



181 WEST HIGH STREET
SOMERVILLE, NJ 08876


908 927 0100 p
908 927 0181 f

TRANSPORTATION SYSTEM INVENTORY
FOR
PROPOSED
WAREHOUSE FACILITY


BRIAN PLUSHANSKI

BLOCK 22.02, LOTS 3 & 4
UNION TOWNSHIP, HUNTERDON COUNTY, NEW JERSEY

JANUARY 7, 2021



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Hunterdon Union Twp Plushanski Warehouse Documents 2021 01 07 TGA.doc

INTRODUCTION

A Site Plan and Subdivision application has been filed with the Union Township Planning Board by Brian Plushanski for the construction of a new 46,800 square foot building for warehouse/"flex" type uses. The proposal also includes a subdivision to create three developable lots with an access at the easterly property limits.

The 22.43-acre site is currently occupied a small, metal, industrial type structure and is located in the VC (Village Commercial) Zone, where the warehouse is a permitted use. The property is situated along the southern Route I-78 frontage road which connects Perryville Road to the west with eastbound I-78 at the easterly terminus. While any additional development changes on the subject property may affect traffic conditions, both the volume and characteristics of that traffic are of important consideration in the evaluation of this application.

Dolan & Dean Consulting Engineers, LLC (D&D) has been retained by Brian Plushanski to prepare this transportation system inventory for the proposed facility in accordance with Ordinance Section 30-7.9(e)14. Specifically, the proposed development that is the subject of the site plan application will include a total building floor area of 46,800 SF comprised of approximately 40,800 SF to be used for warehousing with the remaining 6,000 SF used for ancillary office space for the primary warehouse use. The proposed building area falls below the criteria established under Section 30-22.20 Impact Studies for the preparation of a full traffic impact study.

This Transportation System Inventory has therefore been prepared as part of the application to determine the anticipated levels of traffic activity associated with the proposal and to assess the suitability of the adjacent roadway system. Particular focus has been placed on the traffic characteristics of the proposal, as required in Ordinance Section 30-7.9(e)14:

"30-7.9(e)14 . . . "An identification of the relationship of the transportation and circulation system needs network. A discussion of this relationship shall be in narrative form and shall indicate factors such as methods to be used for traffic control within the tract and at points of ingress to and egress from it and expected traffic volumes generated from the project including their relationship to existing traffic volumes on existing streets for both peak hour and non-peak hour traffic conditions. In addition, there shall be a discussion of the physical conditions of the existing streets which will service the proposed project and what improvements are proposed to remedy any physical deficiencies."



EXISTING TRAFFIC CONDITIONS

As noted, the site is located along the southern (eastbound) Route I-78 Frontage Road on Lots 3 & 4, Block 22.02 in Union Township, Hunterdon County. There is an existing site driveway that serves a light industrial use on the property. The egress onto Frontage Road is STOP controlled.

Route I-78 Frontage Road is under New Jersey Department of Transportation (NJDOT) jurisdiction and is essentially an auxiliary, parallel road to I-78 eastbound between milepost 11.6 and 15.0 where multiple entry/exit ramps to/from Route I-78 are provided. In addition to the on and off ramps, three overpasses exist along Frontage Road, allowing for motorist to perform a U-turn or connect to New Jersey State Highway 173.

Within the general site vicinity, the roadway has an east/west orientation, and provides one lane in each travel direction, with a center double yellow line, supplemented by left turn lanes at select locations. Eastbound and westbound lanes are 12-foot wide accompanied by a 2-foot minimum width shoulder. The roadway has a posted speed limit of 45 miles per hour.

Land uses along frontage road include a variety of similar industrial and commercial uses, such as professional trade services, office complexes, quarry operations, and a correctional facility. Similar to the proposed use, access to these various uses is generally provided via full movement, STOP sign controlled driveways.



