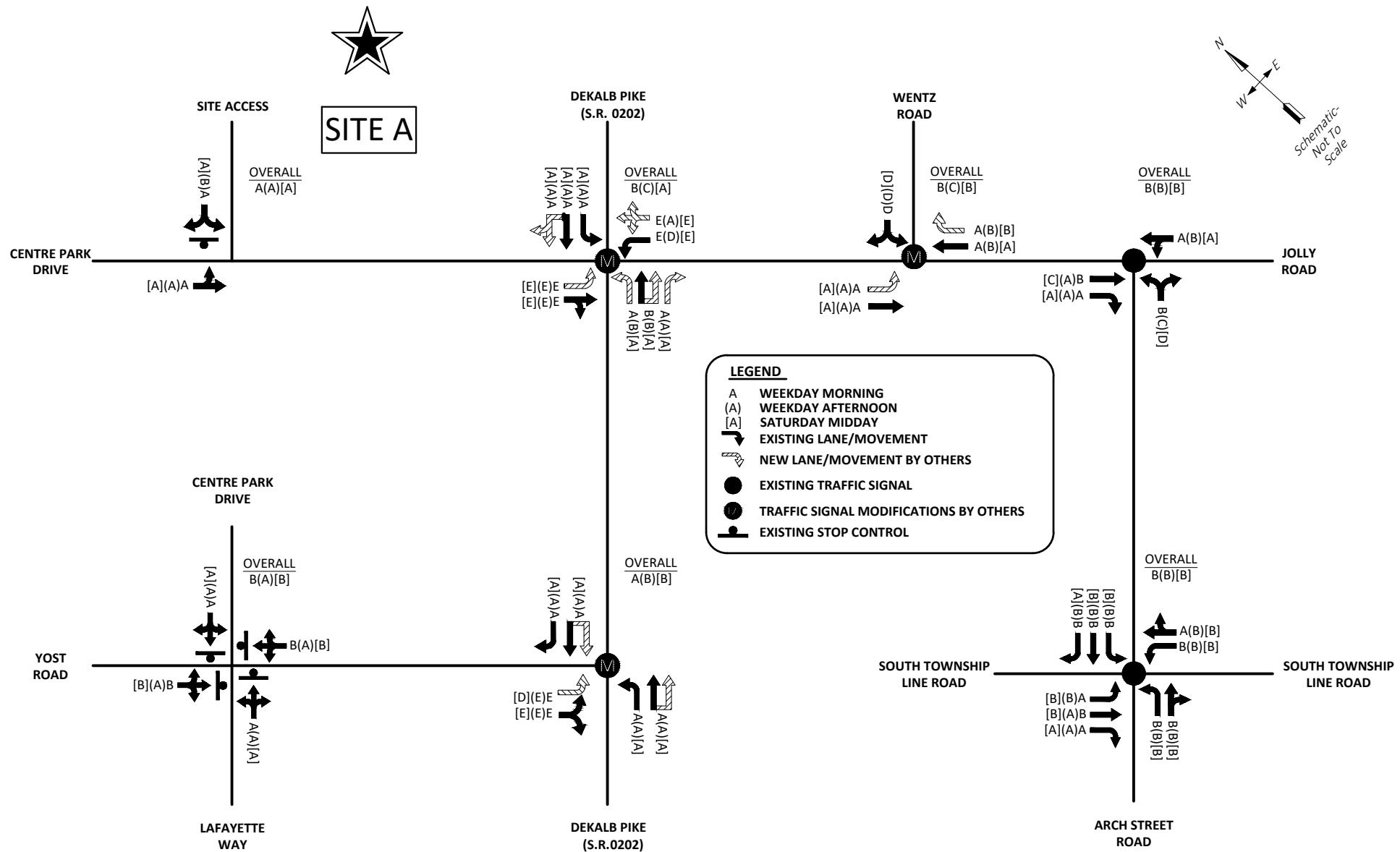


FIGURE 6C

2025 with Development Levels of Service - Alternative Site A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company

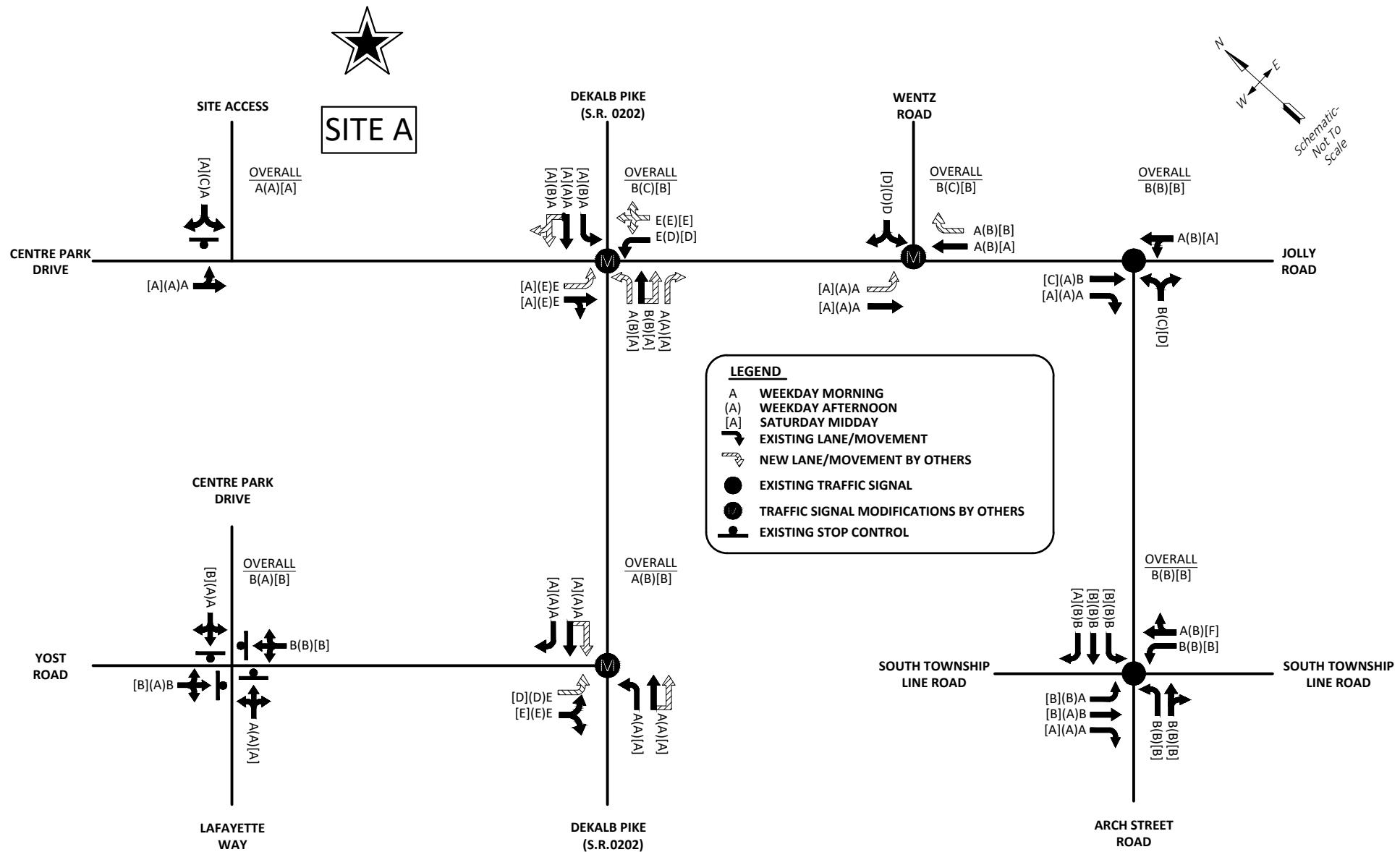
