



181 WEST HIGH STREET
SOMERVILLE, NJ 08876

908 927 0100 p
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TRAFFIC IMPACT STATEMENT
FOR
1980 US ROUTE 1
PROPOSED WAREHOUSE

BLOCK 148, LOTS 34, 35.01, 36
TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY, NEW JERSEY

AUGUST 6, 2021

A handwritten signature in black ink, reading 'Elizabeth Dolan'.

ELIZABETH DOLAN, P.E.
NJ LICENSE NO. 37071

A handwritten signature in black ink, reading 'Rianna S. Kirchhof'.

RIANNA S. KIRCHHOF, P.E.
NJ LICENSE NO. 54558

INTRODUCTION

Dolan & Dean Consulting Engineers, LLC (D&D) has prepared this Traffic Impact Statement in support of an application for the redevelopment of the property located at the southeast quadrant of the US Route 1 and Adams Lane signalized intersection. The site is currently occupied by a 134,673 square foot manufacturing facility. Access is provided via a curb cut along US Route 1 northbound and a curb cut along Adams Lane eastbound.

Under the development program, the site will be razed, and a 191,903 square foot warehouse (inclusive of 8,050 square feet of office space) will be constructed in its place. The existing US Route 1 access will be reconstructed to provide a driveway island and larger driveway radii and wider ingress lane to facilitate efficient access for larger vehicles. A driveway is proposed along Adams Lane which will prohibit left-turns out of the site.

D&D has therefore been retained by the applicant to prepare a Traffic Impact Statement to address trip generation characteristics of the proposed warehouse.



EXISTING CONDITIONS

The site is a 17.11-acre parcel and is designated as Lots 34, 35.01, and 36 in Block 148 on the southeast corner of US Route 1 and Adams Lane. The site is currently developed with a 134,673 square foot manufacturing facility with access provided along US Route 1 and Adams Lane. The site also provides cross access to the pet resort, warehouse and house of worship located to the south of the site.

US Route 1 is classified as an urban principal arterial under NJDOT jurisdiction. The roadway has a general north/south orientation and provides 3 lanes in each travel direction. The roadway has a posted speed limit of 55 miles per hour in the site vicinity. Sidewalk is not provided on either side of the roadway and on-street parking is prohibited.

Adams Lane (CR 608) is classified as an urban minor arterial under Middlesex County jurisdiction. The roadway has a general east/west orientation and generally provides one lane in each direction with turn lanes provided at key intersections. The roadway has a posted speed limit of 35 miles per hour in the site vicinity. Adams Road has a steep grade change over the bridge that crosses over the Amtrak Conrail right-of-way. Sidewalk is not provided along either side of the roadway and on-street parking is prohibited.

The intersection of US Route 1 and Adams Lane is controlled by a 3-phase traffic signal. Left-turn movements from Route 1 are facilitated via a reverse jughandle on US Route 1 southbound and forward jughandle on the northbound side. Crosswalks are provided on all approaches to the intersection. Pedestrian push buttons are provided to cross US Route 1.



TRAFFIC CHARACTERISTICS OF THE WAREHOUSE

Traffic projections for the existing manufacturing facility and proposed warehouse were prepared to evaluate potential increases in peak hour trip generation. Estimates were developed using data published by the Institute of Transportation Engineers (ITE) within the 10th Edition of the ITE Trip Generation Manual. To generate traffic projections, Land Use 140 – “Manufacturing Facility” was utilized for the existing use. Land Use 150 – “Warehousing” was utilized for the proposed use. By ITE’s definition, ancillary office area is typically provided at warehouses, and therefore the total building area is used when estimating warehouse trip generation. The ITE trip generation printouts are appended.

Using the ITE warehousing rates, the following trip projections are calculated for the proposed warehouse:

TABLE I
TRIP GENERATION PROJECTIONS
PROPOSED 191,903 SF WAREHOUSE

PEAK HOUR	ENTER	EXIT	TOTAL
Morning	37	11	48
Evening	14	37	51
Saturday	6	4	10

As previously mentioned, the site is currently occupied by a 134,673 square foot manufacturing facility. It can be reasonably assumed that the proposed warehousing use will operate with traffic characteristics like those which currently exist given the industrial nature of both uses. Table II shows the overall trip comparison between the existing and proposed uses and the net traffic increases.



