

final report

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Traffic Impact Study

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Old Heady Road
Louisville, KY*

Prepared for

Louisville Metro Planning Commission



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Table of Contents

| | |
|--|---|
| INTRODUCTION | 2 |
| Figure 1. Site Map..... | 2 |
| EXISTING CONDITIONS | 2 |
| Figure 2. Existing Peak Hour Volumes..... | 3 |
| FUTURE CONDITIONS | 3 |
| Figure 3. 2025 No Build Peak Hour Volumes..... | 3 |
| TRIP GENERATION | 4 |
| Table 1. Peak Hour Trips Generated by Site..... | 4 |
| Figure 4. Trip Distribution Percentages..... | 4 |
| Figure 5. Peak Hour Trips Generated by Site..... | 5 |
| Figure 6. 2025 Build Peak Hour Volumes | 5 |
| ANALYSIS | 6 |
| Table 2. Peak Hour Level of Service..... | 6 |
| CONCLUSIONS | 6 |
| APPENDIX | 7 |

INTRODUCTION

The site plan for the proposed subdivision shows 119 single-family lots and 30 multi-family units on Old Heady Road in Louisville, KY. **Figure 1** displays a map of the site. Access from Old Heady Road to the site will be from an entrance opposite Chenoweth Run Road. The subdivision also connects to Saratoga Springs at Saddle Bend Way. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study, the impact area was defined to be the intersection of Old Heady Road with Chenoweth Run Road.

