SEC Hamilton Rd & Warner Rd
Traffic Access Study

Prepared For:

Advanced Civil Design, Inc.

Prepared By:

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INITIAL: 3/2023

SSI Project #: 836301

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3-27-2023
Date

3/2023

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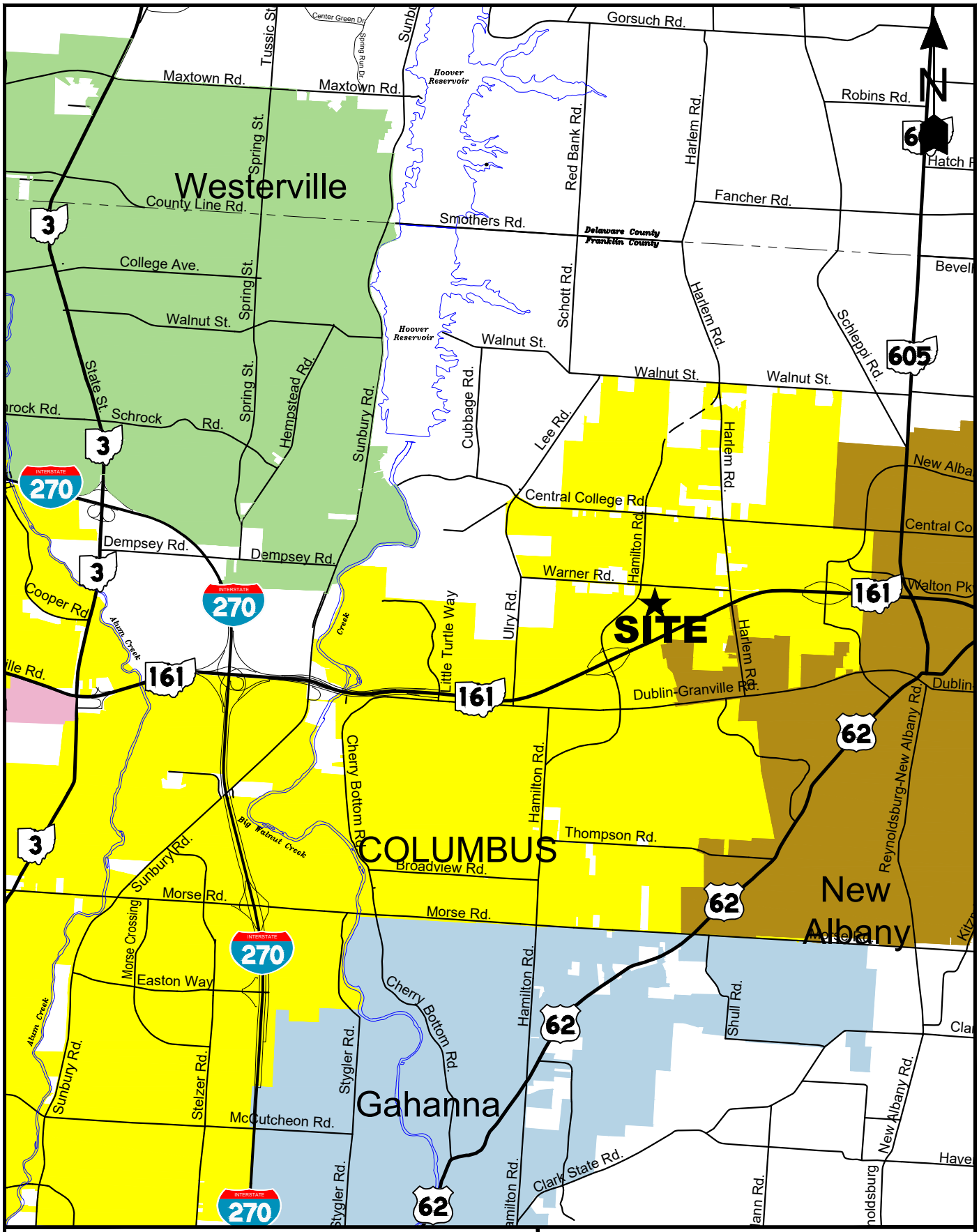
BACKGROUND

A commercial site located in the southeast quadrant of the intersection of Hamilton Road & Warner Road is being developed with 20,855 SF of commercial. Figure 1 shows the location of the site. There is a proposed full access on both Hamilton Road and Warner Road. Figure 2 shows the site plan. The permitting agency for the accesses is the City of Columbus and they are requiring a traffic access study (TAS) to determine if a westbound left turn lane is warranted on Warner Road.

EXISTING CONDITIONS

Warner Road in the area of the proposed site access is a two-lane section with a speed limit of 45 MPH.