TABLE II
TRIP GENERATION COMPARISON
EXISTING VS. PROPOSED

Land Use	Size	AM Peak	PM Peak	SAT Peak
Existing	134,673 SF	83	90	127
Proposed	191,903 SF	48	51	10
Traffic Increase		-35	-39	-117

The ITE Manual of Transportation Engineering Studies offers objective guidelines with a specific minimum traffic volume threshold to determine when traffic impact studies would be appropriate for new developments. It is accepted professional practice that minimal traffic increase will not negatively affect a given roadway system and therefore do not require a detailed study to quantify such a conclusion.

The ITE recommends that traffic studies are performed when a development generates 100 or more new trips during an hour. Similarly, NJDOT defines a “significant” traffic increase that warrants a study as 100 or more additional trips in an hour. As noted in Table I and Table II, the proposed redevelopment of the site will generate less than 100 trips during the critical peak hours and less traffic than the existing use.

The projected volume of traffic is too small to have a significant or measurable impact on the adjacent roadway network. Site traffic falls well below this threshold and generates less traffic than the existing use, and as a result, the proposed development will not create a negative traffic impact on the adjacent roadway network.

While a Minor Access Permit is required for the new Route 1 driveway, a traffic study will not be required as part of the application.

SITE PLAN REVIEW

An evaluation was conducted on the Overall Site Layout Plan prepared by Bohler Engineering NJ, LLC dated August 6, 2021. The following comments address site access and parking as shown on the Site Plan.

The Ordinance requires that parking be calculated for the office area separately from the overall building area. Accordingly, the 8,050 square feet of proposed office space requires 33 spaces, based on a ratio of 1 space for every 250 square feet. The balance of the building, 183,853 square feet, will be warehouse space. Using the applicable ratio of 1 parking space for every 2,500 square feet, 74 spaces are required. The total required parking is 107 spaces.

The Site Plan proposes 166 9-foot-wide by 18-foot-deep car parking spaces (inclusive of 3 ADA accessible stalls) on the north and west sides of the building served by a 25-foot drive aisle, which meets the Township requirements. There are an additional 31 loading spaces proposed to the east and south of the building.

These dimensions will provide efficient two-way flow and parking maneuvers, especially for large trucks that would frequent the site.

Based on this review, it is concluded that safe and efficient access and circulation can be provided to the site with reasonable and prudent driver behavior. Consequently, from a traffic engineering perspective, the site is particularly well suited for the proposed development and will have no detrimental impact on traffic conditions on the roads surrounding the site.



TECHNICAL APPENDIX

Manufacturing (140)