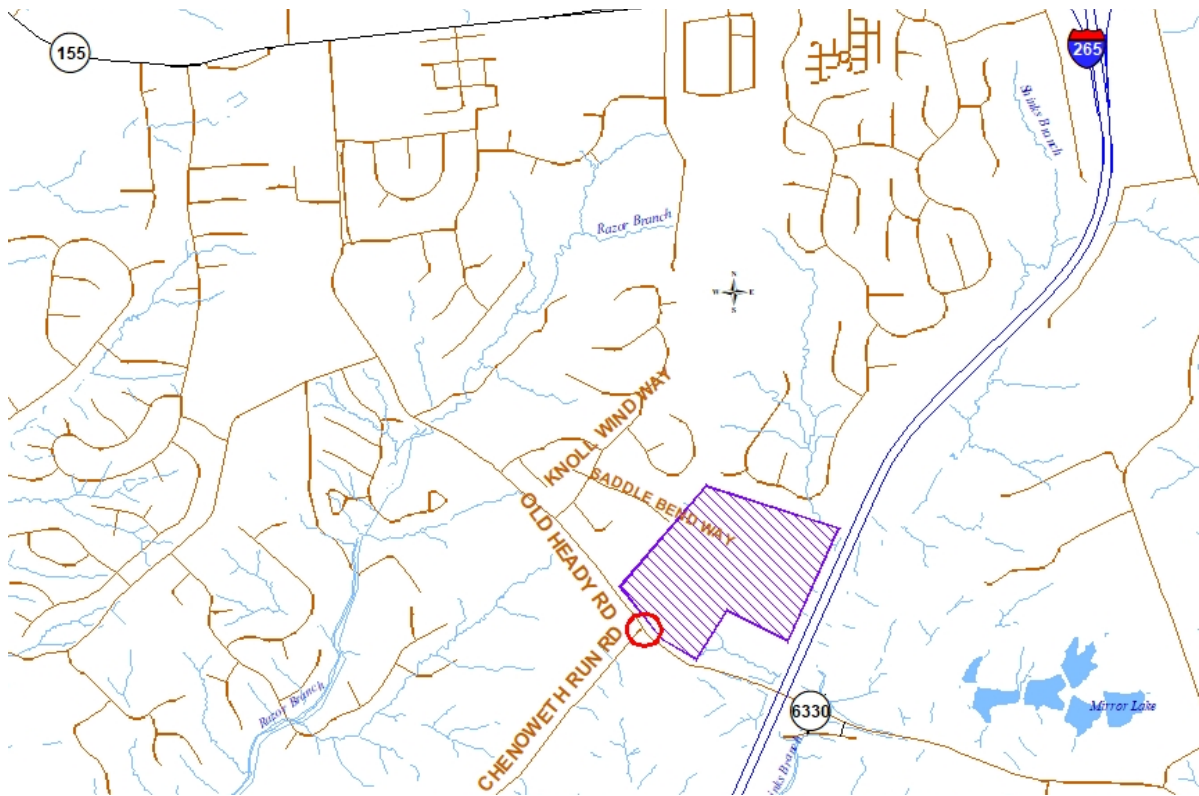


Figure 1. Site Map

EXISTING CONDITIONS

Old Heady Road is maintained by Louisville Metro with an estimated 2021 ADT of 900 vehicles per day south of Knoll Wind Way, as estimated from the turning movement count. The road is a two-lane highway with ten-foot lanes with three-foot stabilized shoulders. The speed limit is 35 mph. There are no sidewalks. The intersection with Chenoweth Run Road is controlled with a stop sign.

Peak hour traffic count for the intersections was obtained on Tuesday, April 13, 2021. The a.m. peak hour occurred between 8:00 to 9:00 a.m. and the p.m. peak hour occurred between 5:00 and 6:00. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

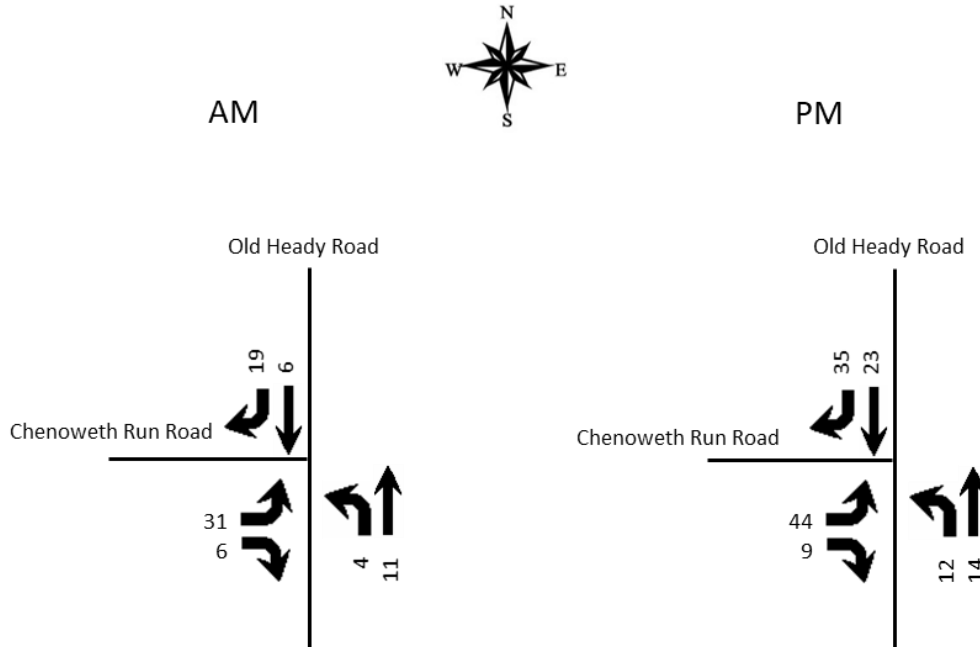


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2025. An annual growth rate of 2 percent was applied to the 2021 volumes. **Figure 3** displays the 2025 No Build peak hour volumes.