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1/2023

FIGURE 1

SITE LOCATION

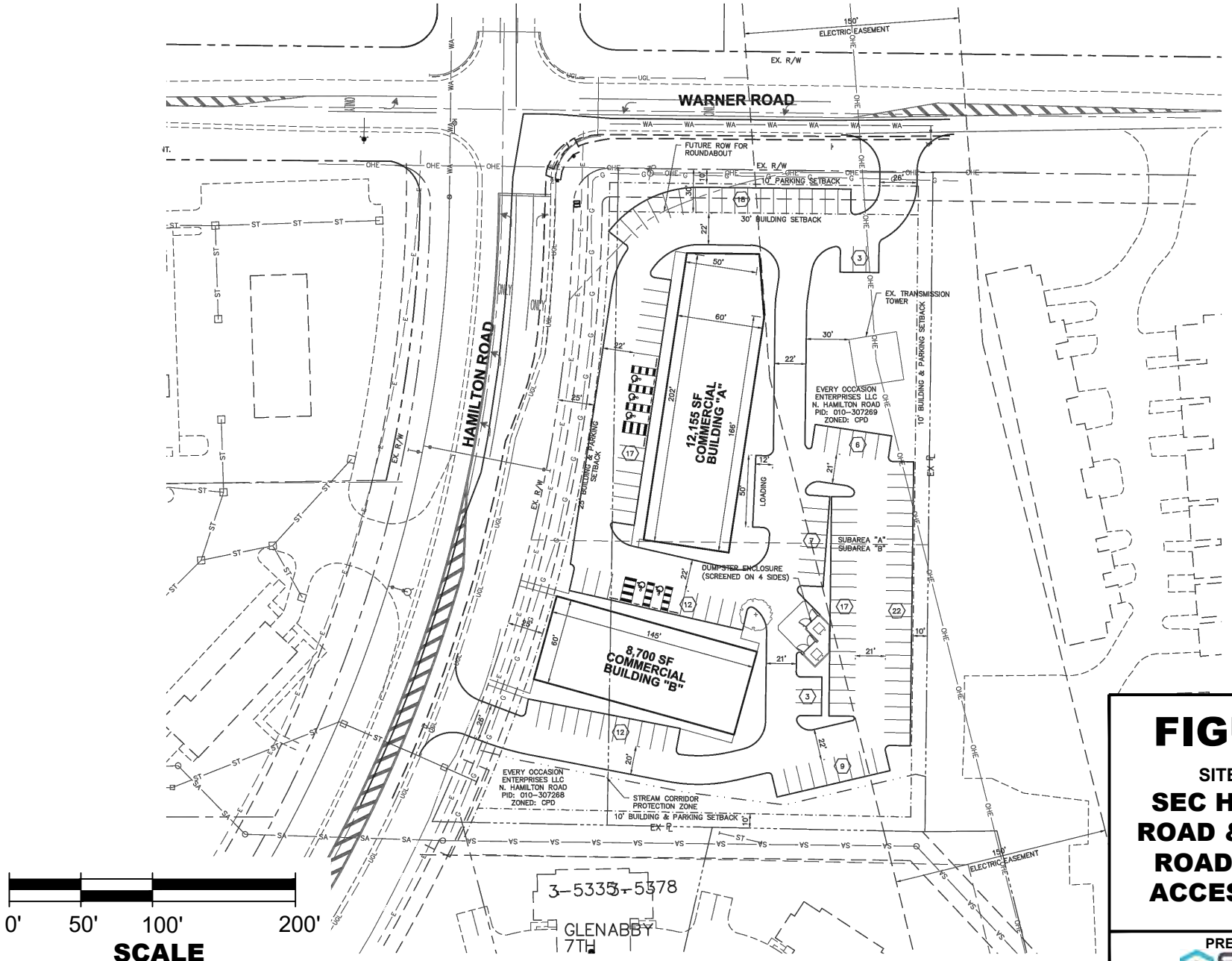

FIGURE 2

SITE LAYOUT

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PROJECTED SITE TRAFFIC

Trip Generation

The site traffic was computed using *Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers (ITE). The land use that represents development on the site is "Strip Retal Plaza (<40k)" (ITE Code #822). Table 2 shows the trip generation calculations.

Pass-by trips were also considered in the analysis of the commercial development in the ultimate access condition. Pass-by trips are trips to commercial developments that are already on the adjacent street. For example, someone may stop to get gas on the way home from work. This reduces the impact of traffic on the adjacent street. It also changes the distribution of traffic since traffic enters the site from one direction and continues in the same direction after leaving the site. The traffic volume entering the site is not changed. The percentage of pass-by trips are found in the *Trip Generation Handbook-An ITE Recommended Practice, 3rd Edition* published by ITE. The pass-by percentage is applied after the reduction for internal capture. Table 2 also shows the pass-by percentages.

Trip Distribution

The primary traffic distribution was the same as the distribution in the *Turkey Hill (Hamilton & Warner) TI*S prepared by Prime AE which are as follows:

- 40% to/from the south on Hamilton Road
- 30% to/from the north on Hamilton Road
- 15% to/from the east on Warner Road
- 15% to/from the west on Warner Road

Pass-By Traffic – The pass-by percentage was assigned to the access points with the same distribution as the 2025 traffic on Hamilton Road and Warner Road. The resulting distribution is as follows (the calculations are in parenthesis):

PM Peak

- 48% south to north on Hamilton Road (1118/(1118+588+416+206))
- 25% north to south on Hamilton Road (588/(1118+588+416+206))
- 9% east to west on Warner Road (206/(1118+588+416+206))
- 18% west to east on Warner Road (416/(1118+588+416+206))

