memo

Earth Design Engineering, LLC

To: Ben Song, Community Development Director

From: Nick Griffiths, P.E.

CC: Abid Khutliwala

Date: February 14, 2023

Re: Trip Generation

Trip Generation Summaries

This trip generation memorandum is based on information provided by the ITETripGen Web-based App, Trip Generation Manual, 11 th Edition. The ITE Code 937 (Coffee/Donut shop with drive thru) was used to obtain the data for the number of trips based on a 1,000 square foot building in a General Urban/Suburban location. The proposed building is 888 sq.ft., therefore, the trip rate was multiplied by 0.88 to generate the trip data for the site. Attached are the AM peak hour, PM peak hour, and the Weekday Vehicle Trip Generation graphs. A pass-by trip reduction percentage of 50% was applied to the values obtained from the ITETripGen Web-based App to calculate the Total Net New Project Trips. See the Tables below for the AM & PM peak hour values and the Daily Trip breakdown.

Project Trip Generation Summary

Project Trip Generation			AM Peak Hours			PM Peak Hours		
Description	ITE Code	Size (sq.ft.)	Total	In (50%)	Out (50%)	Total	In (50%)	Out (50%)
Coffee/Donut shop with drive thru	937	888	90	45	45	39	20	19
50% Reduction for Pass-by Trips*			45	22.5	22.5	19.5	10	9.5
Total Net New Project Trips			**45**	**23**	**23**	**20**	**10**	**10**

Project Trip Generation			Daily Trip Counts		
Description	ITE Code	Size (sq.ft.)	Total	In (50%)	Out (50%)
Coffee/Donut shop with drive thru	937	888	475	238	237
50% Reduction for Pass-by Trips*			237.5	119	118.5
Total Net New Project Trips			**238**	**119**	**119**

*50% reduction for pass-by trips is based on the pass-by reduction

Queuing Analysis

The peak traffic demand on the site will be during the AM hours. The AM Peak Hour trip generation summary shows that 45 cars may enter the site during a one-hour period between the hours of 7 AM and 9 AM. The site has been designed to provide a 29-car queue. The average order processing time for the drive thru window is 2 minutes, according to information provided by the franchisee. This means that 30 cars per hour can be serviced at the drive thru window, and as mentioned previously, the site has the capacity to queue 29 cars. The overall one-hour capacity for the site including the order processing time and the queue capacity is 59 cars. The overall one-hour capacity exceeds the proposed Peak Hour demand. The proposed site, as currently designed, has the capacity necessary to accommodate the peak hour demand without cars queuing off-site.

Coffee/Donut Shop with Drive-Through Window
(937)

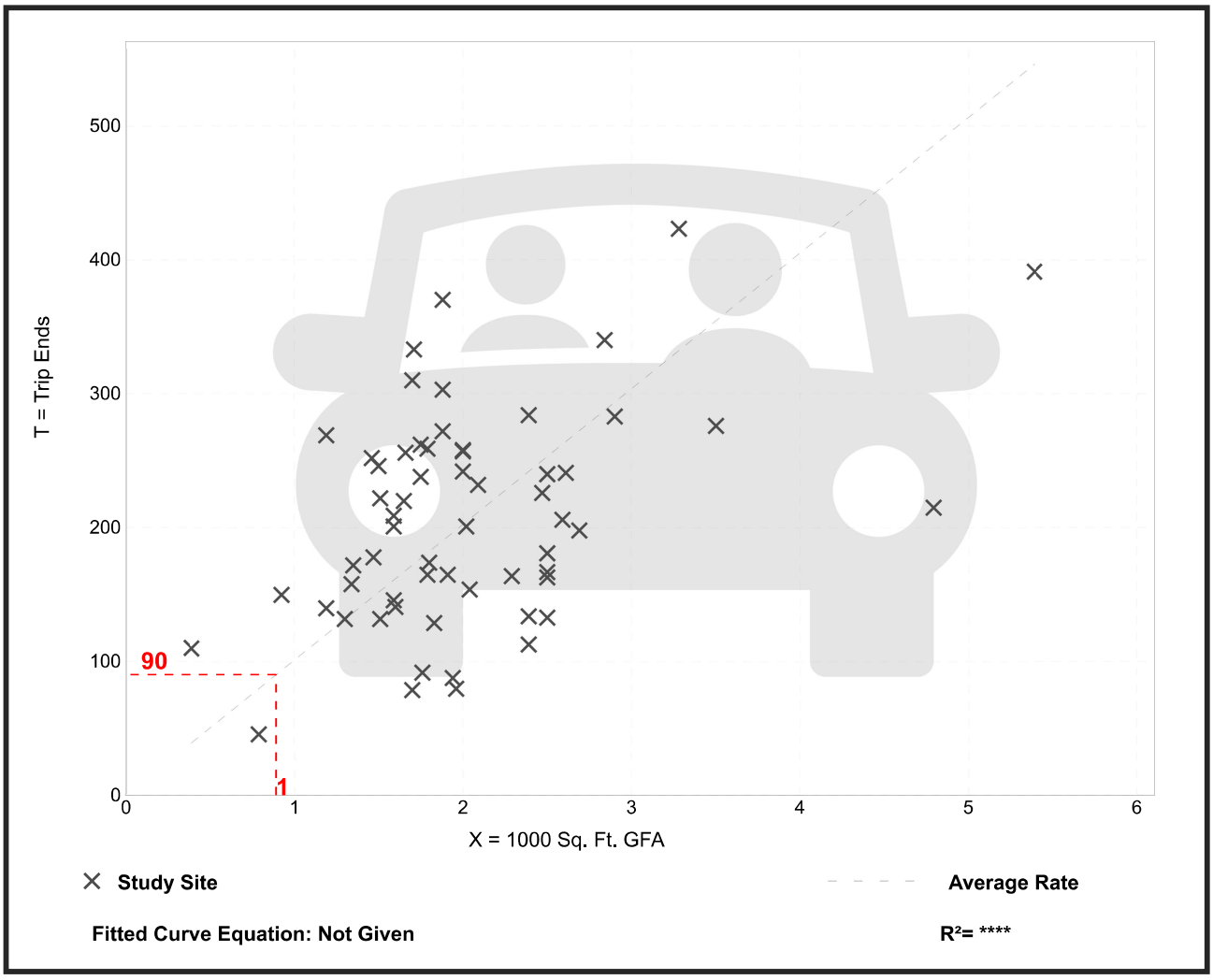
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 62
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
101.27	40.82 - 282.05	41.74