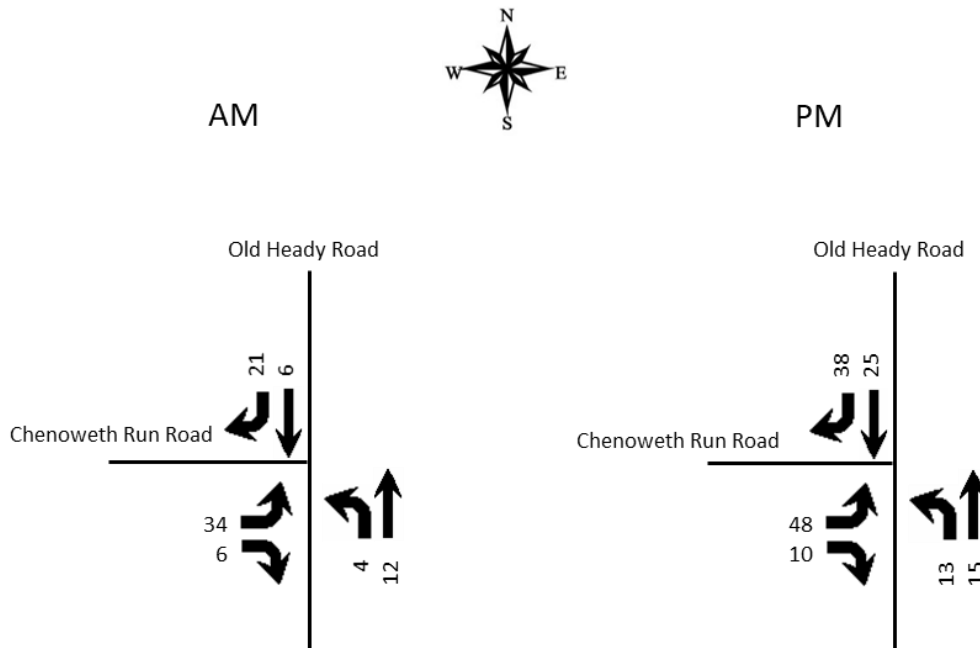


Figure 3. 2025 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition contains trip generation rates for a wide range of developments. The land use of “Single-Family Detached (210)” was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 4**. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site

| Land Use | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------------|----------------|----|-----|----------------|----|-----|
| | Trips | In | Out | Trips | In | Out |
| Single-Family (119 units) | 89 | 22 | 67 | 120 | 76 | 44 |
| Multi-Family (30 units) | 15 | 3 | 12 | 20 | 13 | 7 |
| TOTAL | 104 | 25 | 79 | 140 | 89 | 51 |

