



20 September 2024

Mr. George Barnes
 Glandon Forest Equity
 3825 Barrett Dr, Suite 100
 Raleigh, NC 27609

Subject: Trip Generation for Dollar General

Dear Mr. Barnes,

Thank you for the opportunity to assist you with this project. The purpose of this letter is to discuss the trip generation for a 10,640 square foot retail project known as the NC 87 Retail Development in an unincorporated area of Chatham County, NC., and its anticipated impact on the traffic volumes of the surrounding roadways.

The Institute of Transportation Engineers (ITE) *Trip Generation Manual* 11th Edition¹ classifies this type of development as Land Use Code 814 *Variety Store*. According to the ITE description, this land use is “a retail store that sells a broad range of inexpensive items often at a uniform price. A variety store is commonly referred to as a “dollar store.” Items typically sold at a variety store include kitchen supplies, cleaning products, home office supplies, food products, household goods, decorations, and toys. The store can be stand-alone or located within a shopping plaza or strip retail plaza.”

Mercer Design Group, PC, hereafter known as MDG, conducted a trip generation exercise for this particular land use and density according to the guidelines contained in the *NCDOT Congestion Management Capacity Analysis Guidelines*². MDG further referenced the *NCDOT Rate vs Equation Spreadsheet*³ to determine the variables to be used in calculating the estimated number of trips. Per the Spreadsheet, the peak hours used are those of the traffic generator, and the ITE Rate was used. The results of the Trip Generation exercise are shown in Table 1 below.

Table 1 - ITE Trip Generation Results												
LUC	Description	Density	Variable	PK HR	METHOD	Daily	In	AM Out	Total	In	PM Out	Total
814	Variety Store	185	Units	Gen	Rate	677	24	24	48	39	40	79
					Pass-by Adjustment AM (0%) PM (34%)		0	0	0	0	0	0
	Land Use Adjusted New Trips						24	24	48	39	40	79
	Total Unadjusted Trips					677	24	24	48	39	40	79
	Pass-by Trips						0	0	0	-13	-14	-27
	Total New Trips					677	24	24	48	26	26	52

The land use will generate a daily volume of trips of 677. During the AM Peak Hour of the store, there will be 48 trips, with 24 entering and 24 exiting. During the PM Peak Hour, there will be 79 trips, with 39 entering and 40 exiting. Of the total 79 trips, 27 will have already been present on NC 87, so the net number of new trips will be 52. Likewise, the net number of trips entering will be 26 and the net number of exiting trips will be 26. This method of reduction is known as “Pass-By” trips and is allowed by the *NCDOT Rate vs Equation Spreadsheet*³ for this particular land use. The number is set at 34% of the total generated trips. This takes into account drivers who stop at the store on their way to their destination.

The Chatham County zoning ordinance does not give thresholds for requiring TIAs.

The NCDOT *Policy on Street and Driveway Access to North Carolina Streets*⁴ states that a TIA “may be required for developments with an estimated trip generation of 3,000 vehicles per day or greater during an



average weekday based on a five-day national average as defined in the Institute of Transportation Engineers (ITE) Trip Generation Manual.” The estimated daily trips for the Feagan Property is 677. Based on this volume of daily trips, a TIA is not required by NCDOT.

The **NCDOT Interactive Traffic Volume Map**⁵ shows that the 2022 ADT between Castle Rock Road and Pete Thomas Road is measured at 3,200. While it is hard to give an accurate prediction of the capacity of a two-lane roadway, it is not uncommon for two-lane primary highways to see volumes well above 5,000 vehicles per day. With that in mind, NC 87 appears to have excess capacity that will not be greatly impacted by an additional 677 trips. The 677 trips that will access the Project will be coming from both the north and south. When the trips are distributed by direction, the net effect will be less since not all of the trips will pass a any particular location on the roadway.

Please let me know if you have any questions or concerns at 828-674-0229 or jmoore@mdgeng.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeffrey H. Moore', written in a cursive style.

Jeffrey H, Moore, P. E.
Transportation Engineering Division Manager

REFERENCES:

¹ ***Trip Generation Manual***, Institute of Transportation Engineers, 11th Edition, Washington, D. C., 2022

² ***NCDOT Congestion Management Capacity Analysis Guidelines***, North Carolina Department of Transportation, Raleigh, N. C., March 2022.

³ ***NCDOT Rate vs Equation Spreadsheet***, North Carolina Department of Transportation, Raleigh, N. C., July 2022.

⁴ ***Policy on Street and Driveway Access to North Carolina Streets***, North Carolina Department of Transportation, Raleigh, NC

⁵ NCDOT Interactive Traffic Volume Map:

<https://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=964881960f0549de8c3583bf46ef5ed4>