Dental Office - Carubia Properties

8035 Meridian Park Drive El Paso County, CO

Transportation Memorandum

File No. EA2497

Prepared for:

Carubia Properties 8035 Meridian Park Drive Falcon, CO 80831

Prepared by:



www.kellarengineering.com 970.219.1602 phone



January 16, 2025 Sean K. Kellar, PE, PTOE

This document, together with the concepts and recommendations presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization from Kellar Engineering LLC shall be without liability to Kellar Engineering LLC.



Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Jum Kelln	
	1/16/2025
Sean K. Kellar, P.E. #38560	Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

	1/16/2025
Carubia Properties	Date



1.0 Introduction

This project falls within the Transportation Memorandum level of study per El Paso County Engineering Criteria Manual (B.1.2) with daily vehicle trip-end generation less than 500, and peak hour trip generation less than 50. This Transportation Memorandum (Traffic Memo) is for the proposed dental office building (orthodontics and pediatric dentistry) located at 8035 Meridian Park Drive in El Paso County, CO. See Figure 1: Vicinity Map. The purpose of this Traffic Memo is to identify project traffic generation characteristics and to identify potential traffic related impacts on the adjacent street system.

Kellar Engineering LLC (KE) has prepared the Traffic Memo to document the results of anticipated traffic conditions in accordance with the governing jurisdiction's requirements. The proposed project is anticipated to generate approximately 272 daily weekday trips, 23 AM total peak hour trips, and 30 PM total peak hour trips.

2.0 Existing Conditions and Roadway Network

The project site is located at 8035 Meridian Park Drive at the southwest quadrant of Meridian Road and Bent Grass Meadows Drive. Bent Grass Meadows Drive an east-west roadway with: two through lanes, a continuous center left-turn lane, bike lanes, a detached sidewalk on the south side of the road, and a posted speed of 35 mph adjacent to the project site. Bent Grass Meadows Drive is classified as a minor collector in Figure 22 of the 2045 Major Transportation Corridors Plan (MTCP). Meridian Road is a north-south roadway with: four through lanes, a grass center median, paved shoulders, auxiliary turn lanes, and a posted speed of 55 mph. This stretch of Meridian Road is classified as a principal arterial in the 2045 MTCP. The intersection of Meridian Road and Bent Grass Meadows Drive is signalized with auxiliary left-turn and right-turn lanes. Meridian Park Drive is a north-south local roadway that provides access to the project site. Additionally, there is a planned future extension of Meridian Road south to the existing roundabout at Eastonville Road and Falcon Market Place.



Figure 1: Vicinity Map

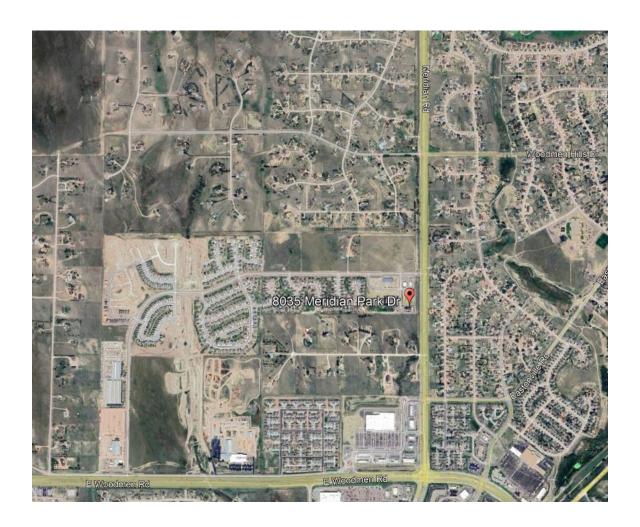
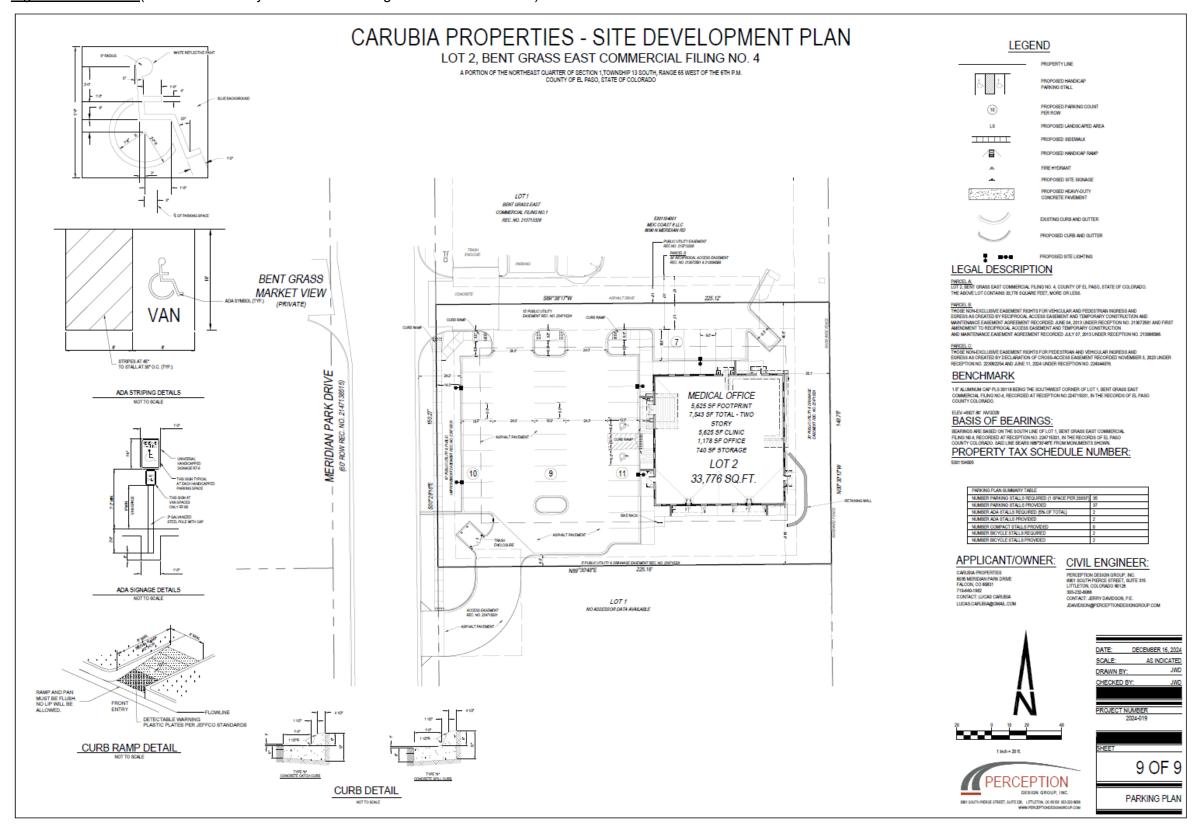