TRAFFIC CHARACTERISTICS OF THE PROPOSED USE

The potential traffic generation from any use is directly related to the type, size, and characteristic of the use itself. The specific location of a particular use may also affect trip generation due to volumes of passing street traffic, and competing uses. Trip generation projections are customarily made using estimates compiled by the Institute of Transportation Engineers (ITE) in the 10th Edition of the Trip Generation Manual for uses that closely resemble the anticipated operation.

Table I summarizes the projected trip generation for the proposed site. Trip projections were first calculated assuming a “flex” use, based upon ITE data for Land Use 130 “Industrial Park”, which is defined as: *“An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another”*. For comparison the ITE Land Use Code 150 “Warehousing”, was also reviewed, which is defined as: *“A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas.”* The ITE data for each land use is appended to this report.

TABLE I
ESTIMATED TRIP GENERATION
PROPOSED 46,800 SF WAREHOUSE/“FLEX” BUILDING”

Land Use	Morning Peak Hour			Evening Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Industrial Park	15	4	19	4	15	19
Warehouse	2	6	8	1	8	9

As shown, regardless of the land use category, during the peak hours the relative trip impact of the building will be very limited - averaging at most about one vehicle movement every 3 minutes or less throughout the peak commuter hours. From a traffic generation perspective, the proposed facility will generate low peak hour volumes and will not create a negative or measurable impact on the local roadway system.



A review has been completed of the site plans prepared by PS&S. Specific focus has been placed on the proposed access design and traffic circulation. The following comments address the proposed traffic and circulation elements:

- ▶ The site driveway is proposed at a 30-foot width with 50-foot radii. The proposed driveway design can accommodate large vehicles, which could periodically access the site, depending on the tenant.
- ▶ Internal access aisles in the parking fields are primarily proposed to be 25 feet wide. At the southerly end of the building, a 40-foot cartway is provided near the loading docks for improved truck maneuvering area.
- ▶ 106 parking spaces are proposed for the facility with 25 of those spaces to be “banked” and installed only if ever needed.

Based on these findings, it is concluded that safe and efficient access and circulation can be provided to the subject site with an appropriate number of parking spaces provided for the intended operation.



CONCLUSIONS

In summary, it is evident from this analysis of projected traffic generation, that the proposed warehouse/"flex" use would generate minimal new increases in traffic and will not create a negative impact on the local roadway network.

Given the nature of the use, it is expected the proposed building will operate with unique characteristics that minimize peak hour traffic impacts. The proposed site access and interior circulation is adequately designed to accommodate site vehicles, through the use of large turning radii and parking aisles.

Due to only modest traffic increases associated with the proposal, no changes in off-site operating conditions are anticipated. It is anticipated that traffic attracted to the site will not contribute to any off-tract congestion or unfavorable conditions.



TECHNICAL APPENDIX

Land Use: 130

Industrial Park

Description

An industrial park contains a number of industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities—some with a large number of small businesses and others with one or two dominant industries. General light industrial (Land Use 110) and manufacturing (Land Use 140) are related uses.

Additional Data

The sites were surveyed in the 1980s, the 2000s, and the 2010s in California, Georgia, New Jersey, New York, Ontario (CAN), and Pennsylvania.

