

REPORT

**Greenwood Plaza
6300 Greenwood Road
Louisville, KY**

Traffic Impact Study

Louisville Metro Planning
Commission

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**CDM
Smith**

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Introduction

The proposed Greenwood Plaza development in Louisville, KY is located on Greenwood Road (KY 1931), near the intersection with Beahl Boulevard. The site plan shows 27,255 square feet of retail space plus two fast-food restaurants totaling 4,200 square feet. Access to the development is from Greenwood Road and the adjacent access road. **Figure 1** displays a map of the site. The purpose of this study is to examine the traffic impacts of the proposed development upon the adjacent highway system. For this study the impact area was defined to be the intersections of Greenwood Road at Beahl Boulevard, access road for River City Bank, and Terry Road, (KY 1727).

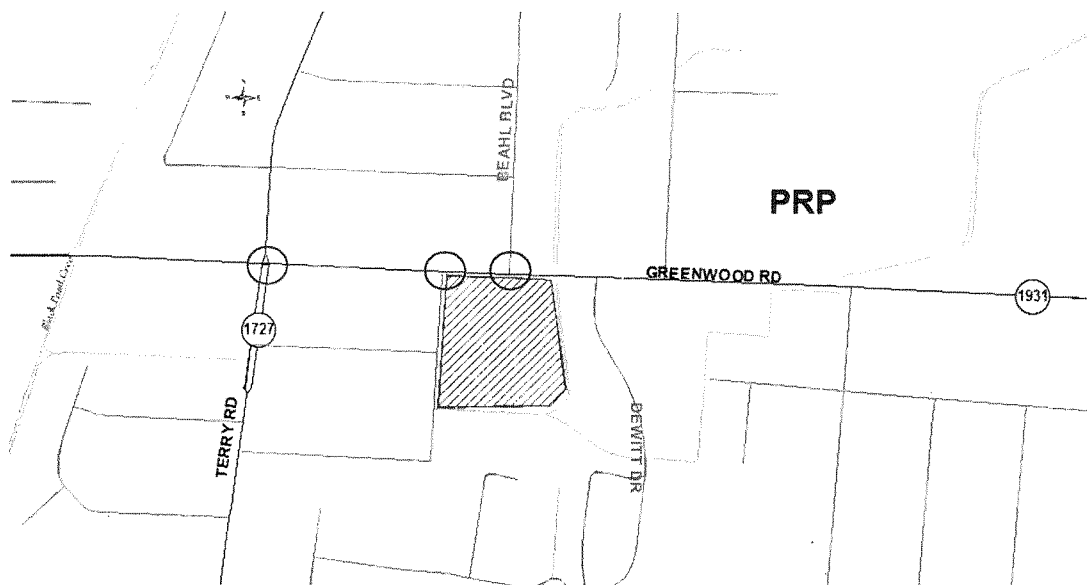


Figure 1
Site Location

Existing Conditions

Greenwood Road (KY 1931) is maintained by the Kentucky Transportation Cabinet with an estimated 2016 ADT of 17,000 vehicles per day between Terry Road and Dixie Highway, as estimated from the 2013 KYTC count at station 653. The road is a two lane road with ten-foot lanes and four-foot stabilized shoulders. The intersection at Terry Road is controlled with a traffic signal and there is a left turn lane on each approach. To the east of Dewitt Drive a two-way left turn lane has been provided to Alyssum Drive/Sky Blue Avenue. The posted speed limit is 35 mph. There is a sidewalk on the property. TARC operates along Greenwood Road.

A.m. and p.m. peak hour traffic counts were obtained at the intersections on August 18, 2016 (see Appendix A). The a.m. peak hour occurred between 7:00 and 8:00 and the p.m. peak hour occurred between 5:00 and 6:00 p.m. **Figure 2** illustrates the existing peak hour traffic volumes.