Figure 2: Site Plan (For reference only. See Civil Drawings for more information)



Dental Office Traffic Memo -Page 5



3.0 Proposed Development

The proposed project consists of a ~7,550 SF dental office building (orthodontics and pediatric dentistry) located at 8035 Meridian Park Drive in El Paso County, CO. See Table 1 and Figure 2.

3.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Report* published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. For this study, KE used the *ITE 11th Edition Trip Generation Report* average trip rates. The proposed project is anticipated to generate approximately 272 daily weekday trips, 23 AM peak hour total trips, and 30 PM peak hour total trips. Table 1 summarizes the estimated trip generation for the proposed development.

 Table 1: Trip Generation (ITE Trip Generation, 11th Edition)

ITE Code	Land Use		Average D	aily Trips		Al	M Pea	k Hour Tri	ps			PI	VI Pea	k Hour Tri	ps	
		Size	Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
720	Medical-Dental Office Building	7.55 KSF	36.00	272	3.10	79%	18	21%	5	23	3.93	30%	9	70%	21	30
	Total			272			18		5	23			9		21	30

KSF = Thousand Square Feet



3.2 Site Access

Access to the project site is from Meridian Park Drive, an existing internal local roadway, and not from a collector or arterial roadway. Site access points should be taken, when available, on the roadway of lower classification as proposed with the current project. The project's direct access to Bent Grass Meadows Drive will be from the existing Bent Grass Meadows Drive/Meridian Park Drive intersection. The intersection of Bent Grass Meadows Drive/Meridian Park Drive has left-turn and right-turn auxiliary lanes that are appropriate to provide safe access to the project site. There is also a full-movement intersection (Bent Grass Meadows Drive/Bent Grass Market Way) approximately 500' to the west that can provide indirect secondary access to Bent Grass Meadows Drive. The Bent Grass Meadows Drive/Bent Grass Market Way intersection has a continuous center left-turn lane that provides appropriate and safe left-turning ingress to the site. The existing roadway network is adequate to handle the project's traffic and the project's site access is safe and appropriate. See Figure 2: Site Plan.

4.0 Findings

This Transportation Memorandum (Traffic Memo) for the proposed project verifies that the project's traffic will not create a negative traffic impact upon the public streets near or adjacent to the project site.

The findings of the Traffic Memo are summarized below:

- The proposed project is anticipated to generate approximately 272 daily weekday trips,
 23 AM peak hour total trips, and 30 PM peak hour total trips.
- The existing roadway network is sufficient to handle the project's traffic.
- The existing pedestrian and bicycle facilities adjacent to the property are adequate to accommodate the project's pedestrian and bicycle traffic.
- The project's trip generation and site access are appropriate and will not create a negative traffic impact upon the adjacent roadway network.



APPENDIX:





Aerial Image

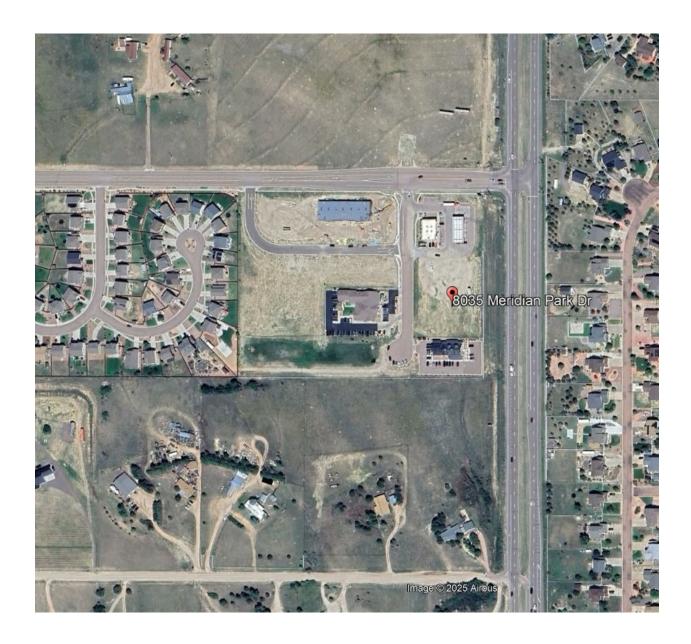
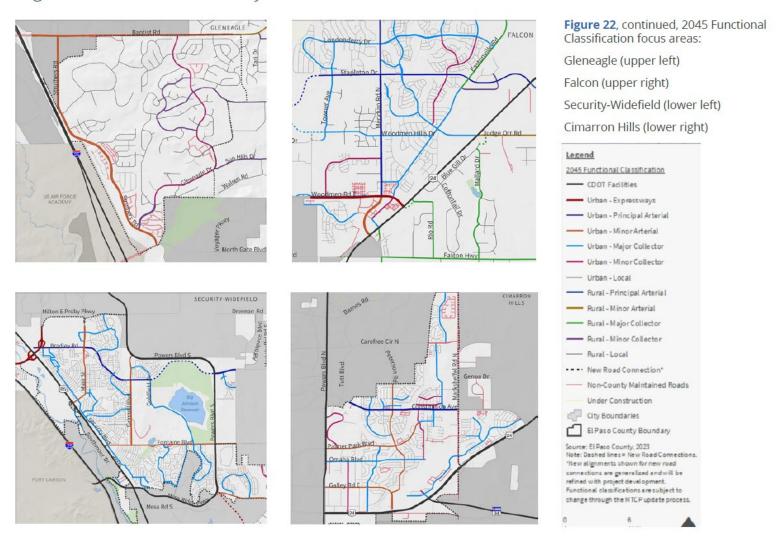








Figure 22. 2045 Roadway Functional Classifications (continued)



Land Use: 720 **Medical-Dental Office Building**

Description

A medical-dental office building is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility. General office building (Land Use 710) and clinic (Land Use 630) are related uses.

Land Use Subcategory

Analysis of medical-dental office building data found that trip generation rates are measurably different for sites located within or adjacent to a hospital campus and sites that are stand-alone. Data plots are presented for these two land use subcategories.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/tripand-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Virginia, Washington, and Wisconsin.

Source Numbers

104, 109, 120, 157, 184, 209, 211, 253, 287, 294, 295, 304, 357, 384, 404, 407, 423, 444, 509, 601, 715, 867, 879, 901, 902, 908, 959, 972



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

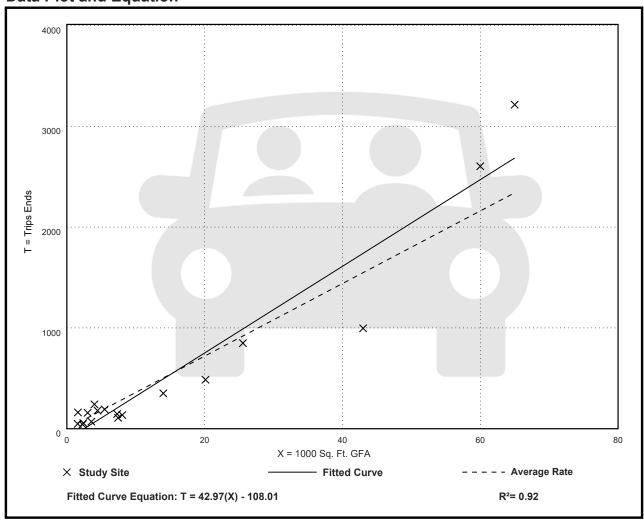
Setting/Location: General Urban/Suburban

Number of Studies: 18 Avg. 1000 Sq. Ft. GFA: 15

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
36.00	14.52 - 100.75	13.38





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.

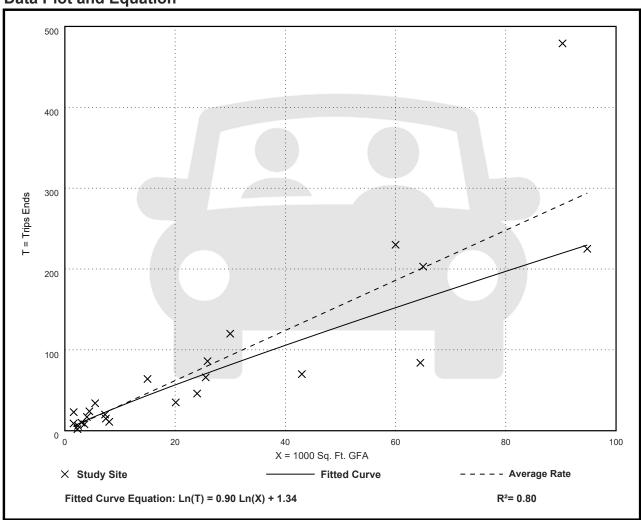
Setting/Location: General Urban/Suburban

Number of Studies: 24 Avg. 1000 Sq. Ft. GFA: 25

Directional Distribution: 79% entering, 21% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.10	0.87 - 14.30	1.49





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.