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: 45

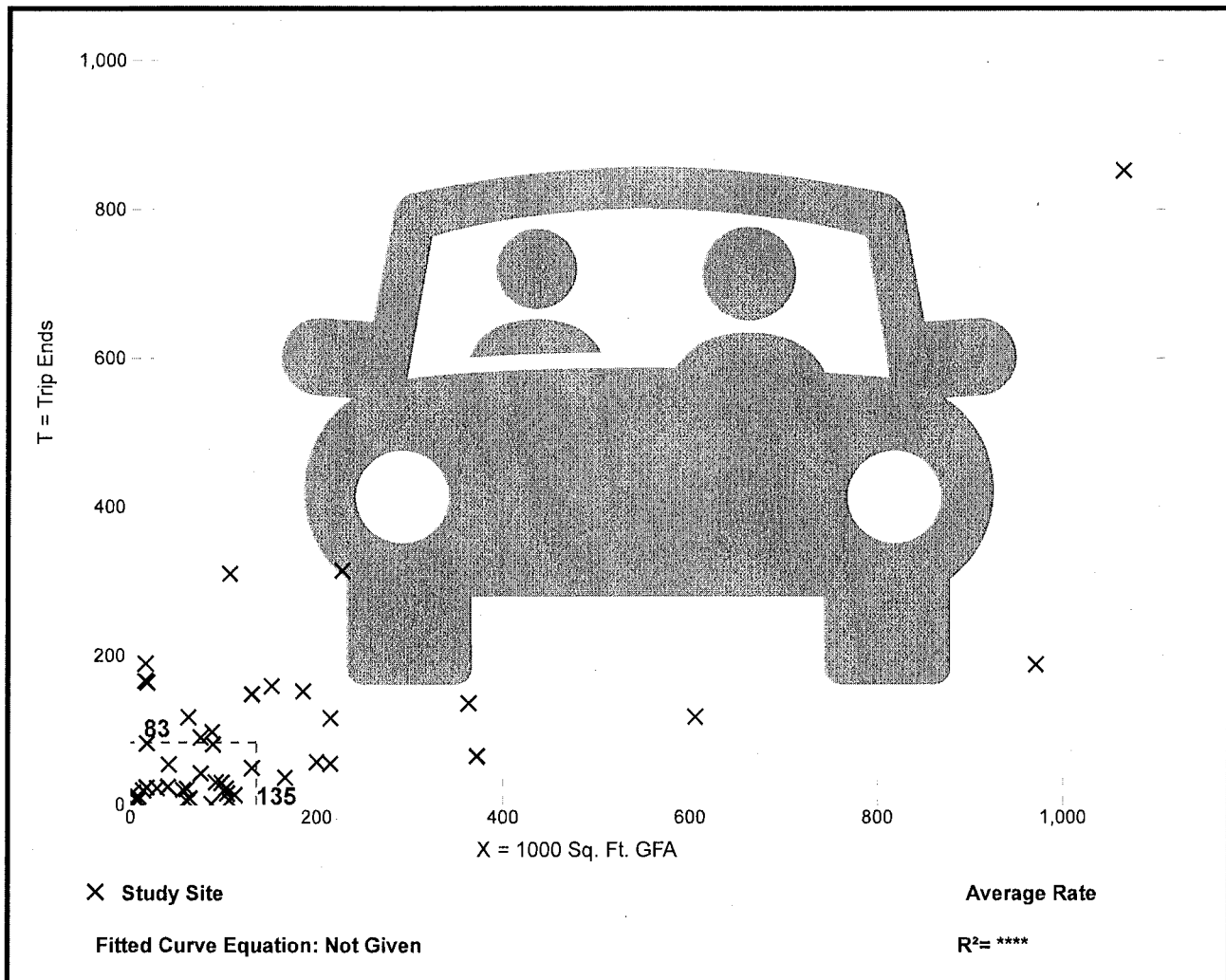
Avg. 1000 Sq. Ft. GFA: 149

Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.62	0.01 - 11.93	1.03

Data Plot and Equation



Manufacturing (140)