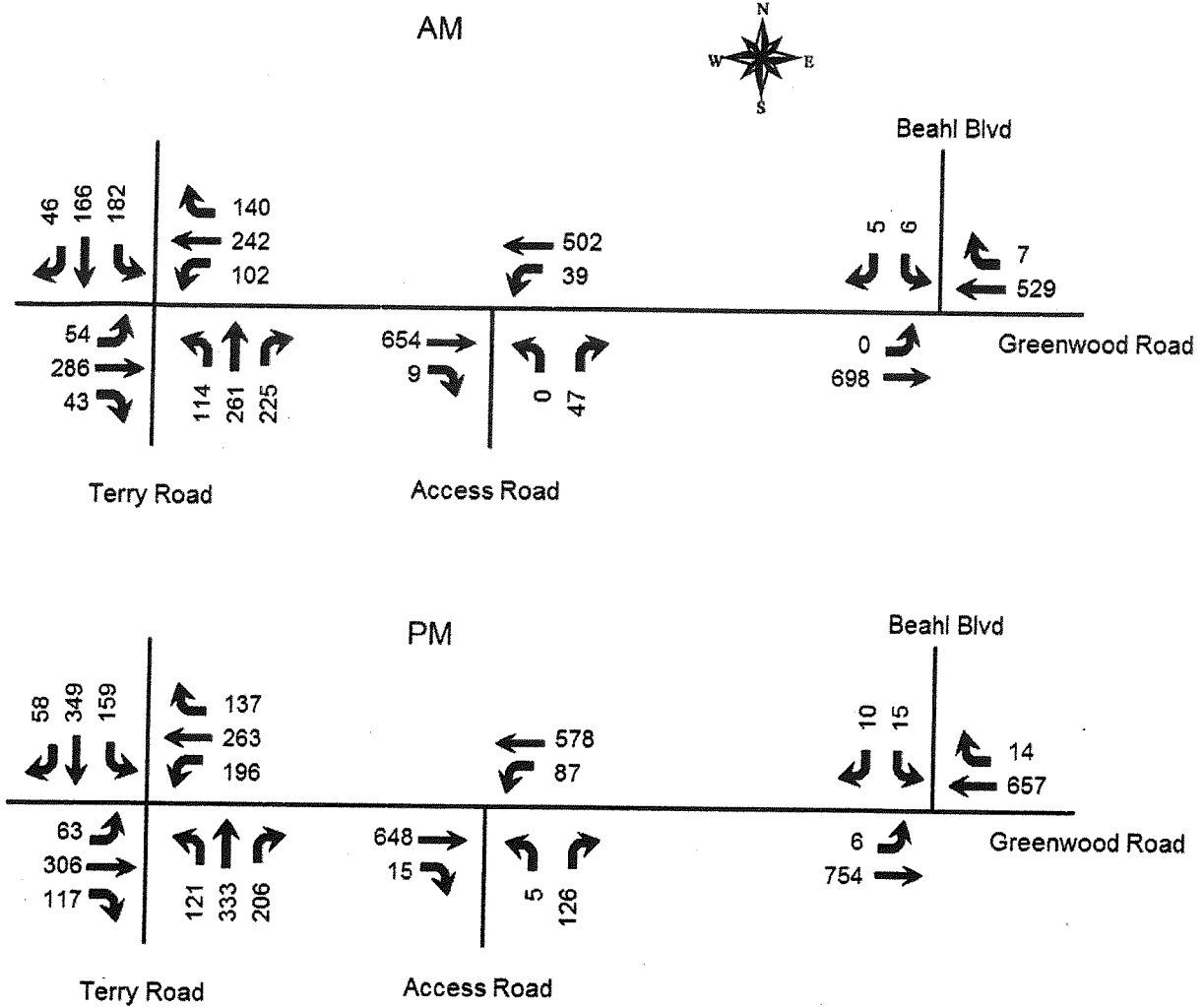


Figure 2
2016 Peak Hour Counts

Future Conditions

The projected completion year for this development is 2018, so the analysis year for this study is 2018. To predict traffic conditions in 2018, one percent annual growth in traffic was added to the counts. This growth is based upon a review of the historical count data by the Kentucky Transportation Cabinet. **Figure 3** displays the 2018 No Build volumes.