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window
(937)

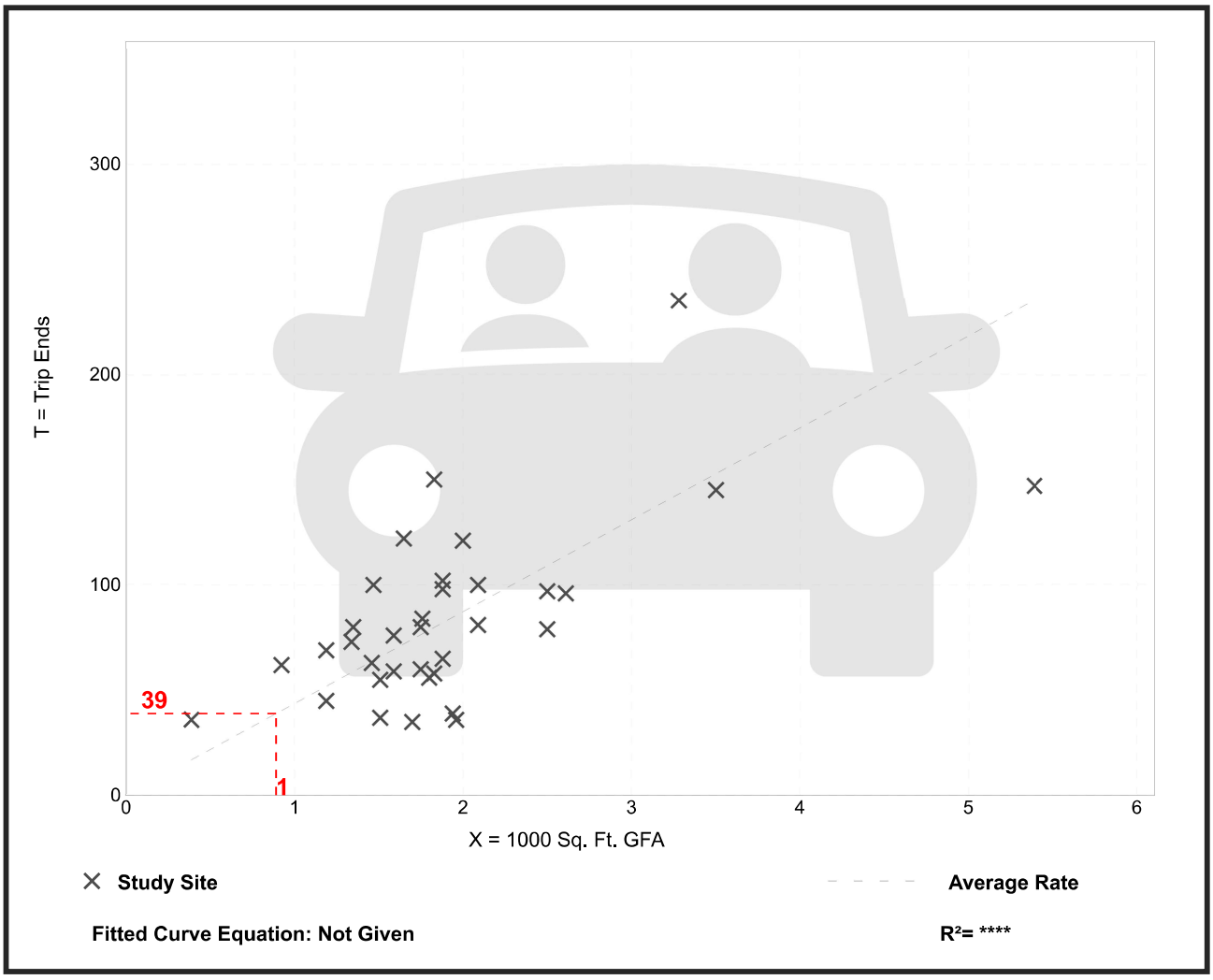
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 34
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.65	18.37 - 92.31	16.74