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: 52

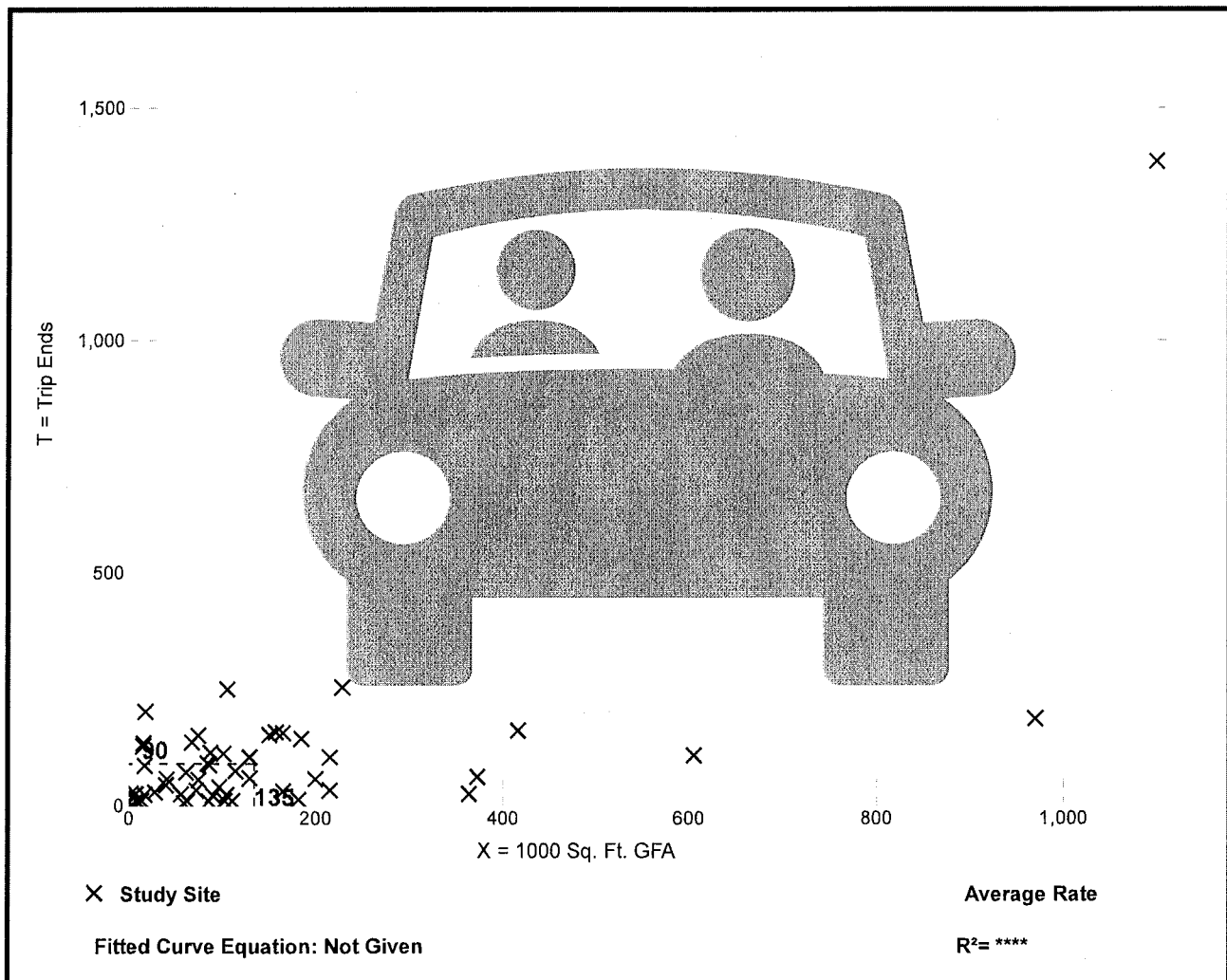
Avg. 1000 Sq. Ft. GFA: 152

Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.67	0.07 - 11.37	0.94

Data Plot and Equation



Manufacturing (140)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

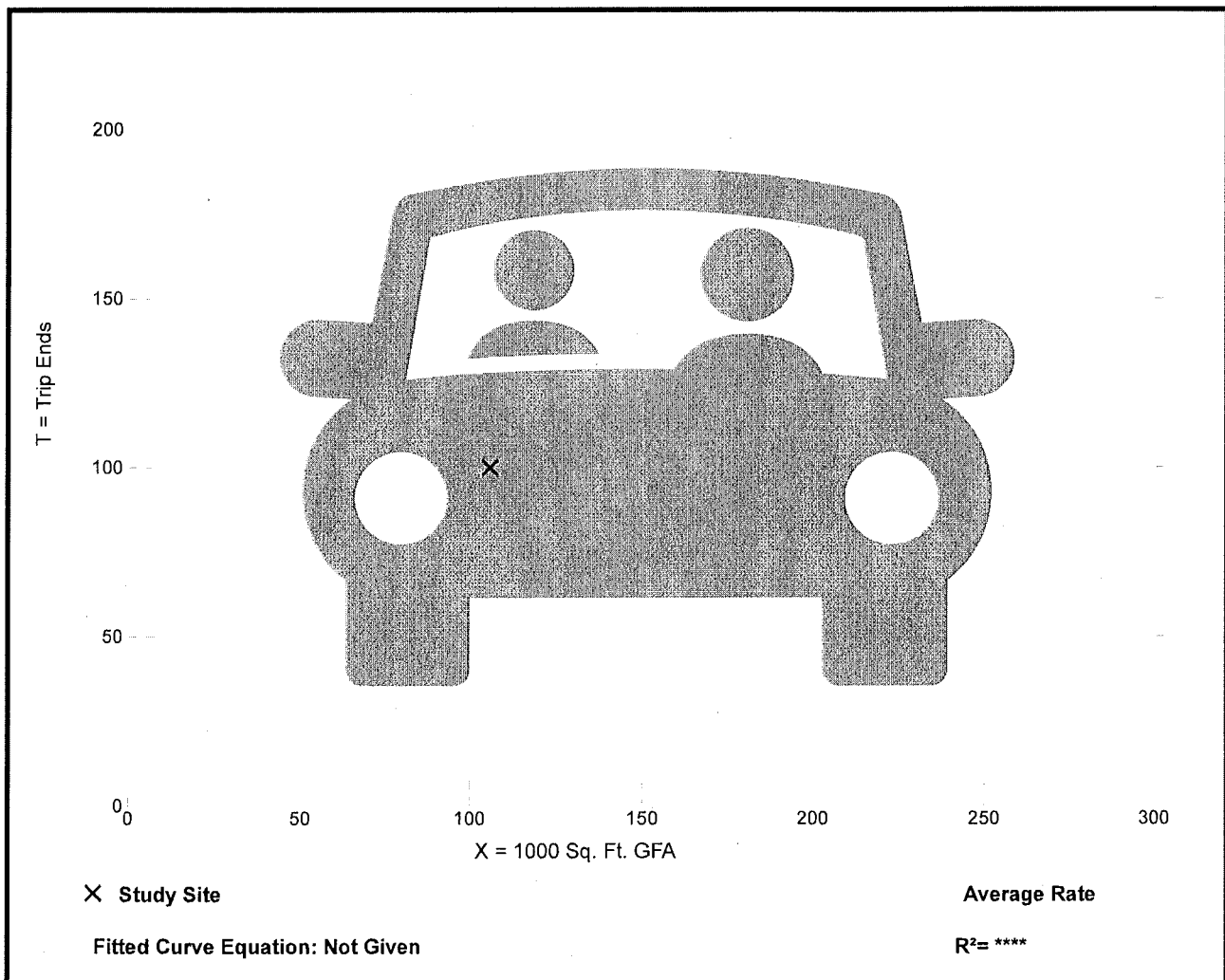
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 106
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.94	0.94 - 0.94	*