Source Numbers

106, 162, 184, 251, 277, 422, 706, 747, 753, 937

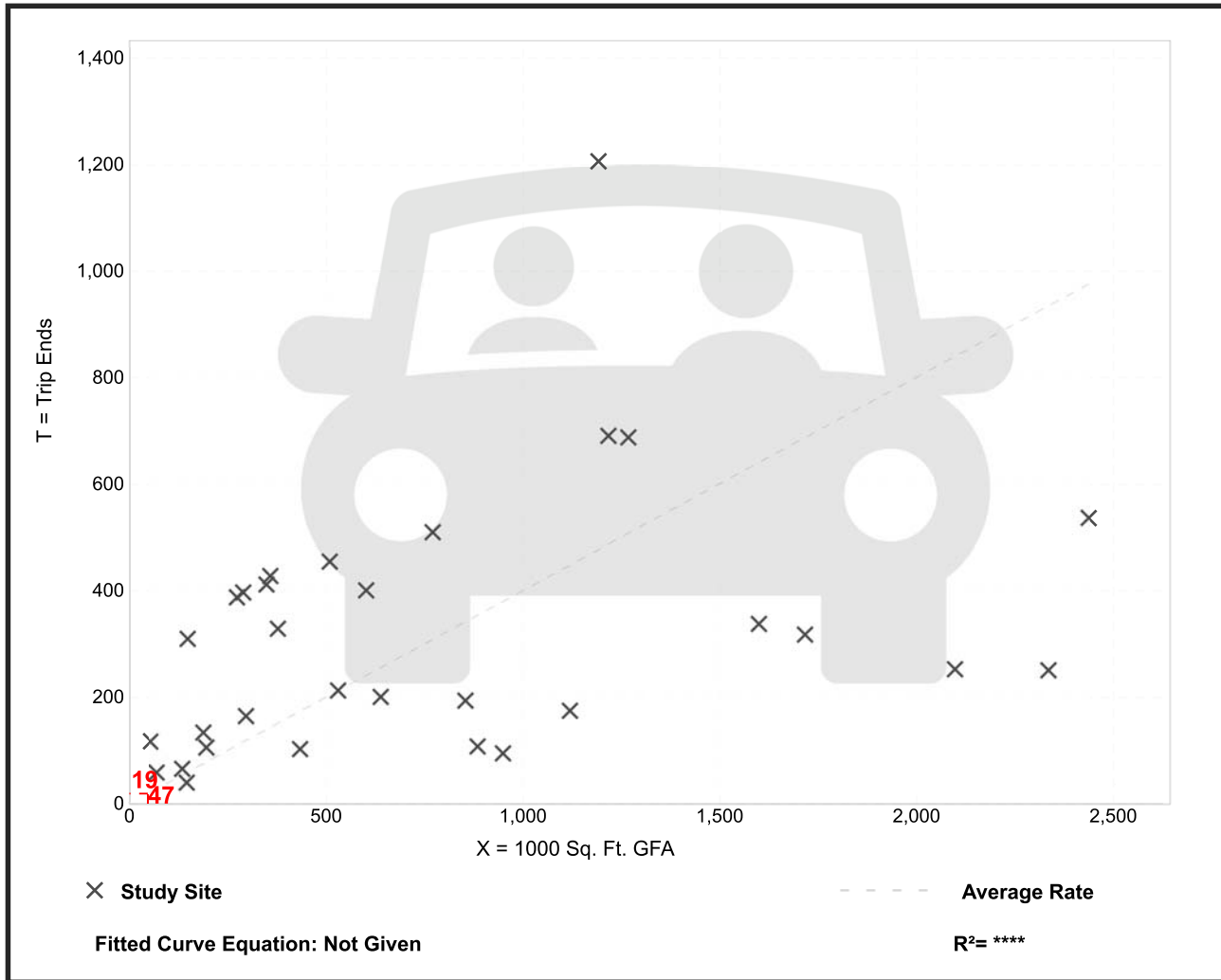
Industrial Park (130)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 31
 Avg. 1000 Sq. Ft. GFA: 776
 Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.13	0.37

