



To: Mr. Jason Scott
Genuine Parts Company

Re: NAPA Warehouse Expansion – Town of Plainfield, IN
Trip Generation Study

From: Steven J. Russo, PE
Transportation Engineer

Date: October 15, 2021

INTRODUCTION

This memorandum presents an evaluation of traffic generation for the proposed NAPA warehouse facility expansion project in the Town of Plainfield, Hendricks County, Indiana. The project site is located on the south side of Reeves Road approximately ½ mile east of Perry Road, as shown on **Figure 1**.



Figure 1: Site Location

The subject site currently includes a 292,139 square feet (SF) warehouse facility with 40 loading dock doors. Information provided by the Owner indicates there are currently 240 employees working on two shifts between the hours of 5:00 AM and 5:00 PM. The site currently generates approximately 25 inbound and outbound truck trips per day, spread over the 12-hour operational period.



The proposed development plans include expansion of the existing facility to provide an additional 282,540 SF of warehouse space on the north side of the existing building which will result in 12 additional employees and 35 additional loading dock doors. Existing operations of the facility are not proposed to fundamentally change as part of the expansion plans, rather, the additional space will be utilized for increased storage at the facility. The site will continue to operate with two shifts; however, the second shift time is proposed to be adjusted from 8:30 AM – 5:00 PM to 11:00 AM – 7:30 PM which will result in a reduced traffic impact as employee arrivals and departures will occur outside of the peak hours of adjacent street traffic. The proposed expansion will also generate approximately 81 additional inbound and outbound truck trips per day, spread over the operational period of the facility. Lastly, the proposed expansion includes a will call area where customers can come and pick up orders.

Access for the site is not proposed to change as part of the development plans and is currently provided via a single driveway to Whitaker Road located approximately 400 feet south of Reeves Road. In review of the proposed development plans, the Town of Plainfield has requested trip generation information relative to the expansion plans in order to assess potential traffic impacts. The purpose of this memorandum is to outline traffic data and forecasts associated with the proposed expansion in order to address relative concerns raised by the Town of Plainfield for project approvals.

EXISTING CONDITIONS

Roadway Data

Reeves Road is under jurisdiction of the Town of Plainfield and runs generally in the east and west directions with a posted speed limit of 35 miles per hour (mph). In the vicinity of the subject site Reeves Road has a typical two-lane cross section with one travel lane in each direction and is currently classified as a Local Road in the Town of Plainfield Thoroughfare Plan and is proposed to be changed to a Minor Collector.

According to a turning movement count at the intersection of Perry Road & Reeves Road obtained from the *Proposed Warehousing Development Traffic Impact Study* completed by A&F Engineering Co., LLC dated April, 2017, Reeves Road east of Perry Road has a two-way AM and PM peak hour volume of 152 and 196 vehicles, respectively. Assuming, an annual growth rate of 1.0% per year and a K-factor of 8%, Reeves Road is estimated to have a 2021 ADT of approximately 2,550 vehicles per day in the site vicinity. The referenced traffic volume data is attached.

Whitaker Road is under jurisdiction of the Town of Plainfield and runs in the north and south directions with a posted speed limit of 30 mph. Whitaker Road has a typical two-lane cross section with one travel lane in each direction and is currently classified as a local road in the Town of Plainfield Thoroughfare Plan and is proposed to be changed to a Minor Collector. Traffic volume data is not available for Whitaker Road; however, based on the roadway classification and surrounding land uses, it is estimated to have a similar ADT as Reeves Road.

The intersection of Reeves Road & Whitaker Road operates under all-way stop-control (ASWC) with all intersection legs having a single inbound and outbound travel lane.

TRIP GENERATION

The number of peak hour vehicle trips generated by the proposed development expansion were forecast based on the rates and equations published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 10th Edition*. ITE publishes average trip generation rates for a wide variety of land uses, as well as regression equations for some. For some land uses, both rates and equations are available, and selection of the appropriate method was based on the guidelines outlined in the ITE *Trip Generation Handbook*.

The ITE land use category that most closely matches the operation of the proposed facility is *Land Use #150 (Warehousing)* which is primarily devoted to the storage of materials but may also include office and maintenance areas. For Land Use #150, trip generation data is published by Gross Square Feet (GSF) and number of employees.



As the number of employees for the expansion is known, it was selected as the independent variable for trip generation calculations as it provides a better correlation to the trip making potential of the development expansion.

The proposed expansion will also include a will call area where NAPA stores within the region can come and pick up orders directly from the warehouse. This would be utilized by approximately 20 stores within the region. ITE's *Trip Generation Manual* does not include a land use category specific to the proposed operations of the will call area. Therefore, trip generation for the will call area was forecast assuming one pick-up per day per store resulting in 40 total daily trips (20 inbound and 20 outbound). These trips are expected to be spread out over the course of the day. Therefore, three pick-ups were assumed during the peak hours.

Lastly, the proposed expansion will also result in an additional 81 inbound and outbound truck trips per day. These arrivals and departures will be spread over the entire 16-hour operating period, resulting in an average of six inbound and outbound truck trips per hour. These truck trips were combined with the expected employee and customer trips to determine the total traffic generation potential for the proposed expansion. The trip generation forecast during the peak hour of adjacent street traffic and peak hour of the generator are summarized in **Table 1** and **Table 2**, respectively.