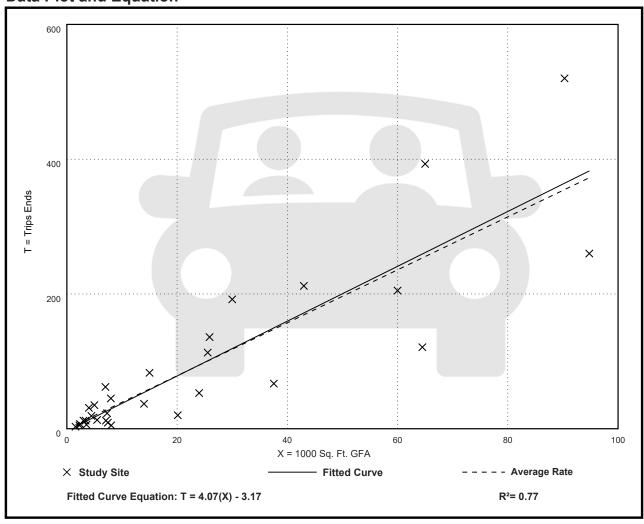
Setting/Location: General Urban/Suburban

Number of Studies: 30 Avg. 1000 Sq. Ft. GFA: 23

Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.62 - 8.86	1.86





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

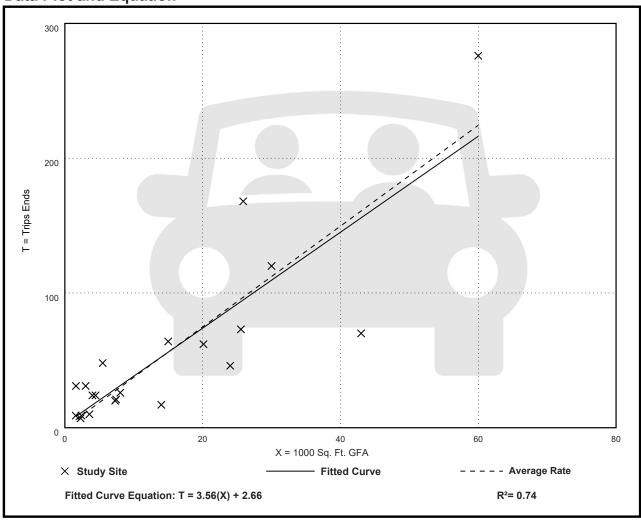
Setting/Location: General Urban/Suburban

Number of Studies: 21 Avg. 1000 Sq. Ft. GFA: 15

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.74	1.21 - 19.28	2.14





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

PM Peak Hour of Generator

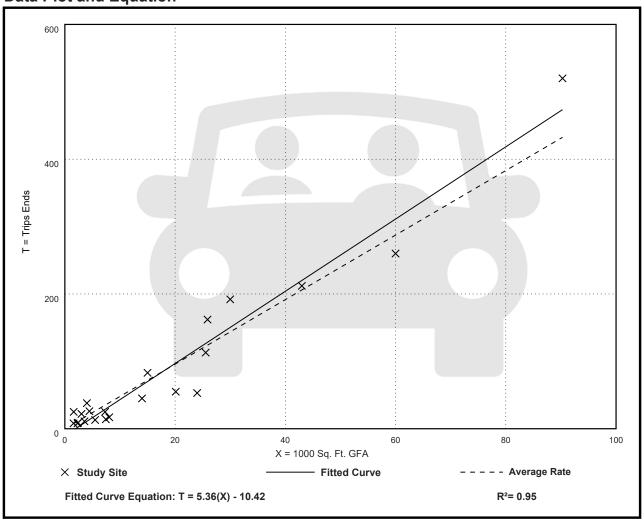
Setting/Location: General Urban/Suburban

Number of Studies: 22 Avg. 1000 Sq. Ft. GFA: 18

Directional Distribution: 40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.79	1.88 - 15.55	1.62





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

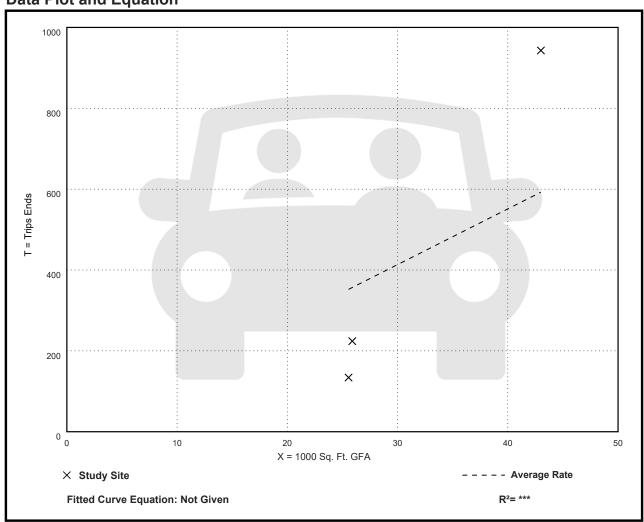
Setting/Location: General Urban/Suburban

Number of Studies: 3 Avg. 1000 Sq. Ft. GFA: 31

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
13.78	5.24 - 21.93	9.26





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: 34

Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.02	1.33 - 4.02	***

Data Plot and Equation Caution - Small Sample Size 200 × 100 × 10 40 X = 1000 Sq. Ft. GFA × Study Site - Average Rate R2= *** **Fitted Curve Equation: Not Given**