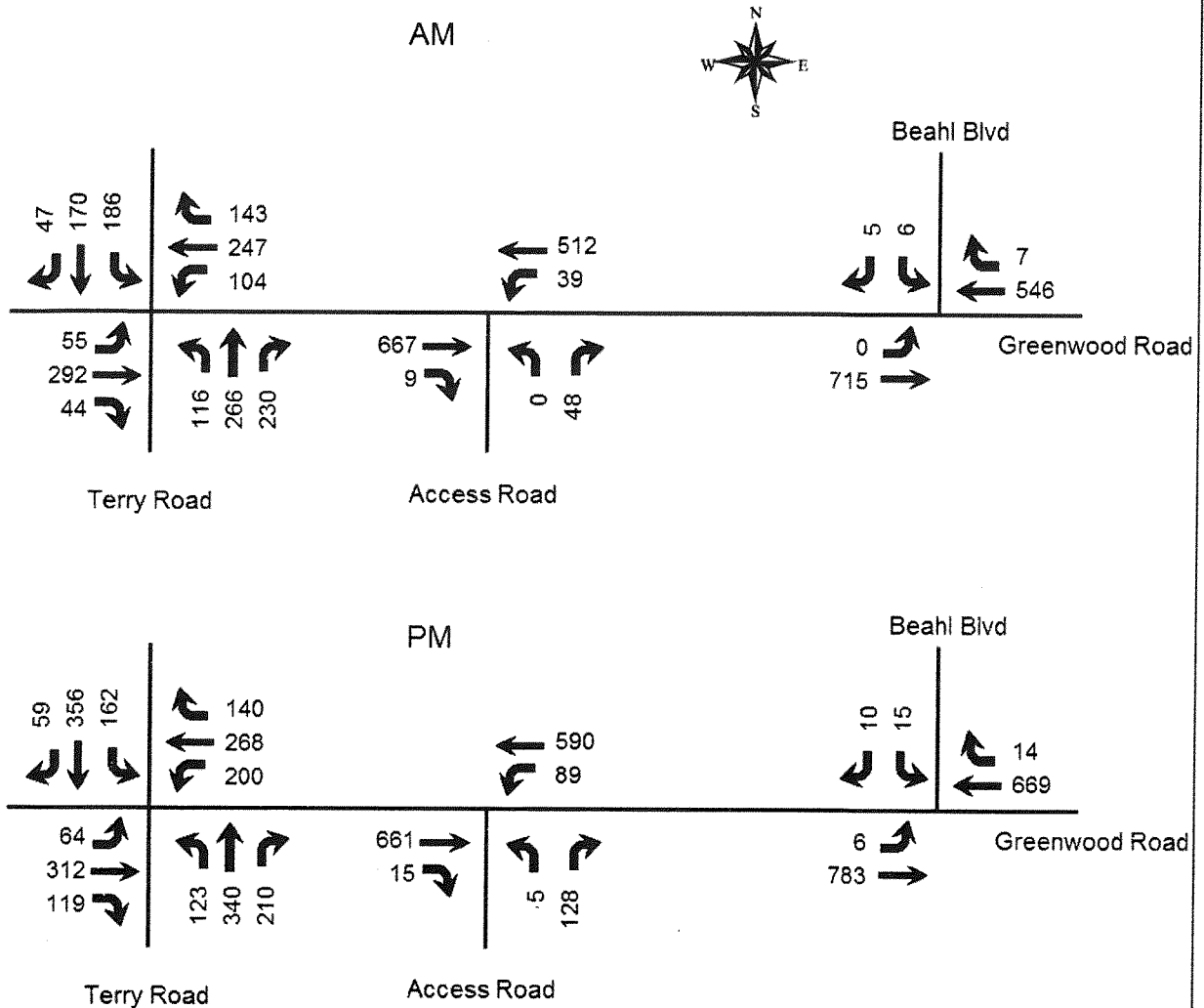


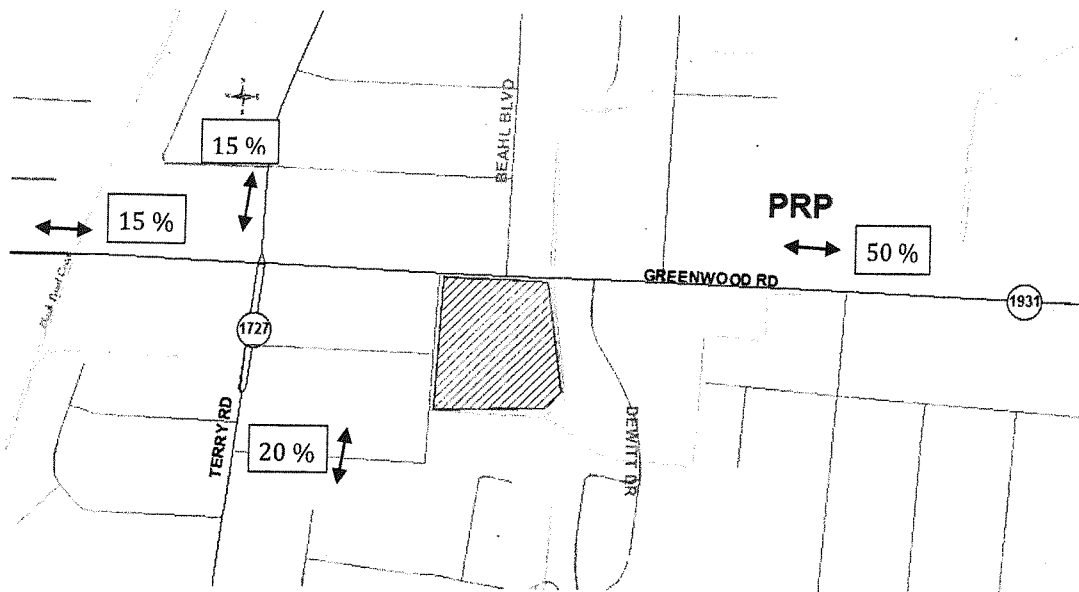
Figure 3
2018 No Build Peak Hour Volumes

Trip Generation

The Institute of Transportation Engineers Trip Generation Manual, 9th Edition contains trip generation rates for a wide range of developments. The land uses of “Specialty Retail (826)” and “Fast-Food Restaurant with Drive-Through Window (934)” best describe this development. The trip generation results are listed in **Table 2**. The results of the trip generation analysis are that this development will generate 133 a.m. peak hour trips and 163 p.m. peak hour trips. 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 for the year 2018 during the peak hours. **Figure 6** displays the individual turning movements for the year 2018 for the peak hours when the development is completed.

Table 1 – Trip Generation apartments

	AM Peak Hour			PM Peak Hour		
	Total	Enter	Exit	Total	Enter	Exit
Specialty Retail (27,255 sq. ft.)	71	44	27	87	38	49
Fast-Food (4,200 sq. ft.)	191	98	93	137	71	66
TOTAL	262	142	120	224	109	115