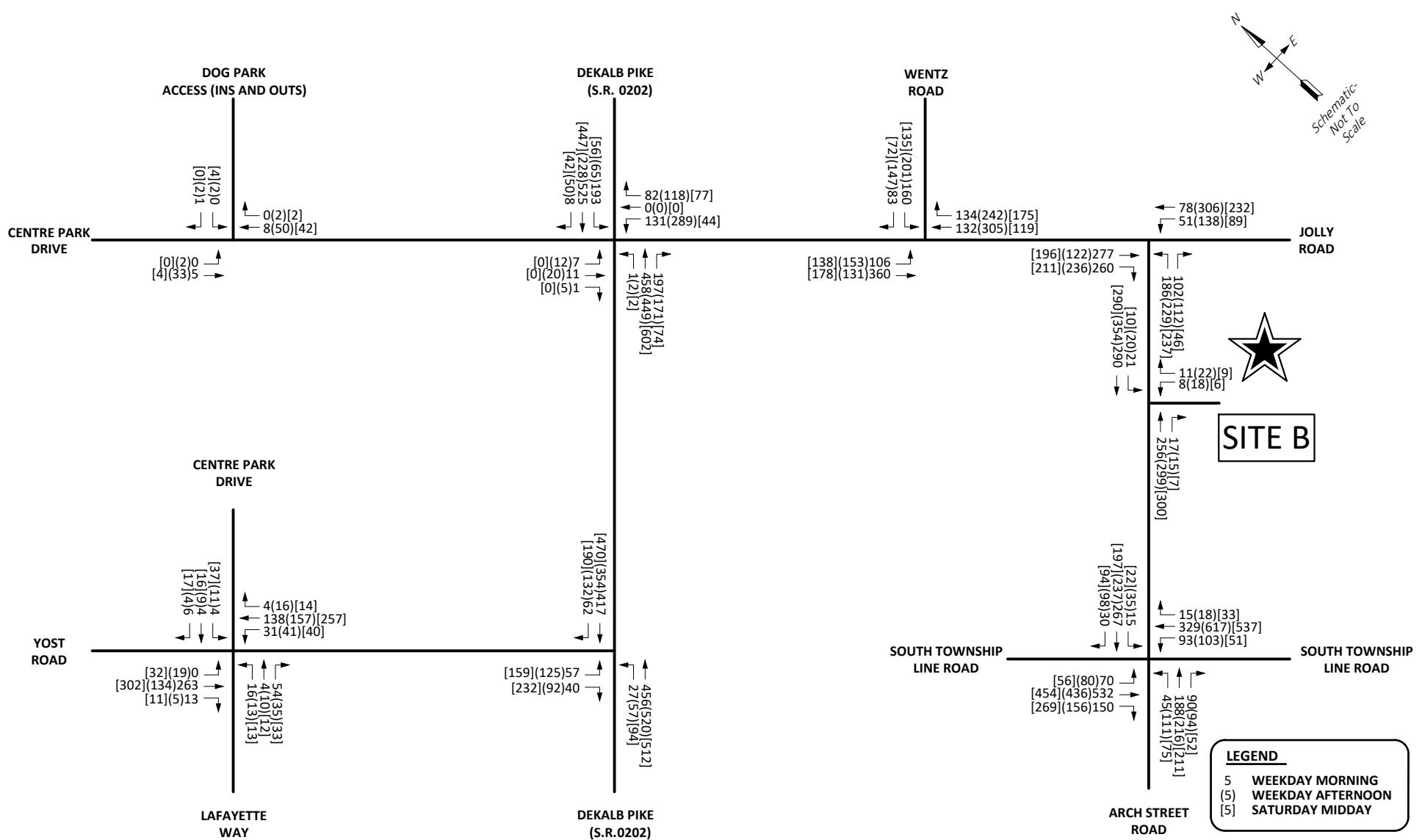


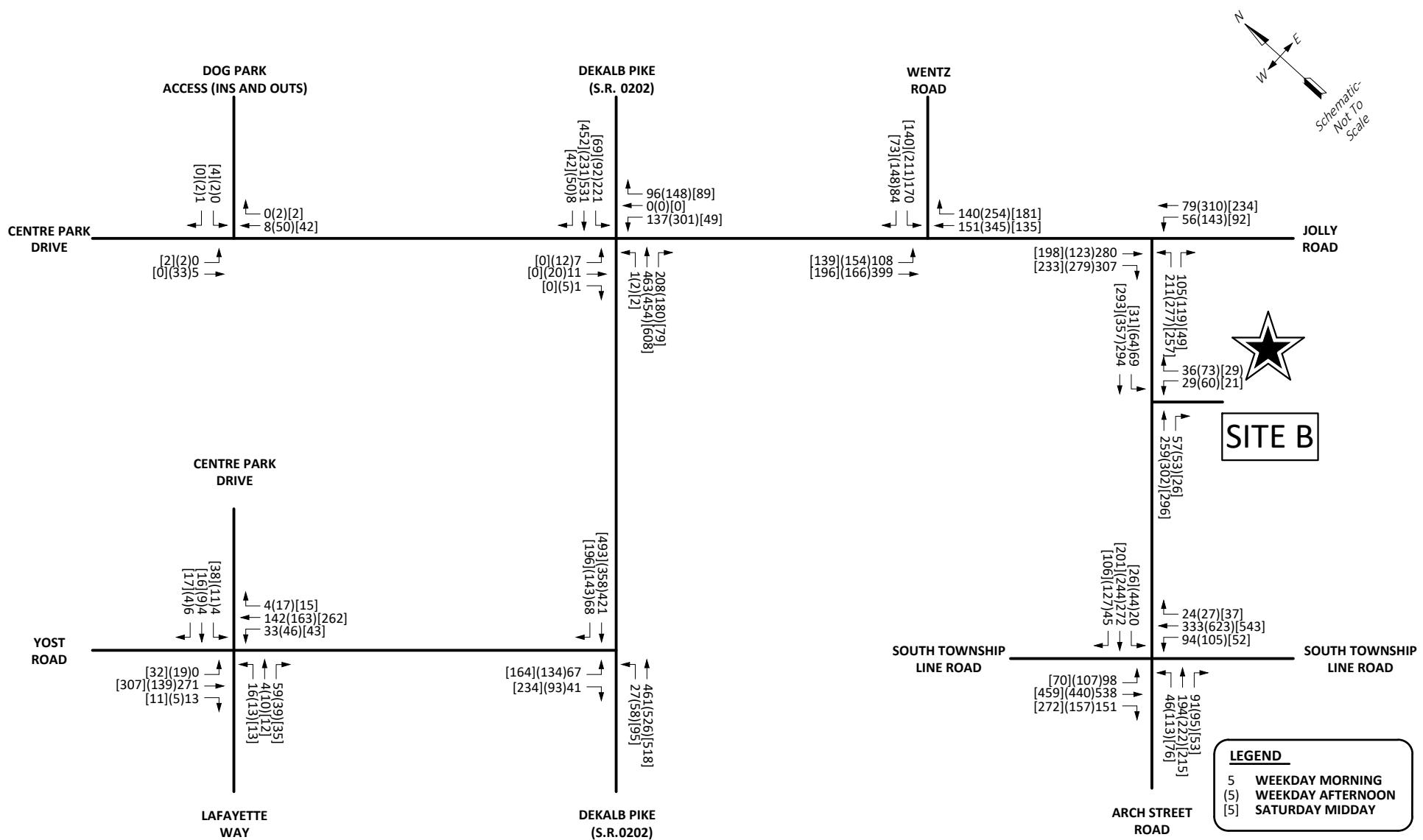
FIGURE 6D