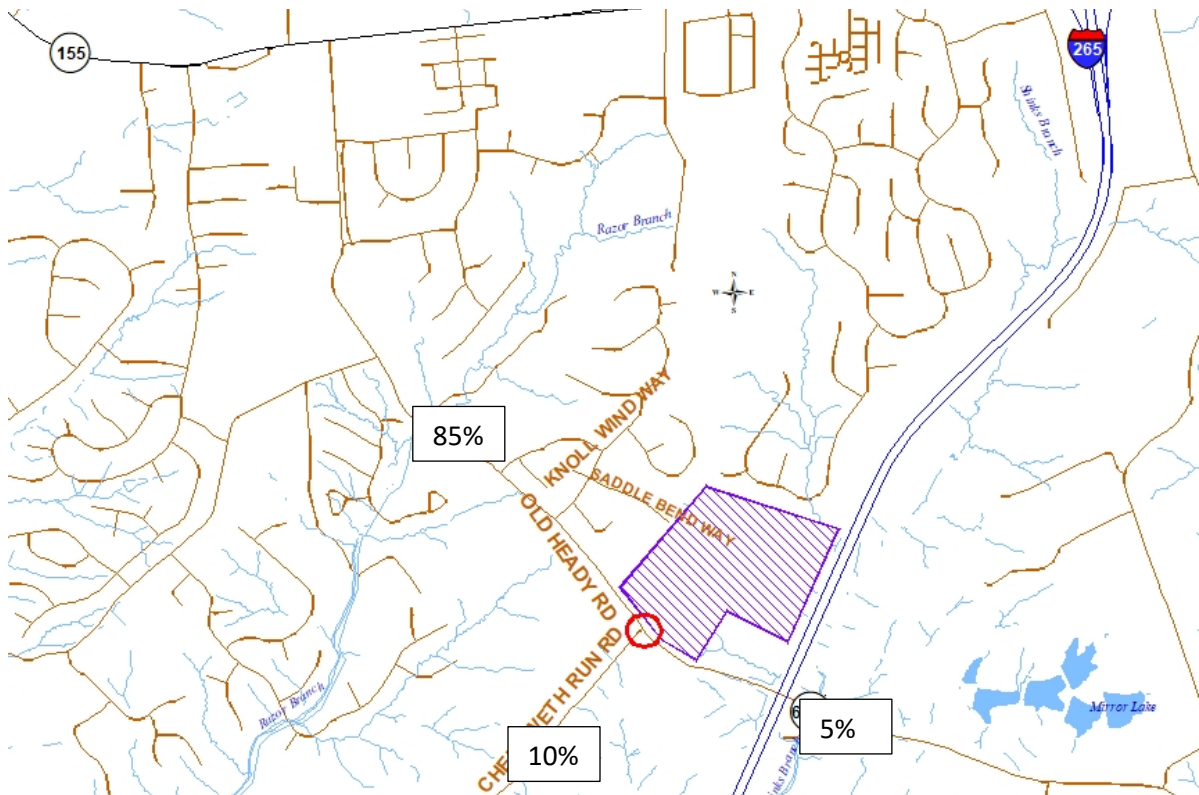


Figure 4. Trip Distribution Percentages

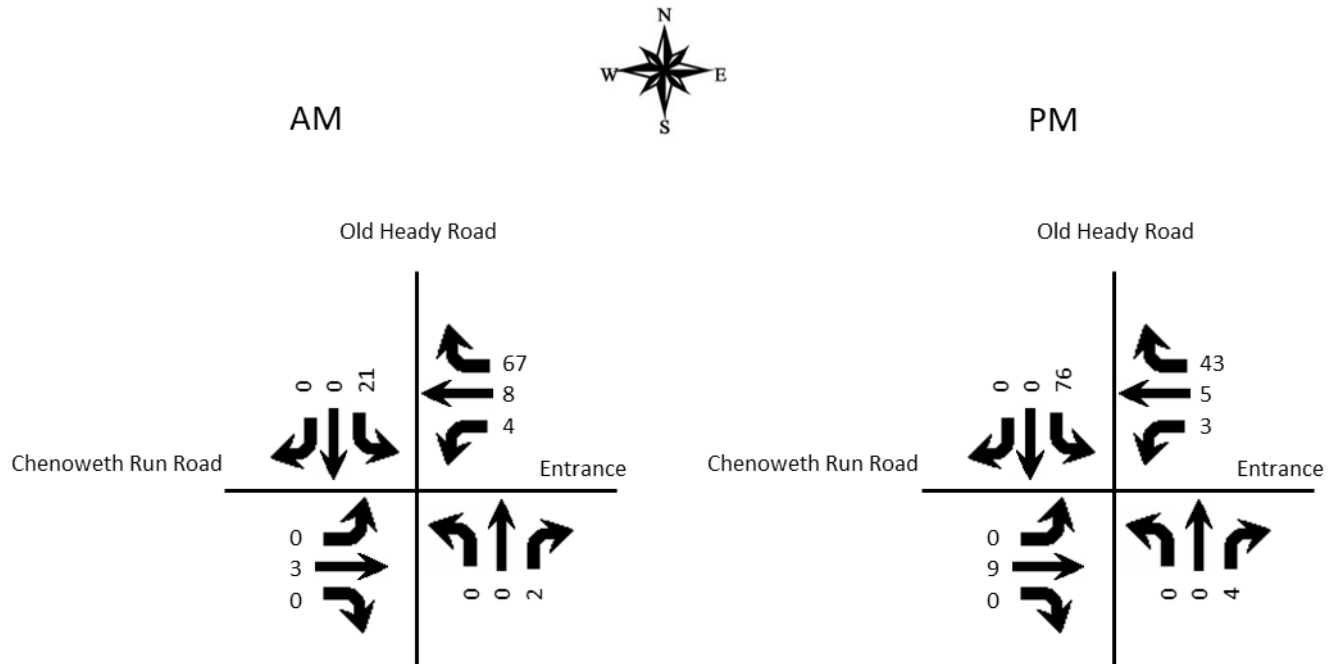


Figure 5. Peak Hour Trips Generated by Site

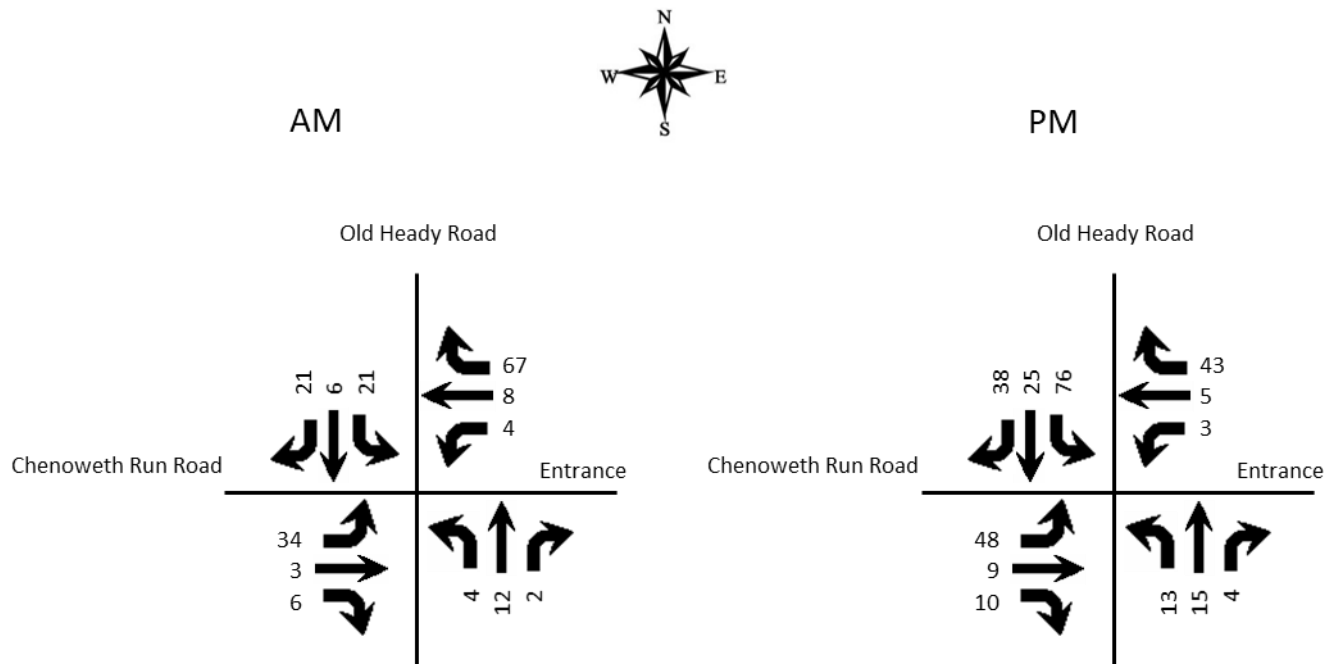


Figure 6. 2025 Build Peak Hour Volumes

ANALYSIS

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a “Level of Service”. Level of Service is a ranking scale from A through F, “A” is the best operating condition and “F” is the worst. Level of Service results depend upon the facility that is analyzed. In this case, the Level of Service is based upon the total delay experienced for lanes at stop-controlled intersections.

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using the HCS Streets (version 7.9) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

| Approach | A.M. | | | P.M. | | |
|---|---------------|---------------|------------|---------------|---------------|------------|
| | 2021 Existing | 2025 No Build | 2025 Build | 2020 Existing | 2025 No Build | 2025 Build |
| Old Heady Road at Chenoweth Run Road | | | | | | |
| Chenoweth Run Road Eastbound | A 9.0 | A 9.1 | B 10.9 | A 9.4 | A 9.5 | B 12.8 |
| Entrance Westbound | | | A 9.2 | | | A 9.3 |
| Old Heady Road Northbound (left) | A 7.3 | A 7.3 | A 7.3 | A 7.4 | A 7.4 | A 7.4 |
| Old Heady Road Southbound (left) | | | A 7.3 | | | A 7.4 |

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated July, 2020. Using the volumes in Figure 6, a southbound left-turn lane will not be required at the entrance.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2025, there will be a slight impact to the existing highway network. A left-turn lane will not be required at the entrance. No other improvements are required.

APPENDIX

Traffic Counts