Table 1: Site Trip Generation – Peak Hour of Adjacent Street

Land Use	Trip Type	ITE Code	Amount	Units	Average Daily Traffic	Peak Hour of Adjacent Street					
						AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
Warehouse	Employees	150	12	Employees	79	8	3	11	3	5	8
	Customers		2,800	SF	40	3	3	6	3	3	6
	Trucks		40	Bays	162	6	6	12	6	6	12
	TOTAL				281	17	12	29	12	14	26

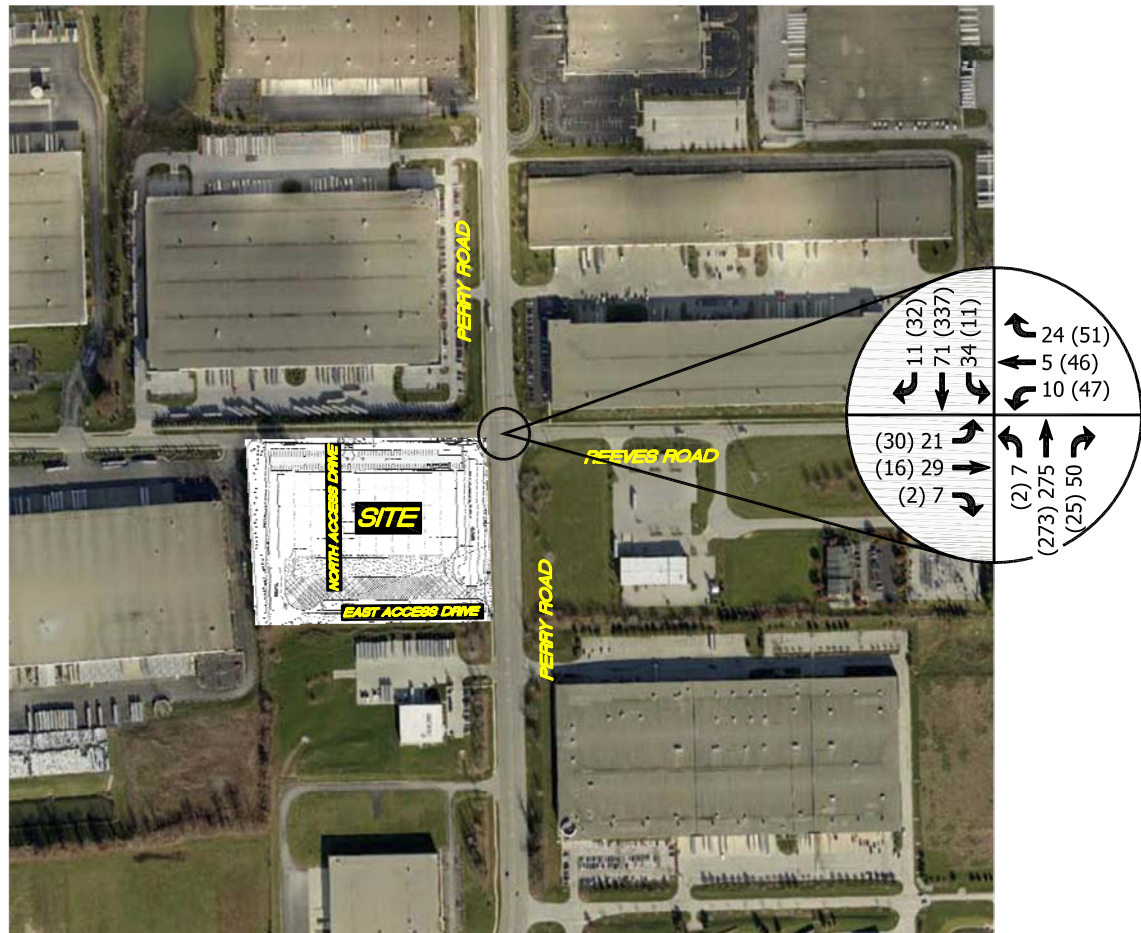
Table 2: Site Trip Generation – Peak Hour of Generator

Land Use	Trip Type	ITE Code	Amount	Units	Average Daily Traffic	Peak Hour of Generator					
						AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
Warehouse	Employees	150	12	Employees	79	7	7	14	3	9	12
	Customers		2,800	SF	40	3	3	6	3	3	6
	Trucks		40	Bays	162	6	6	12	6	6	12
	TOTAL				396	16	16	32	12	18	30

According to Plainfield Ordinance No. 18-97, a traffic impact study (TIS) shall be required when warranted in accordance with INDOT guidelines. Section 4.1 of the INDOT *Applicant's Guide to Traffic Impact Studies* states "it is suggested that a TIS be conducted whenever a proposed development will generate 100 or more new trips during the adjacent roadways peak hour or the development's peak hour." The forecast number of site-generated vehicle trips summarized in **Table 1** and **Table 2** do not meet this threshold to require traffic impact analysis or further study. Furthermore, this project would result in only a minor increase in traffic volume at the intersection of Reeves Road & Whitaker Road. ***Therefore, the proposed project would have no significant traffic impact and the change in traffic volume on the adjacent road network would not be discernable.***

Please direct any questions regarding this memorandum to Bergmann.

Attached: Perry Road & Reeves Road Traffic Count



LEGEND

XX = A.M. PEAK HOUR
(XX) = P.M. PEAK HOUR
* = NEGLIGIBLE

FIGURE 3

EXISTING TRAFFIC VOLUMES

**TRAFFIC IMPACT STUDY
ARCO DESIGN/BUILD MIDWEST
PLAINFIELD, IN**