Data Plot and Equation



Industrial Park (130)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

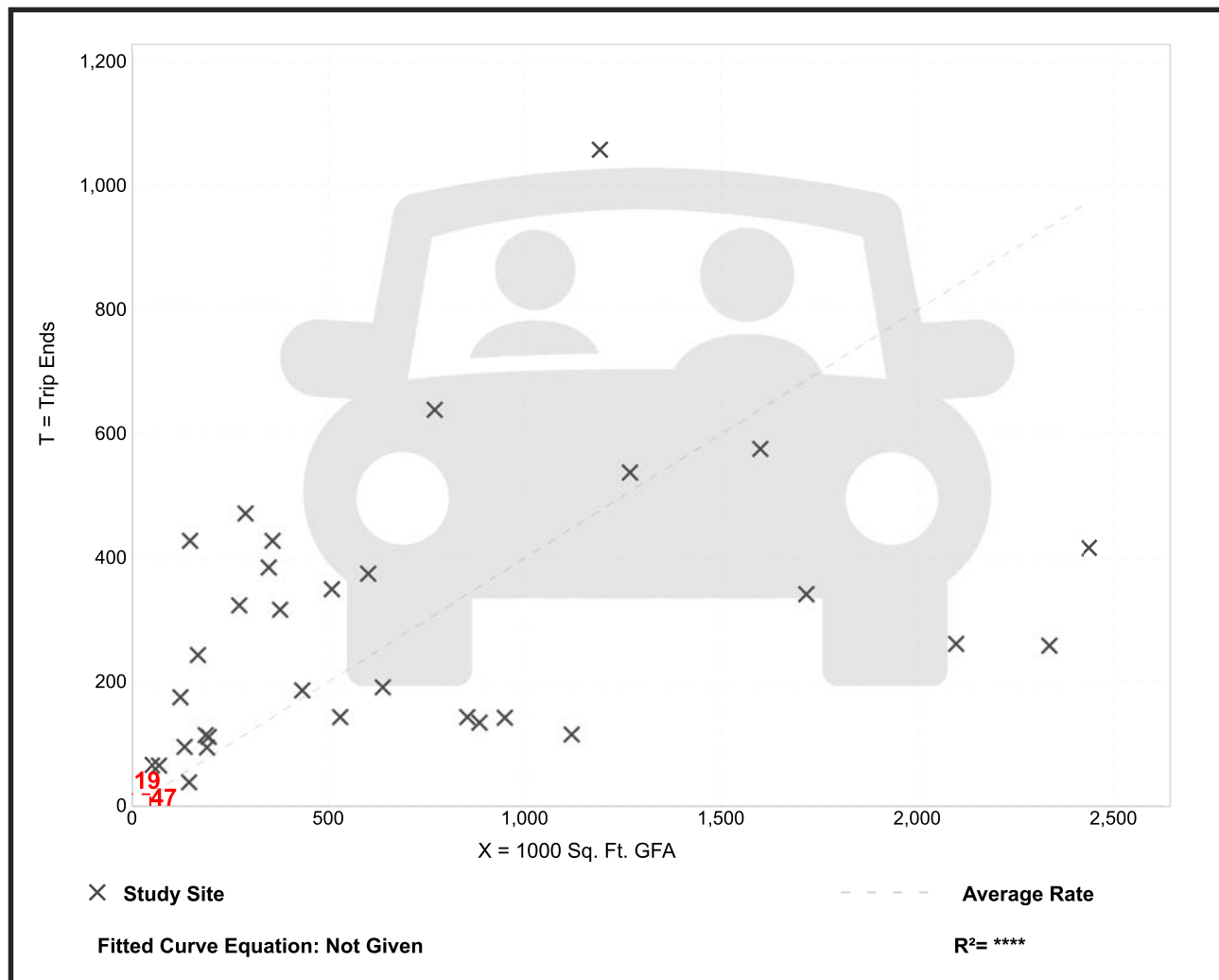
Setting/Location: General Urban/Suburban

Number of Studies: 32
 Avg. 1000 Sq. Ft. GFA: 720
 Directional Distribution: 21% entering, 79% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.40	0.10 - 2.85	0.41