TIS SUBAREA	LAND USE	TIME OF DAY	DATA SET *Trip Generation Manual, 11th Edition* (Unless noted Otherwise)	RATE OR EQUATION FROM: *Trip Generation Manual 11th Edition*	Pass-By % From *Trip Generation Handbook 3rd Edition* unless noted	TOTAL TRIPS	TOTAL PRIMARY TRIPS	ENTERING					EXITING				
								%	TOTAL TRIPS	SUB TOTAL	PASS-BY TRIPS	PRIMARY TRIPS	%	TOTAL TRIPS	SUB TOTAL	PASS-BY TRIPS	PRIMARY TRIPS
1	Strip Retail Plaza (<40k) (ITE Code #822)	Daily	Weekday	Average Rate= 54.45	NA	1136	1136	50%	568	568	0	568	50%	568	568	0	568
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	Average Rate= 2.36	No Data	49	49	60%	29	29	0	29	40%	20	20	0	20
	Ind. Variable (X) = 20.86 1000 SF Gross Leasable Area	PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	ln(T)=0.71ln(X)+2.72	34.0% *Similar to 820	131	86	50%	66	66	22	44	50%	65	65	22	43
TOTALS		Daily				1136	1136		568	568	0	568		568	568	0	568
		AM Peak				49	49		29	29	0	29		20	20	0	20
		PM Peak				131	86		66	66	22	44		65	65	22	43

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TABLE 2 - SITE TRIP GENERATION SUMMARY

SMART SERVICES

2025 & 2035 TRAFFIC

The City of Columbus *Traffic Standards Code* requires a 10-year design horizon. Opening day is assumed to be 2025; therefore, the design year is 2035. Table 3 is a description of the background traffic development for the listed intersections.

INTERSECTION	REFERENCE	2025 'NO BUILD'	2035 'NO BUILD'
Hamilton Road & Warner Road	*Hamilton Rd Study (CIP# 533001-100000) - Columbus, OH* (By: American Structurepoint, Inc.)	**=2025 Design Traffic (Figure 2)**	**=2035 Design Traffic (Figure 3)**

TABLE 3 –Background Traffic Assumptions

Figure 3 & 4 shows the components of the 2025 'Build' traffic. Figure 5 & 6 shows the components of the 2035 'Build' traffic.