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

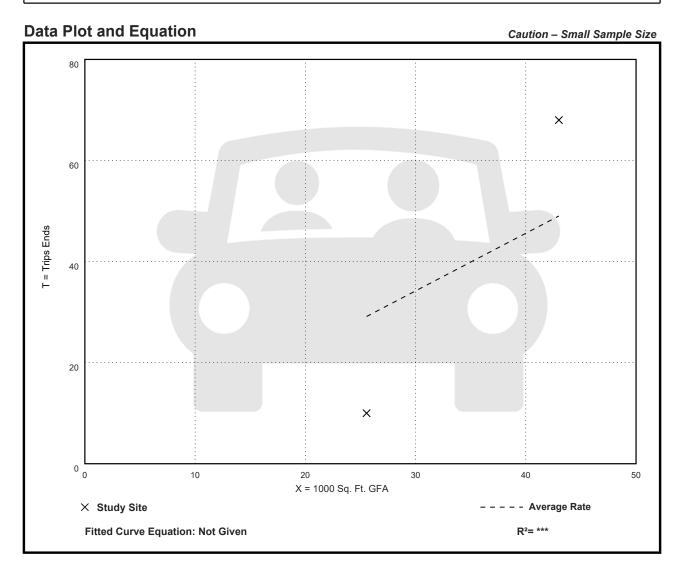
Setting/Location: General Urban/Suburban

Number of Studies: 2 Avg. 1000 Sq. Ft. GFA: 34

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.14	0.39 - 1.58	***



Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Sunday, Peak Hour of Generator

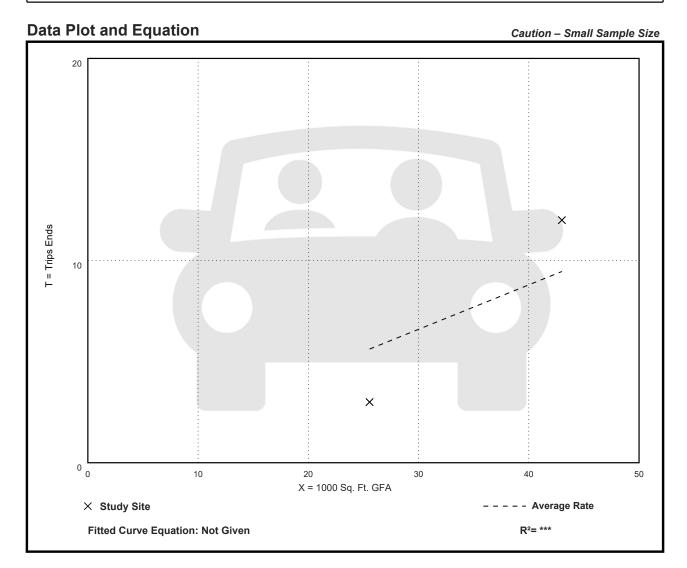
Setting/Location: General Urban/Suburban

Number of Studies: 2 Avg. 1000 Sq. Ft. GFA: 34

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.22	0.12 - 0.28	***





Vehicle Trip Ends vs: Employees
On a: Weekday

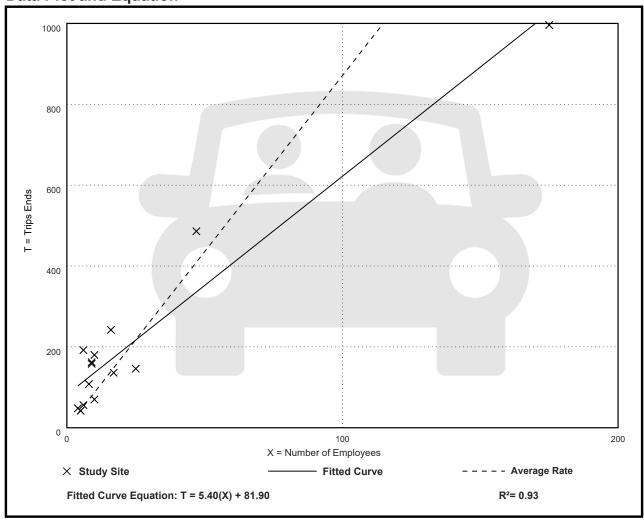
Setting/Location: General Urban/Suburban

Number of Studies: 14 Avg. Num. of Employees: 25

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
8.71	5.69 - 32.00	5.12





Vehicle Trip Ends vs: Employees

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

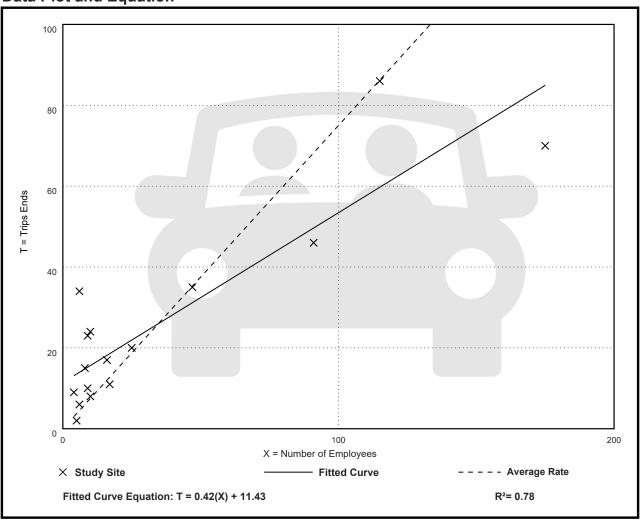
Setting/Location: General Urban/Suburban

Number of Studies: 16 Avg. Num. of Employees: 35

Directional Distribution: 74% entering, 26% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.75	0.40 - 5.67	0.70





Vehicle Trip Ends vs: Employees

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

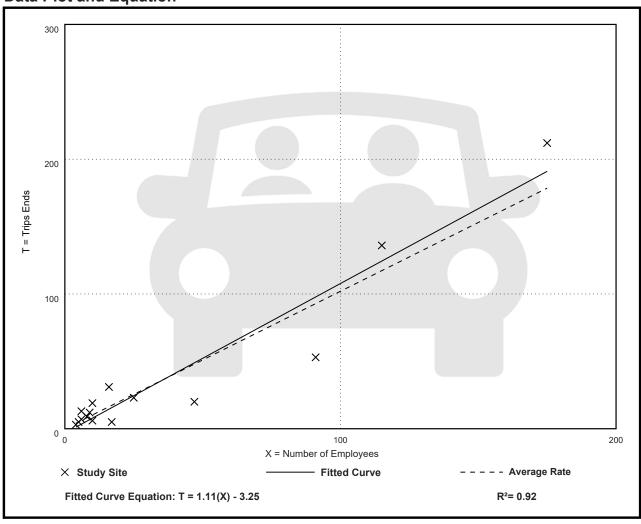
Setting/Location: General Urban/Suburban

Number of Studies: 15 Avg. Num. of Employees: 36

Directional Distribution: 37% entering, 63% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
1.02	0.29 - 2.17	0.41





Vehicle Trip Ends vs: Employees On a: Weekday, **AM Peak Hour of Generator**

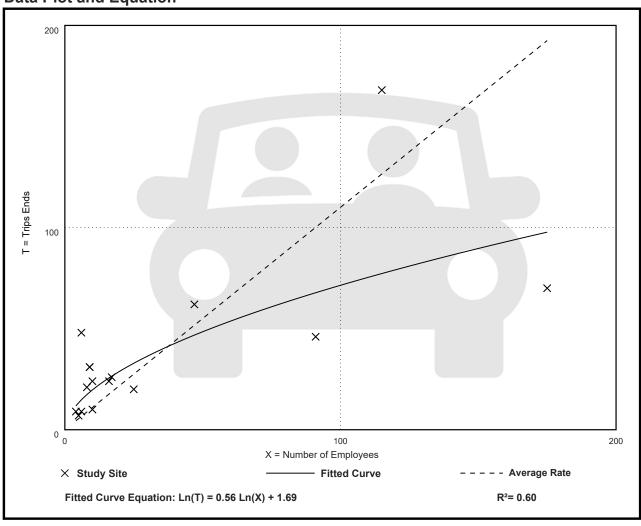
Setting/Location: General Urban/Suburban

Number of Studies: 16 Avg. Num. of Employees: 35

Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
1.10	0.40 - 8.00	1.05





Vehicle Trip Ends vs: Employees
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 16 Avg. Num. of Employees: 35

Directional Distribution: 44% entering, 56% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
1.26	0.58 - 2.78	0.50





Vehicle Trip Ends vs: Employees On a: Saturday

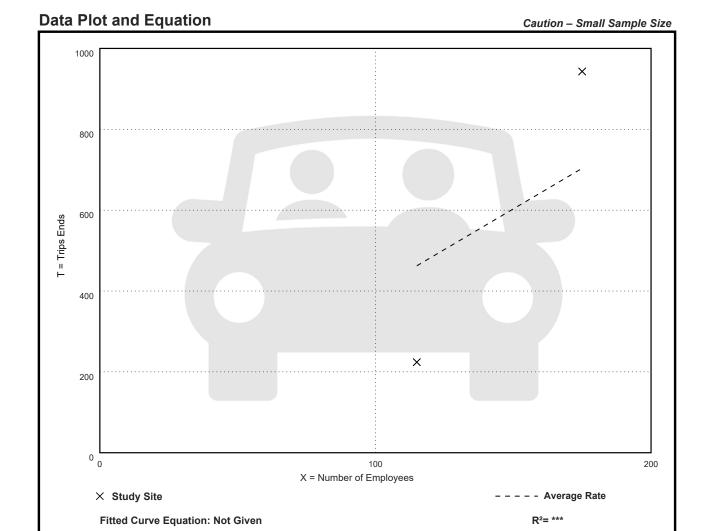
Setting/Location: General Urban/Suburban

Number of Studies: 2 Avg. Num. of Employees: 145

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
4.02	1.95 - 5.39	***





Vehicle Trip Ends vs: Employees

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

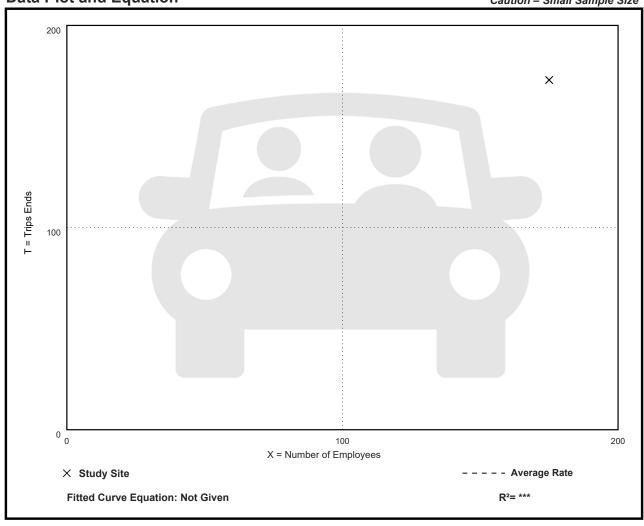
Number of Studies: 1 Avg. Num. of Employees: 175

Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.99	0.99 - 0.99	***







Vehicle Trip Ends vs: Employees On a: Sunday

Setting/Location: General Urban/Suburban

Number of Studies: 1 Avg. Num. of Employees: 175

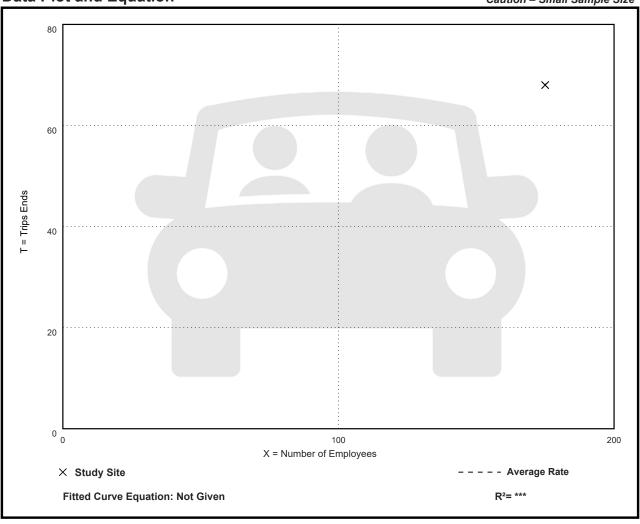
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.39	0.39 - 0.39	***

Data Plot and Equation

Caution - Small Sample Size





Vehicle Trip Ends vs: Employees

On a: Sunday, Peak Hour of Generator

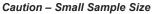
Setting/Location: General Urban/Suburban

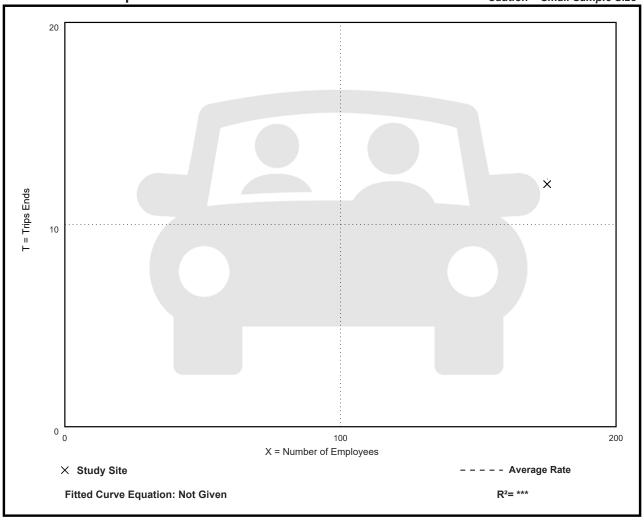
Number of Studies: 1
Avg. Num. of Employees: 175

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.07	0.07 - 0.07	***







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

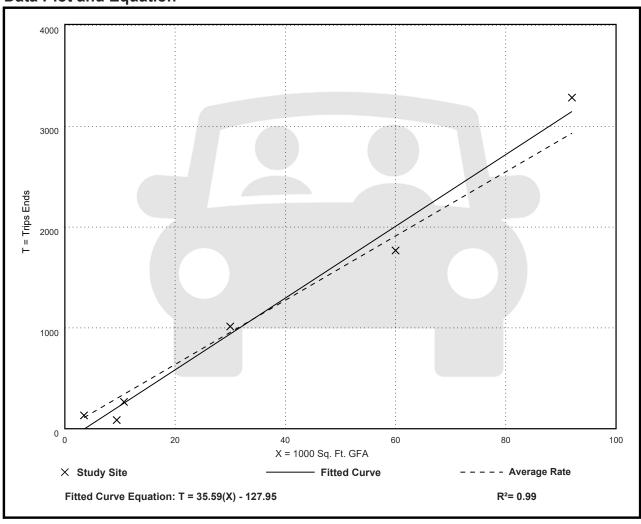
Setting/Location: General Urban/Suburban

Number of Studies: 6 Avg. 1000 Sq. Ft. GFA: 34

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
31.86	9.14 - 37.99	6.54





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.

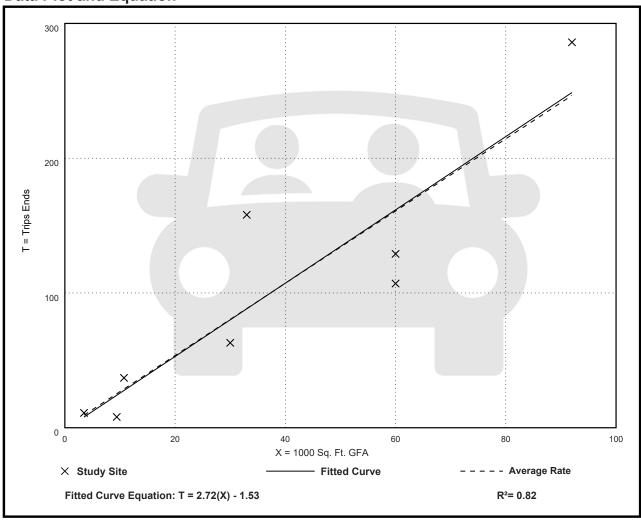
Setting/Location: General Urban/Suburban

Number of Studies: 8 Avg. 1000 Sq. Ft. GFA: 37

Directional Distribution: 81% entering, 19% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.68	0.85 - 4.79	1.03





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.