Data Plot and Equation



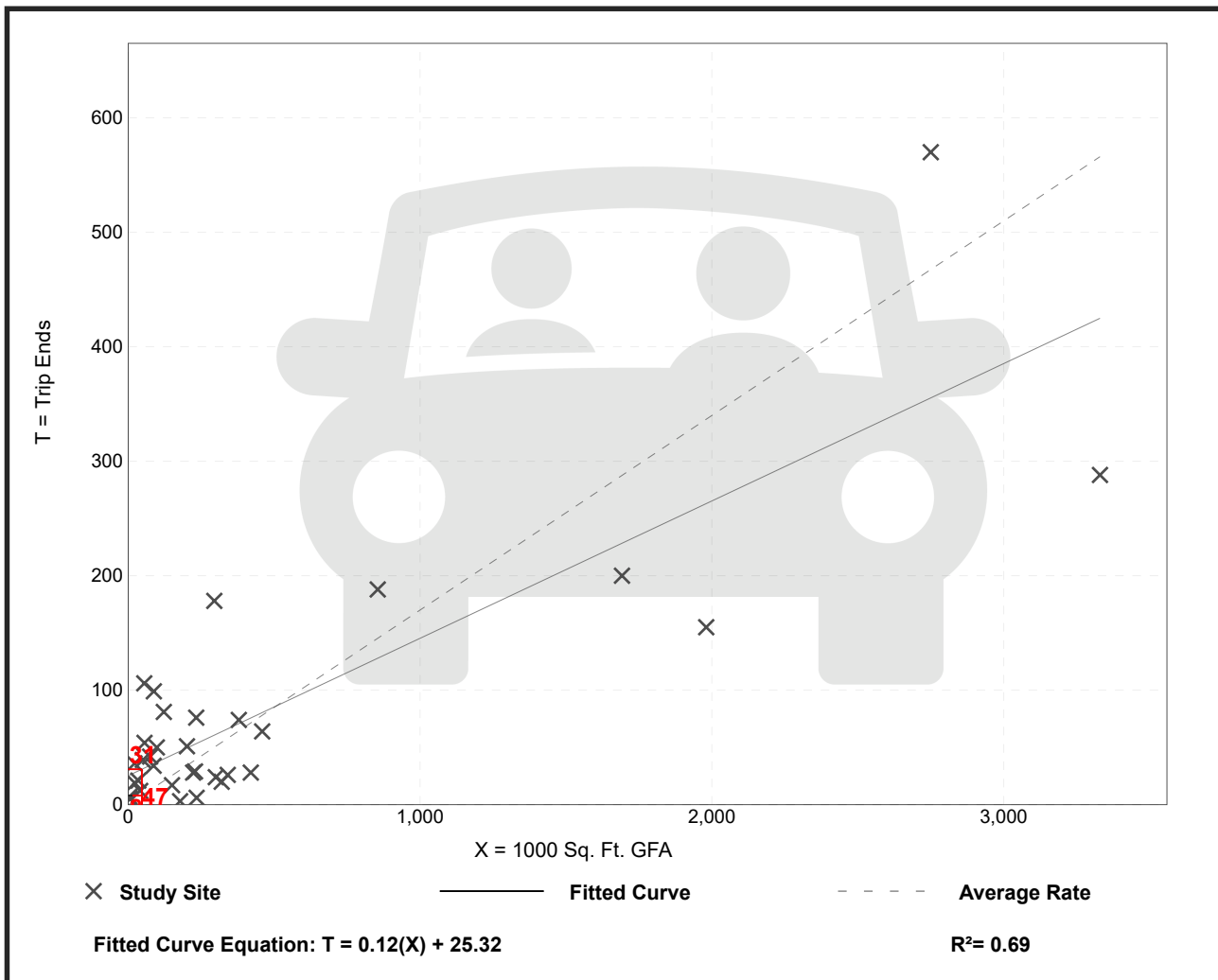
Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 34
 Avg. 1000 Sq. Ft. GFA: 451
 Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 47
 Avg. 1000 Sq. Ft. GFA: 400
 Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation