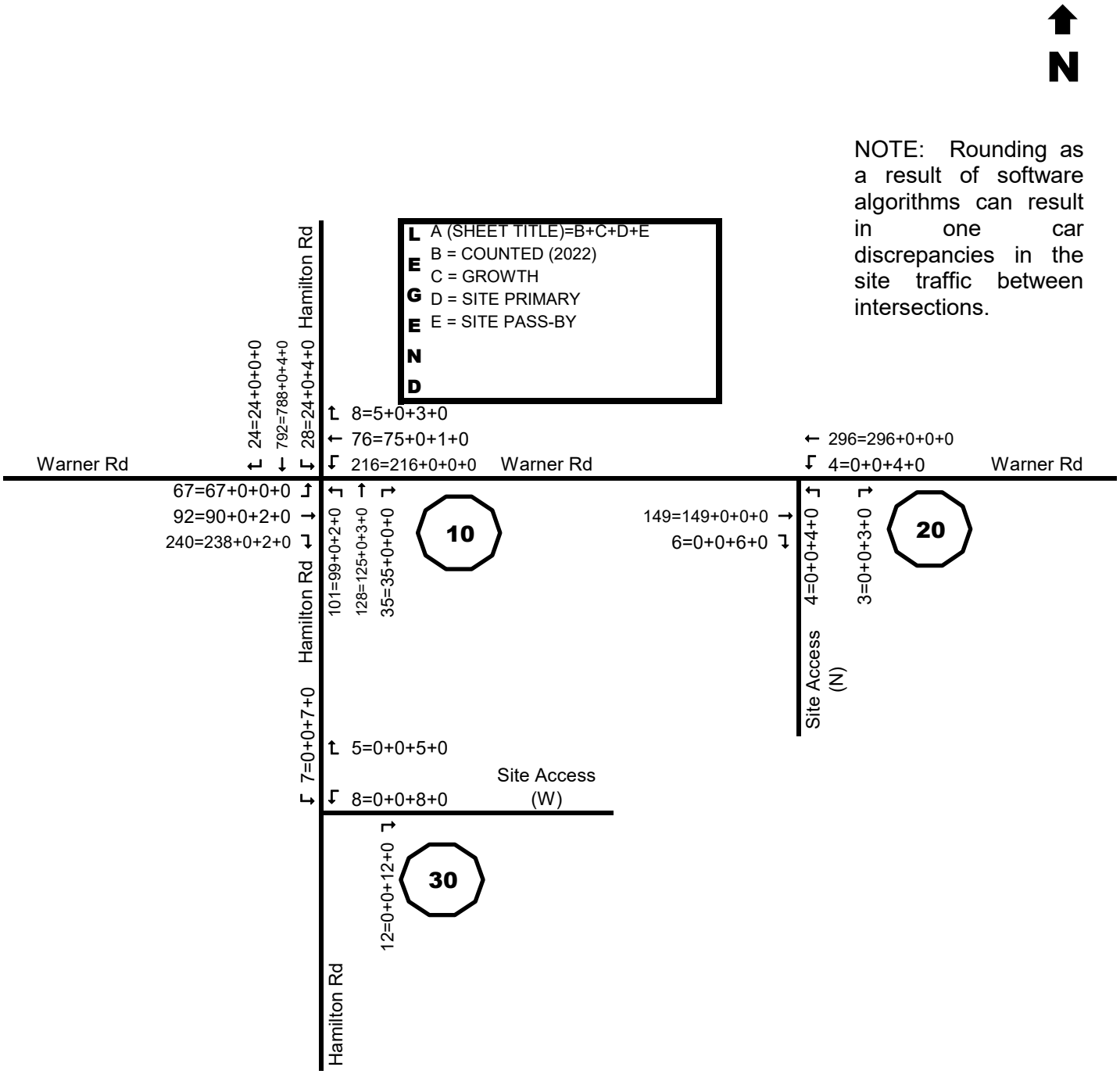

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FIGURE 3

2025 'BUILD' - AM PEAK

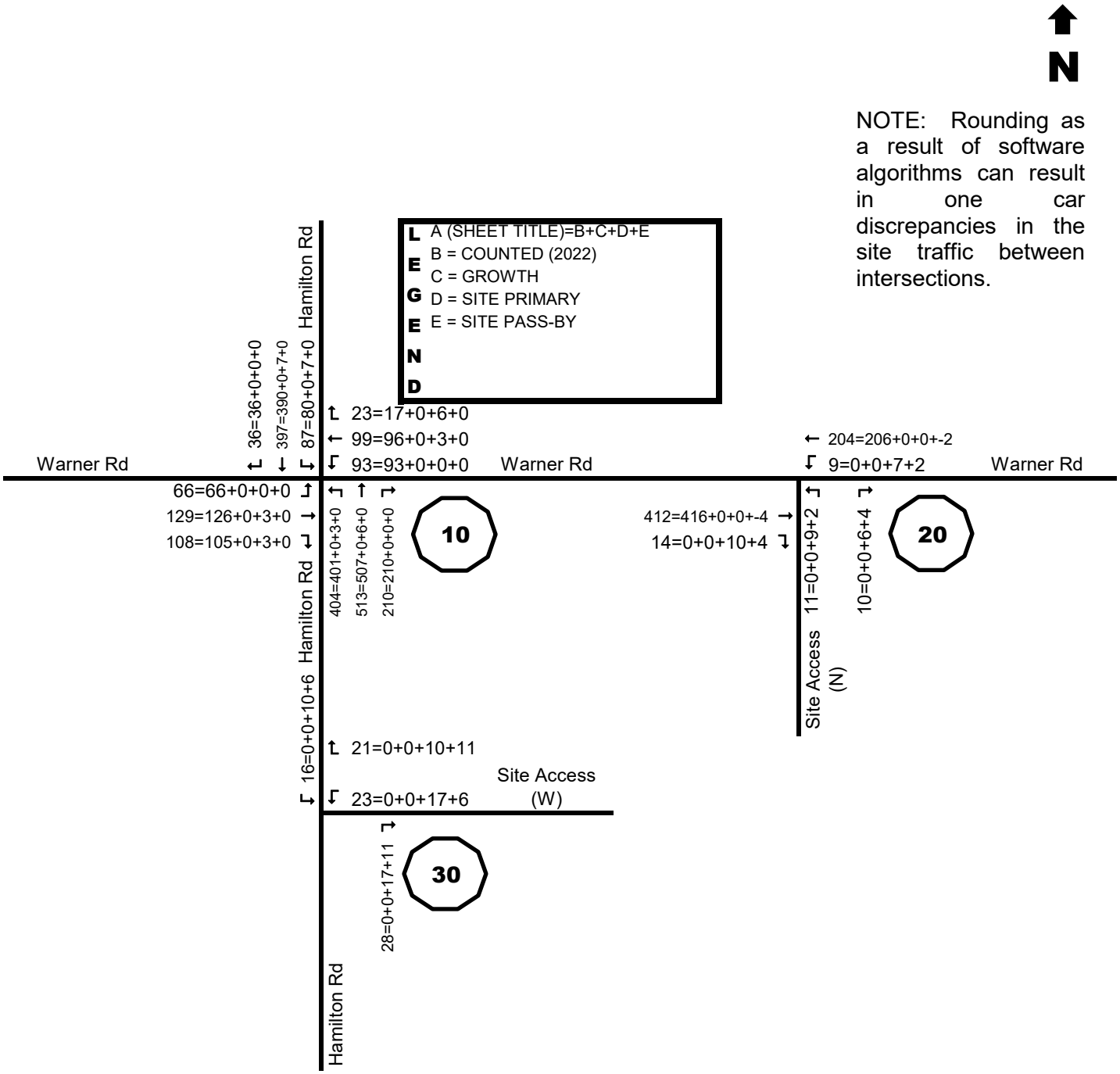

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FIGURE 4

2025 'BUILD' - PM PEAK

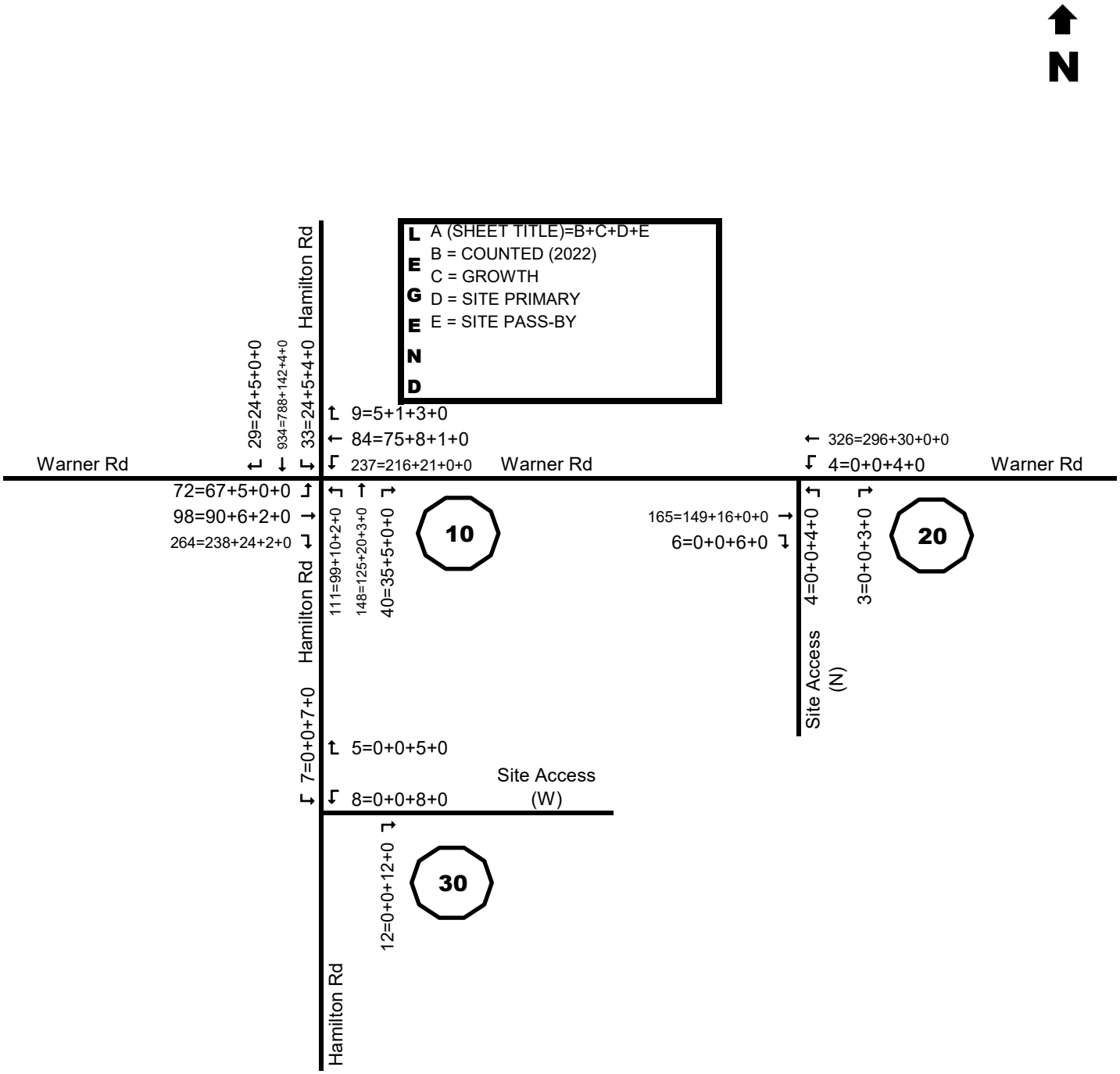

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FIGURE 5

2035 'BUILD' - AM PEAK

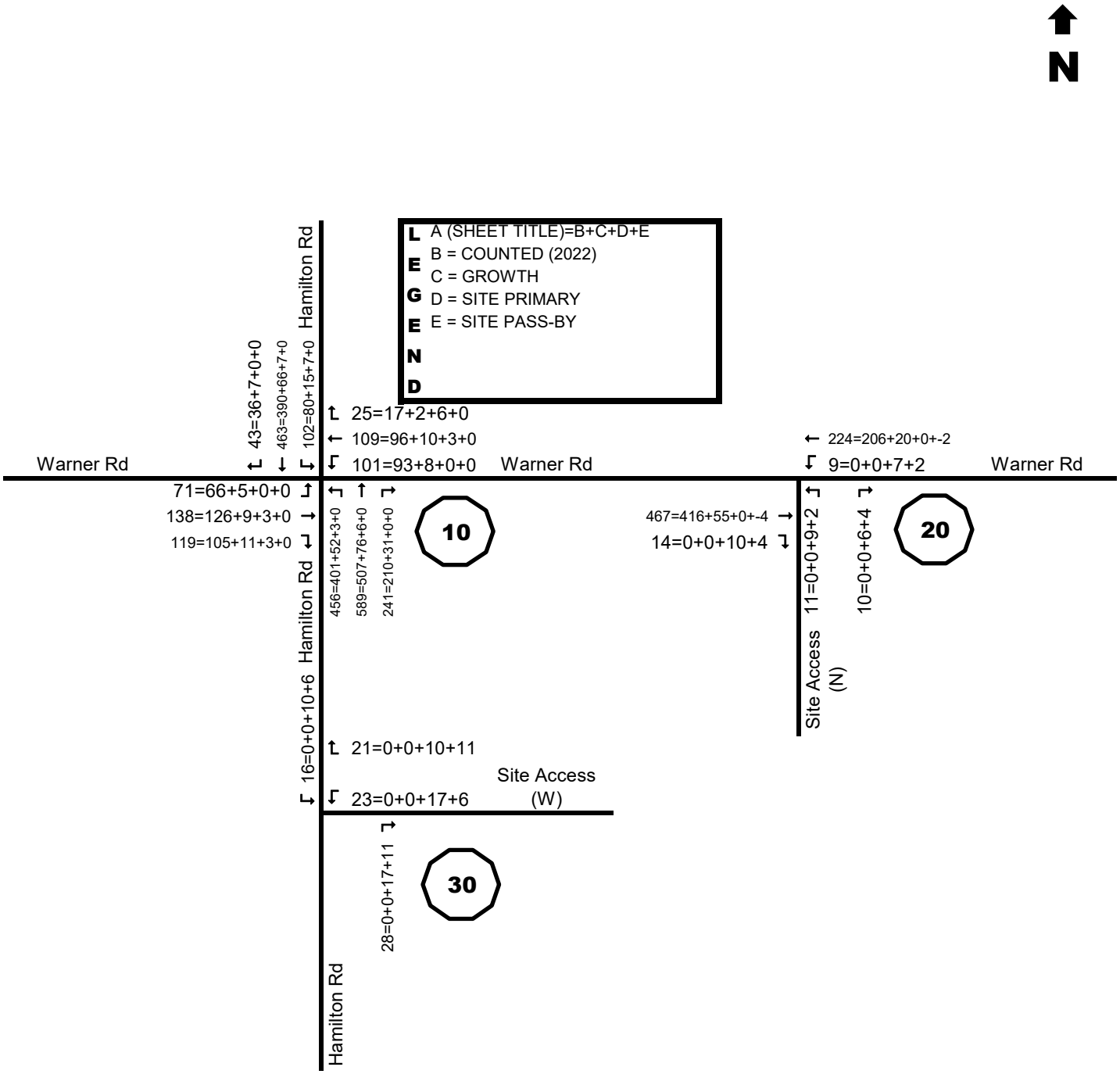

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FIGURE 6

2035 'BUILD' - PM PEAK

TRAFFIC ANALYSIS

Turn Lane Warrants

The procedure to determine whether turn lanes are warranted is according to the *ODOT L&D Manual* published by the Ohio Department of Transportation (ODOT). The posted speed limit of 45 MPH was used for the analysis. The results are shown in Table 4. The graph from the *ODOT L&D Manual* is in the Appendix.

MOVEMENT	2025 'BUILD'	2035 'BUILD'
Warner Road WB LT at Prop. Site Access	Not Warranted	Not Warranted

TABLE 4 – Summary of Turn Lane Warrant Analysis

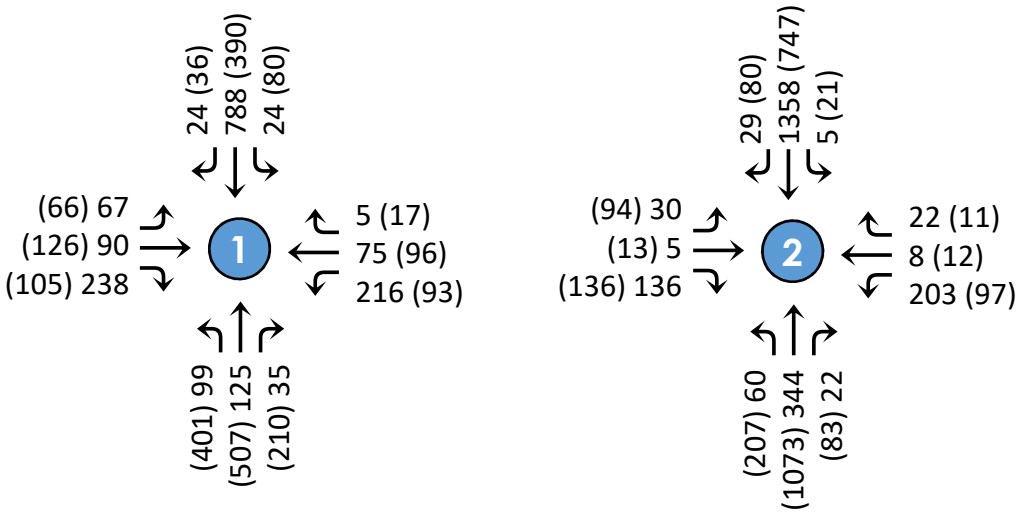
CONCLUSIONS

2025 'Build' volumes and 2035 'Build' volumes were developed for use in a left turn lane warrant analysis. Below is a summary of the conclusions for each condition:

2025/2035'Build'

- Warner Road & Prop. Site Access
  - A westbound left turn lane warrant is not warranted.

APPENDIX



AMERICAN STRUCTUREPOINT INC.

Legend

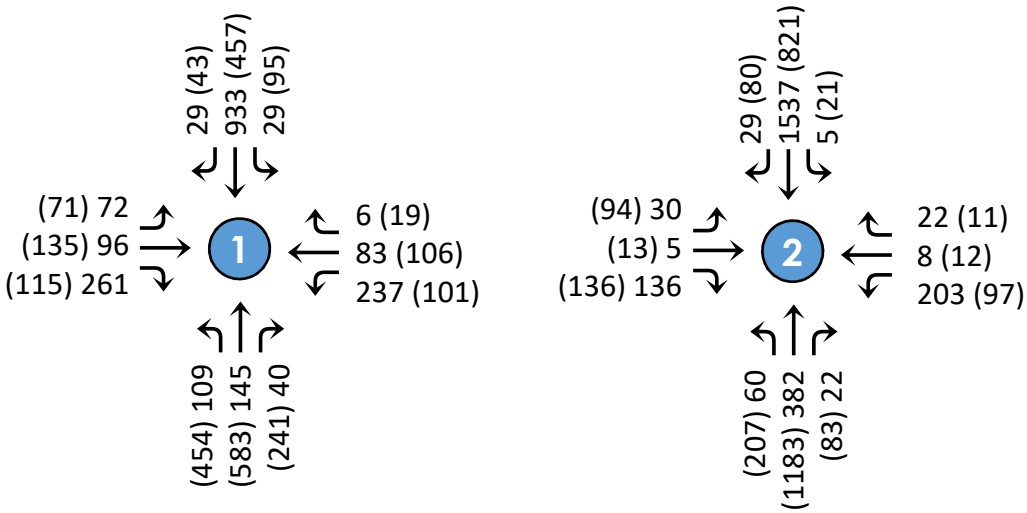
1 Intersection Number

50 (50) AM (PM) Traffic Volumes

Hamilton Rd Study, OH

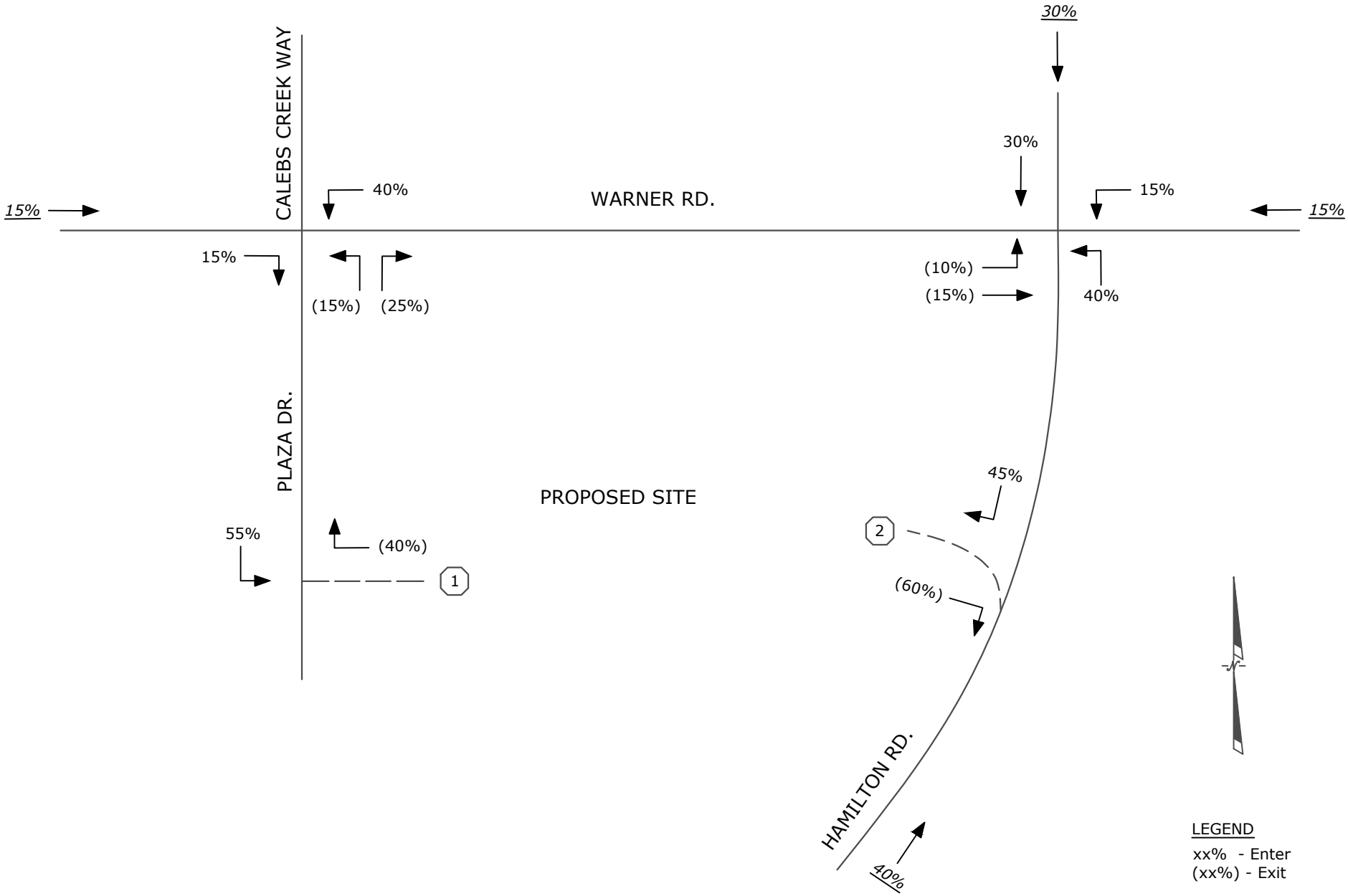
Figure 2
Traffic Volume
Opening Year
2025

2020.00807



AMERICAN STRUCTUREPOINT INC.	Legend: 1 Intersection Number; 50 (50) AM (PM) Traffic Volumes	Hamilton Rd Study, OH	Figure 3 Traffic Volume Design Year 2035

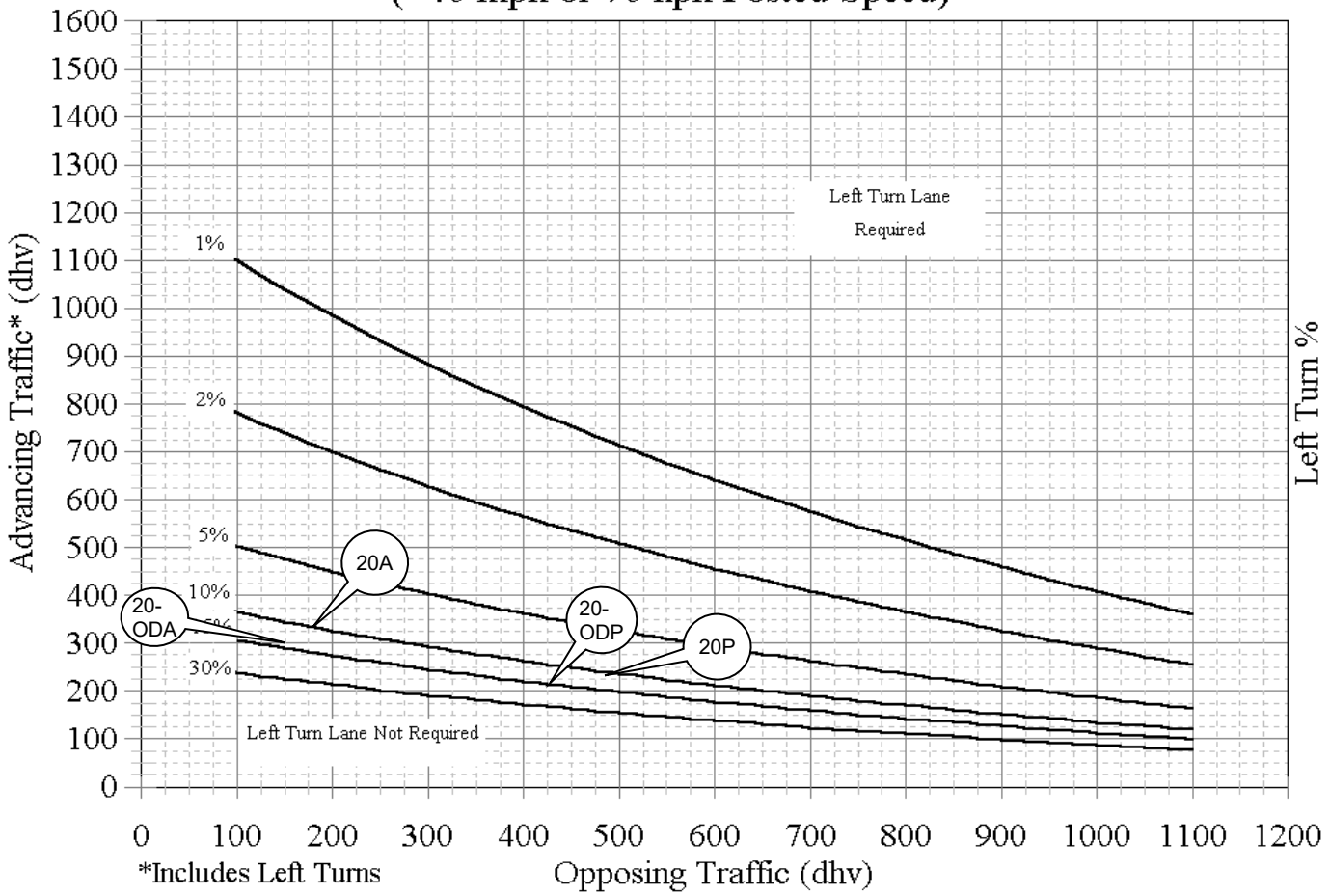
2020.00807



PRIMARY TRIP DISTRIBUTION

2-Lane Highway Left Turn Lane Warrant

(>40 mph or 70 kph Posted Speed)



WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)		RESULT
20-OD	Site Access (N) & Warner Rd [WB LT] - 2025 'BUILD'	(155,300 / 1.3%)	(426,213 / 4.2%)		NOT MET
20	Site Access (N) & Warner Rd [WB LT] - 2035 'BUILD'	(171,330 / 1.2%)	(481,233 / 3.9%)		NOT MET

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APPENDIX
2 LANE HIGHWAY LEFT TURN LANE WARRANT (> 40 MPH)