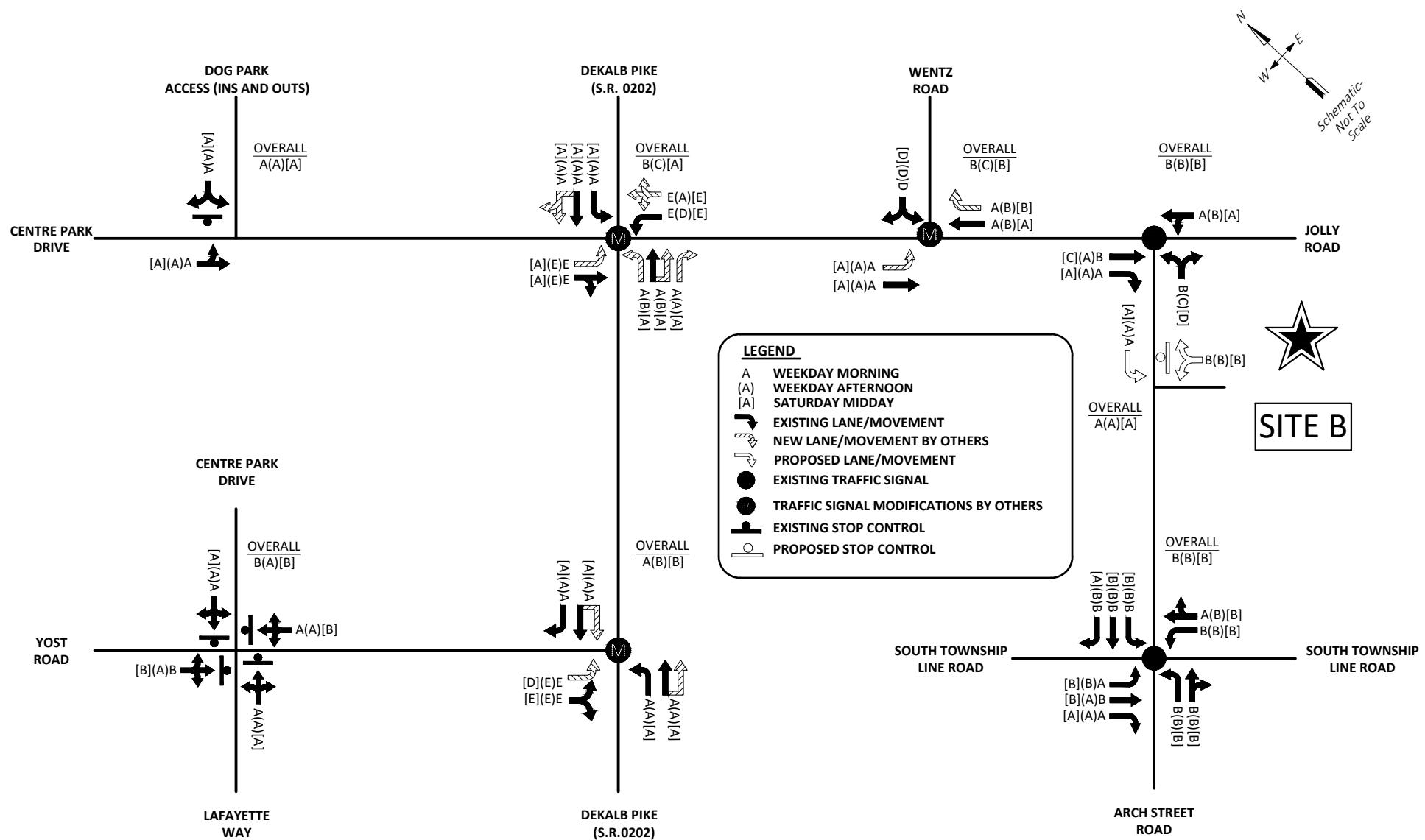
2030 with Development Levels of Service - Alternative Site A