**Figure 4
Trip Distribution Percentages**

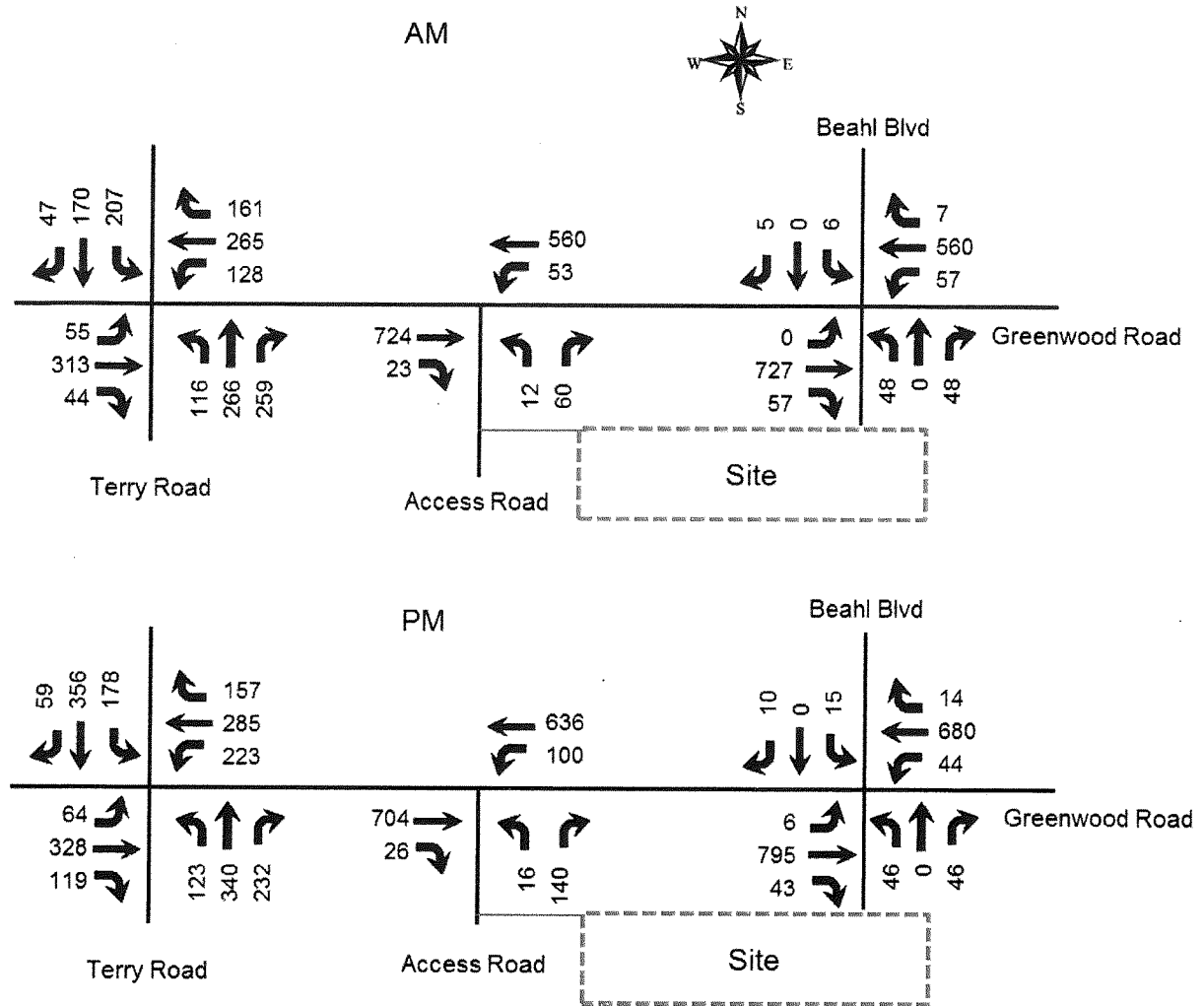


Figure 6
2018 Build Peak Hour Volumes

Analysis

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a “Level of Service” or LOS. Level of Service is a ranking scale from A through F with each level representing a range. LOS results depend upon the type of facility that is analyzed. In this case, the LOS is based upon the average vehicle delay each movement experiences at an intersection.

To evaluate the impact of the proposed development, the vehicle delays at the intersection were determined using procedures detailed in the Highway Capacity Manual, 2010 edition. Future delay and Level of Service were determined for the intersection using HCS 2010 Streets software (version 6.80). **Table 3** shows the results of the analysis for the three scenarios analyzed. The full printouts are included in Appendix B.

Table 2 - Level of Service Results

	AM Peak Hour			PM Peak Hour		
	2016 Existing	2018 No Build	2018 Build	2016 Existing	2018 No Build	2018 Build
Greenwood Road at Terry Road	D 36.3	D 36.8	D 39.1	D 38.4	D 39.1	D 41.7
Greenwood Road Eastbound	D 44.2	D 44.2	D 45.1	E 55.0	E 55.8	E 59.1
Greenwood Road Westbound	D 48.5	D 48.6	D 49.5	D 39.2	D 39.5	D 42.3
Terry Road Northbound	C 29.4	C 30.4	C 34.0	C 31.0	C 31.9	C 34.4
Terry Road Southbound	C 24.3	C 25.0	C 27.0	C 31.9	C 32.9	C 34.5
Greenwood Road at Access Road						
Greenwood Road Westbound (left)	A 9.8	A 9.9	B 10.4	A 9.5	A 9.5	A 9.9
Access Road Northbound	C 16.1	C 16.5	C 16.6	C 16.8	C 17.2	C 20.7
Greenwood Road at Beahl Blvd/Entrance						
Greenwood Road Eastbound (left)	A 8.7	A 8.8	A 9.0	A 9.0	A 9.1	A 9.1
Greenwood Road Westbound (left)	NA	NA	B 10.5	NA	NA	A 9.8
Entrance Northbound	NA	NA	D 27.8	NA	NA	C 23.4
Beahl Boulevard Southbound	C 24.1	D 25.2	D 30.0	D 27.9	D 29.5	D 26.3

Note: Level of Service, delay in seconds

KYTC has an active project to widen Greenwood Road from Dixie Highway to Greenbelt Road. The project will widen Greenwood Road to include a two-way left turn lane along Greenwood Road. At the intersection with Terry Road right turn lanes will be added on all approaches. The results at the entrance/Beahl Road assume the project has been constructed.

Conclusions

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2018, there will be a minor impact to the existing highway network. The improvements provided by the KYTC project will provide acceptable operating conditions.