Data Plot and Equation

Caution – Small Sample Size



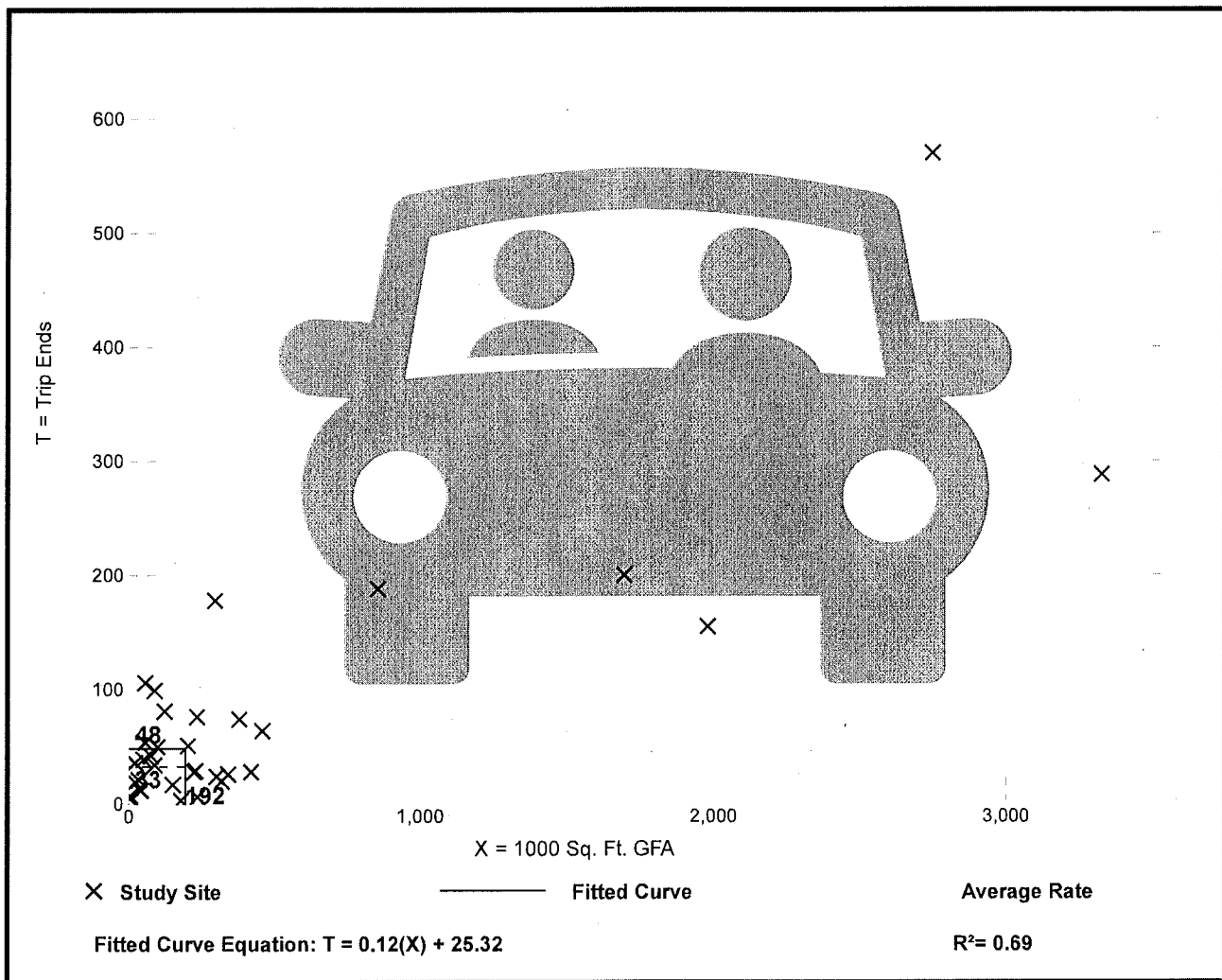
Warehousing (150)