WHITPAIN TOWNSHIP COMMUNITY CENTER
WHITPAIN TOWNSHIP, MONTGOMERY COUNTY, PA

MCMAHON
a Bowman company



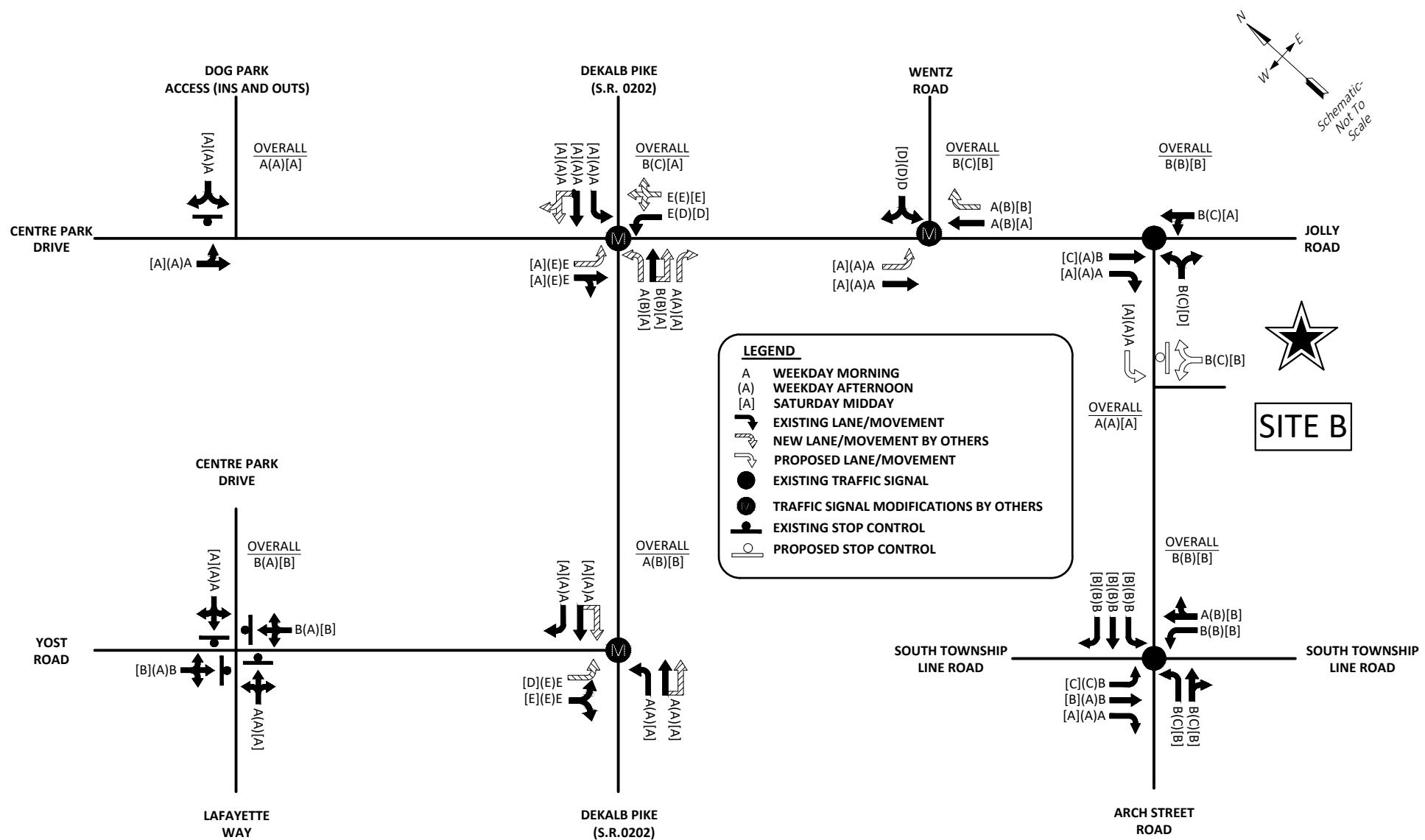




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