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window
(937)

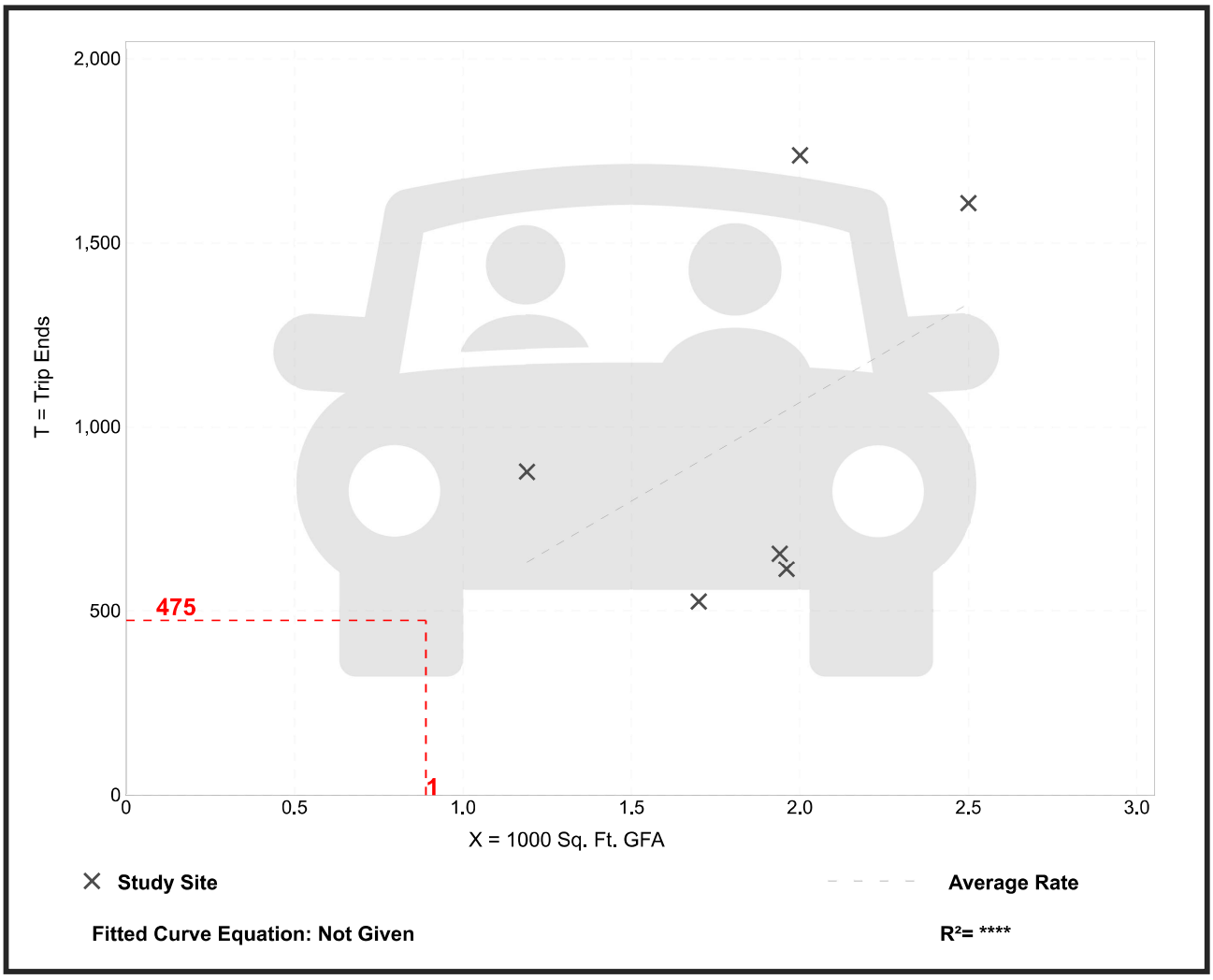
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
533.57	309.41 - 869.00	243.65

Data Plot and Equation



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