

IVYBROOK ACADEMY LEFT-TURN ANALYSIS



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Prepared for:
Metro Public Works and Transportation Planning

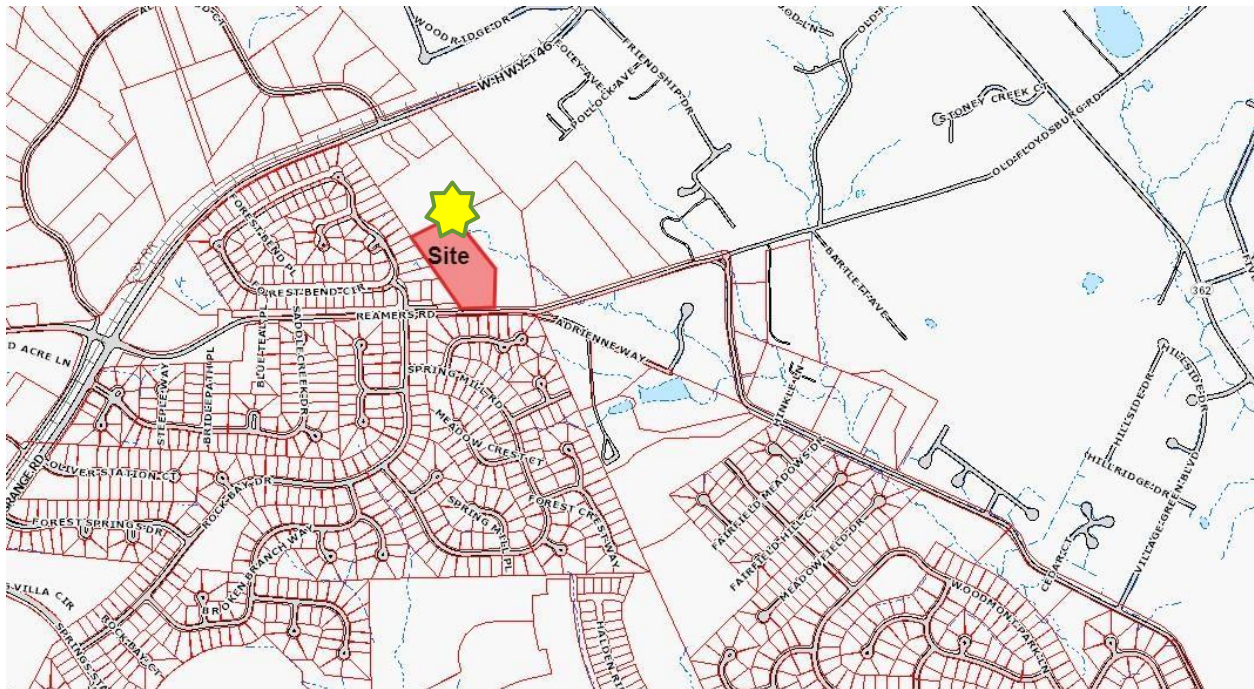
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T A B L E O F C O N T E N T S