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

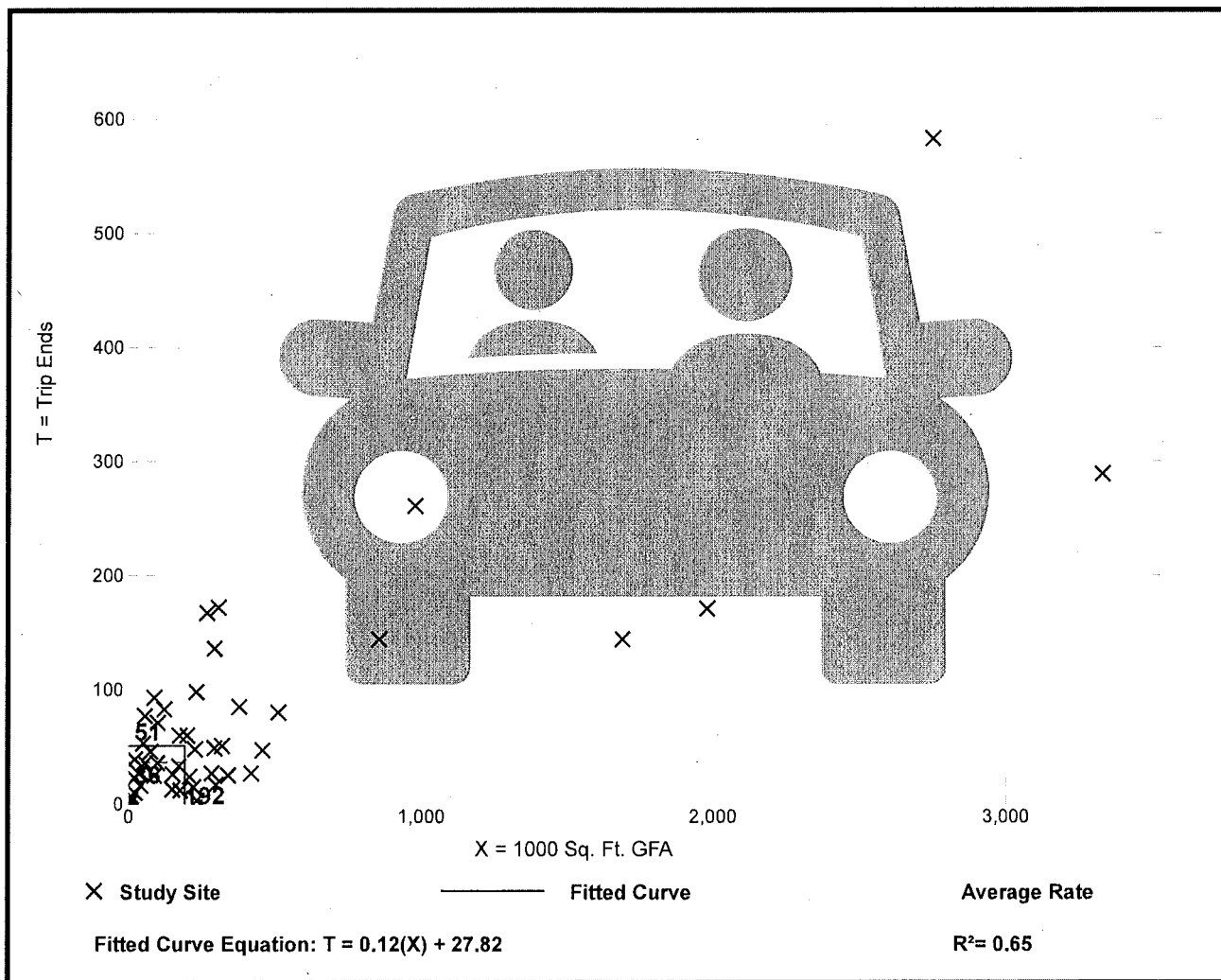
Avg. 1000 Sq. Ft. GFA: 400

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



Warehousing (150)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 129
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.05	0.01 - 0.22	*

Data Plot and Equation

Caution – Small Sample Size