INTRODUCTION.....	2
EXISTING CONDITIONS	3
TRIP GENERATION	5
ANALYSIS	8
CONCLUSIONS	9

INTRODUCTION

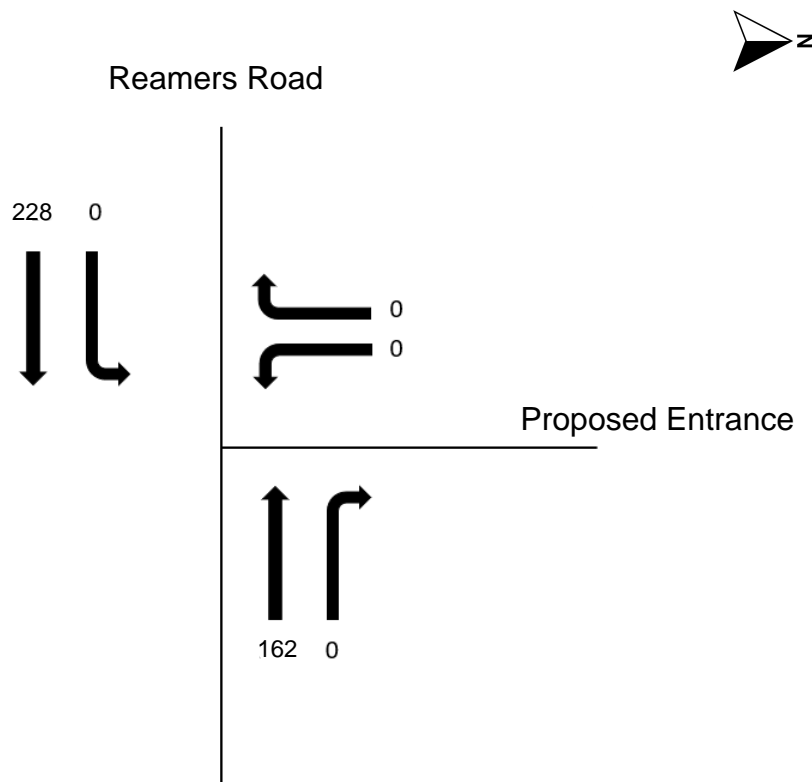
The preliminary development plan for the proposed Daycare, Ivybrook Academy, is located at 13715 Reamers Road in Louisville, Kentucky. The proposed plan shows a 6,378 square foot school with 8 classrooms and a gym. **Exhibit 1** shows the site location of the proposed project. The primary access to the development will be from Reamers Road. The purpose of this study is to compare the traffic generated by this proposed Daycare to the Kentucky Transportation Cabinet's Auxiliary Turn Lane Guidance and to confirm whether a left turn lane is warranted on Reamers Road.



EXISTING CONDITIONS

Reamers Road is maintained by the Louisville Metro. Reamers Road is a two-lane road with nine-foot-wide lanes and a two-foot shoulder. There are no sidewalks present.

Analysis of both the A.M. and P.M. hour movement counts for the proposed intersection were done for Reamers Road with respect to the proposed entrance. This information was collected on Thursday, April 29th, 2021. The A.M. times were collected between 7 A.M. and 9 A.M. whereas the P.M. times were collected between 4 P.M. and 6 P.M. The A.M peak hour occurred between 7:00 A.M. and 8:00 A.M. **Figure 2** below will show the 2021 peak hour traffic volume counts.



2022 - FUTURE CONDITIONS

The projected completion year of this project is 2022 therefore the analysis for this project will be done for the year 2022. The volumes along Reamers Road are projected to increase by 2 percent per year based upon historical growth. The A.M. peak hour flow is as followed:

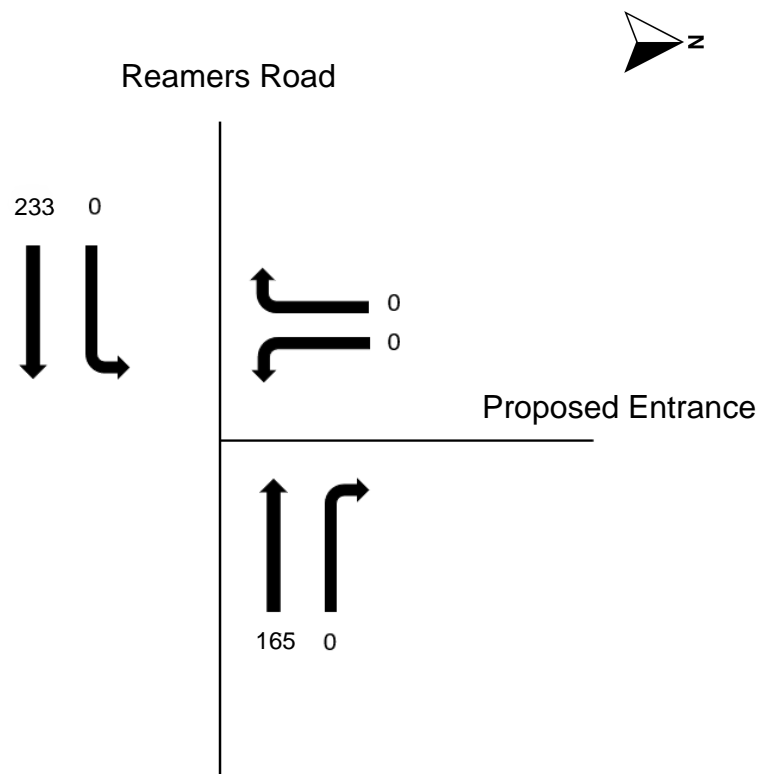


Figure 3. 2022 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers **Trip Generation** Manual, 10th Edition contains trip generations rate for a wide range of land uses. This specific development will call for ITE Item Code 565 which explicitly is reserved for Daycare Centers. We have reviewed and determined this to be the best fit for the Ivybrook Academy development. The trip generation results are listed in **Table 1**. The trip generations were assigned with 65 percent to the West and 35 percent to the East based on historical analysis. **Figure 4** will show the trips generated by this development through the peak hour. **Figure 5** will display the individual turning movements that are expected for the year 2022 for the peak hour when the development is complete.

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	Trips	In	Out	Trips	In	Out
Daycare (125 Students)	94	50	44	126	59	67

Table 1. Peak Hour Trips Generated by Site

Trip Generation Equations that have been used are as followed:

AM Peak Hour – $T = 0.71(X) + 4.80$; Under the assumption of 53% Entering, 47% Exiting

PM Peak Hour – $\ln(T) = 0.96 \ln(X) + 0.20$; Under the assumption of 47% Entering, 53% Exiting

PEAK HOUR TRIPS GENERATED BY SITE

The A.M Peak Hour Trip Generation count is:

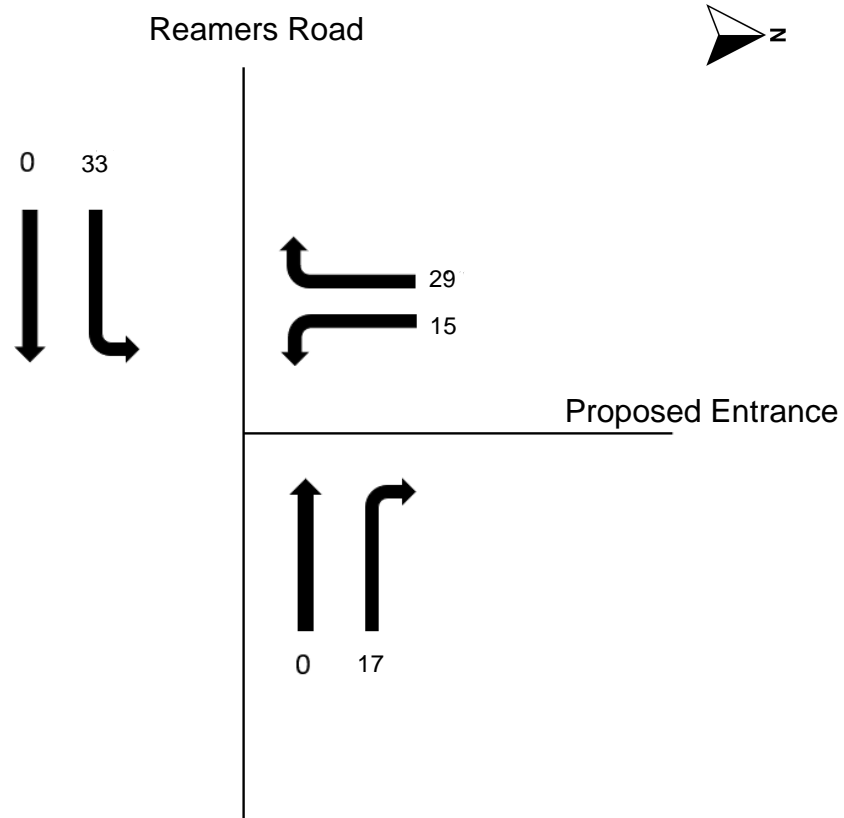


Figure 4. Peak Hour Trips Generated by Site

2022 BUILD PEAK HOUR VOLUMES

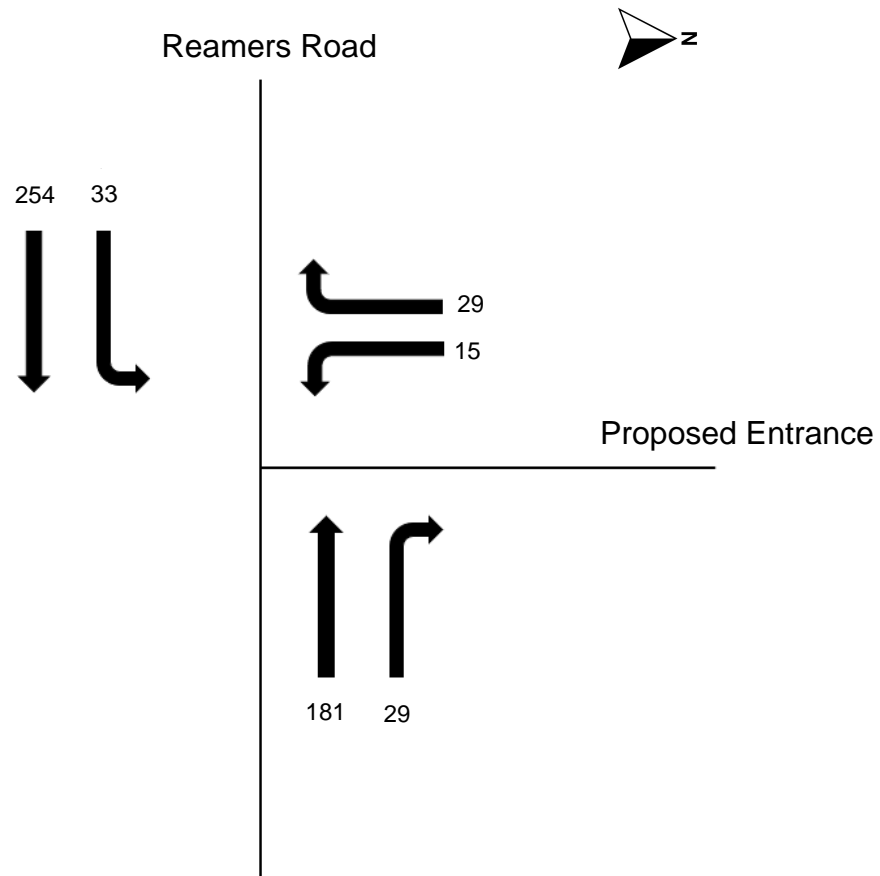
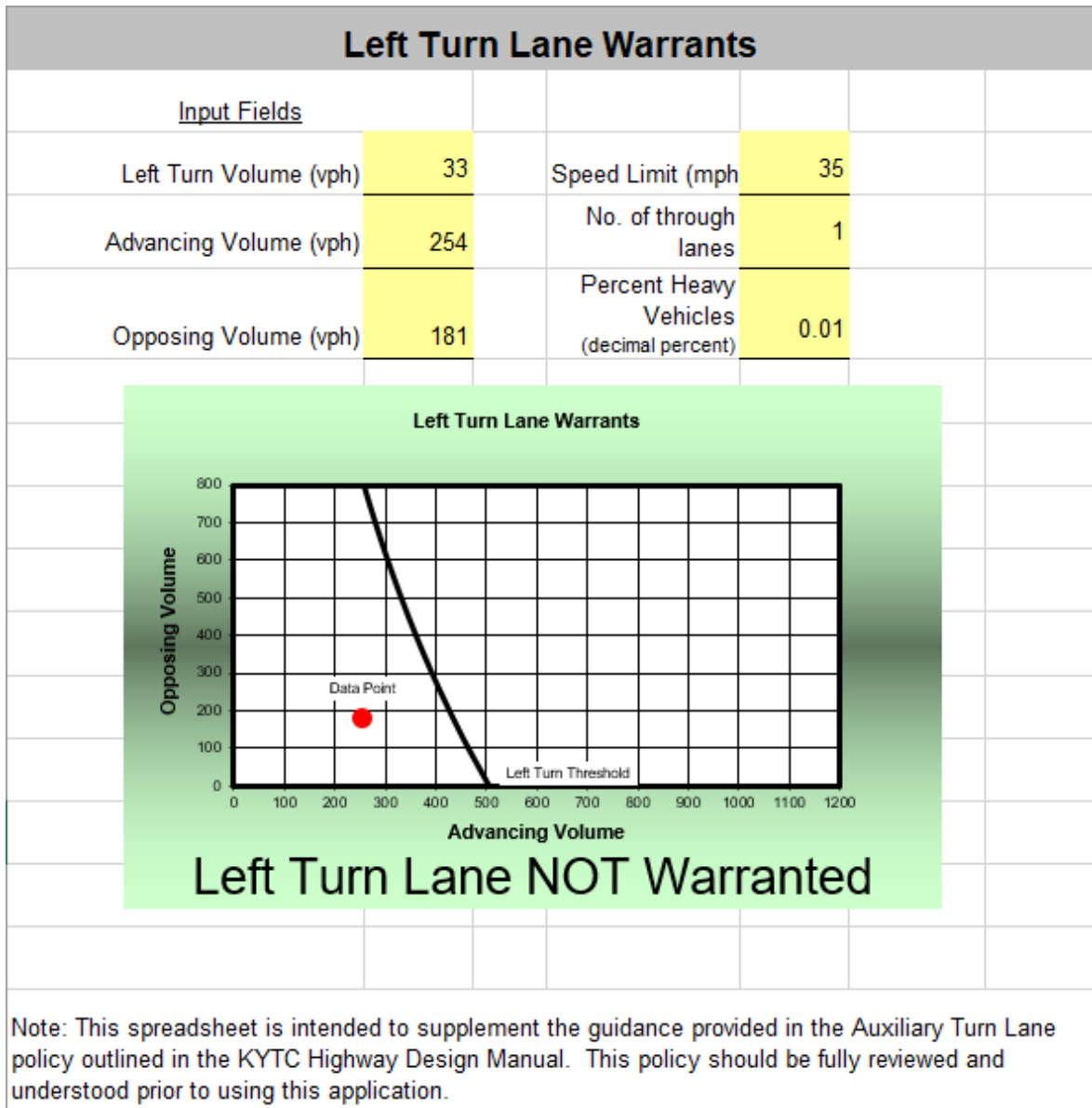


Figure 5. 2022 Build Peak Hour Volumes

ANALYSIS

The proposed entrance was evaluated for a left-turn lane utilizing the Kentucky Transportation Cabinet's Highway Design Manual. Analyzing the volumes from the figure before, no turn lane will be required at the proposed entrance.



CONCLUSIONS

The left turn volume does not merit the volume warrant criteria established by the Kentucky Transportation Cabinet for the addition of an additional lane on Reamers Road. Based on this analysis it is recommended that a left-turn lane will not be warranted for the proposed Ivybrook Academy development.