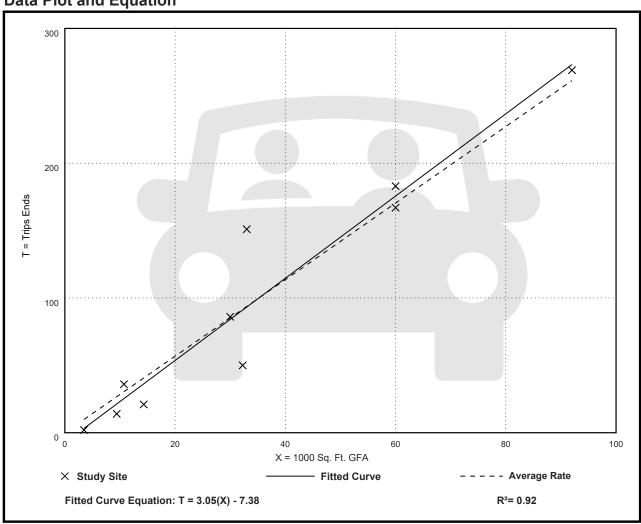
Setting/Location: General Urban/Suburban

Number of Studies: 10 Avg. 1000 Sq. Ft. GFA: 35

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.84	0.58 - 4.58	0.84





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

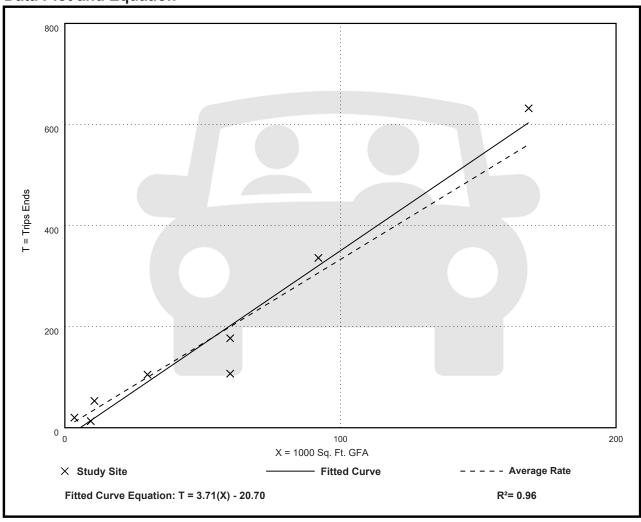
Setting/Location: General Urban/Suburban

Number of Studies: 8 Avg. 1000 Sq. Ft. GFA: 54

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rat	e Range of Rates	Standard Deviation
3.33	1.38 - 5.76	0.85





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

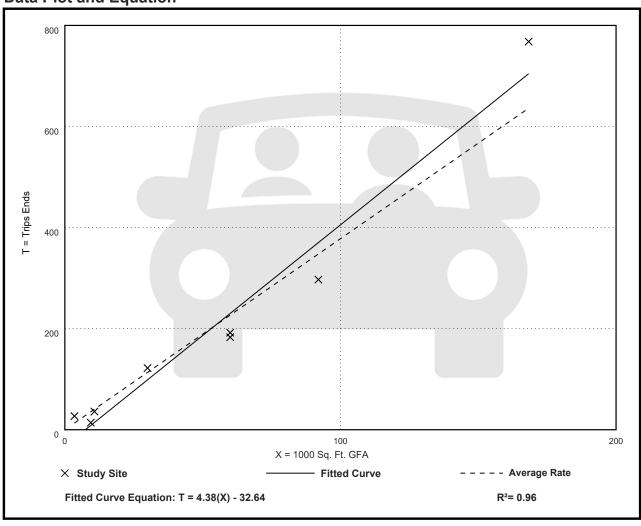
Setting/Location: General Urban/Suburban

Number of Studies: 8 Avg. 1000 Sq. Ft. GFA: 54

Directional Distribution: 39% entering, 61% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.78	1.49 - 7.77	0.88





Vehicle Trip Ends vs: Employees
On a: Weekday

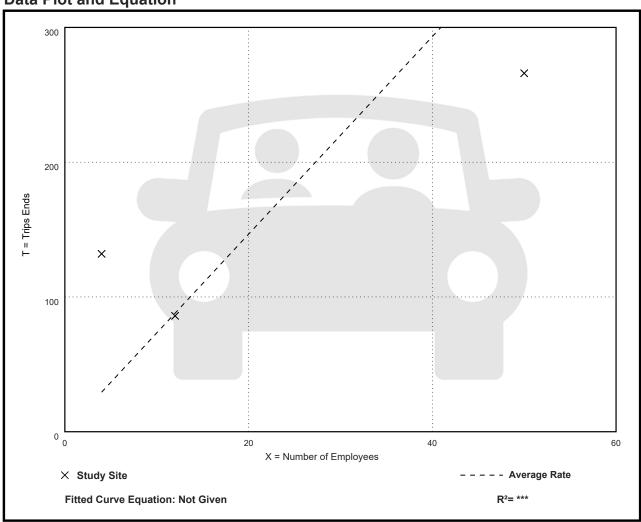
Setting/Location: General Urban/Suburban

Number of Studies: 3
Avg. Num. of Employees: 22

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Employee

	Average Rate	Range of Rates	Standard Deviation
ſ	7.33	5.32 - 33.00	8.03





Vehicle Trip Ends vs: Employees

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

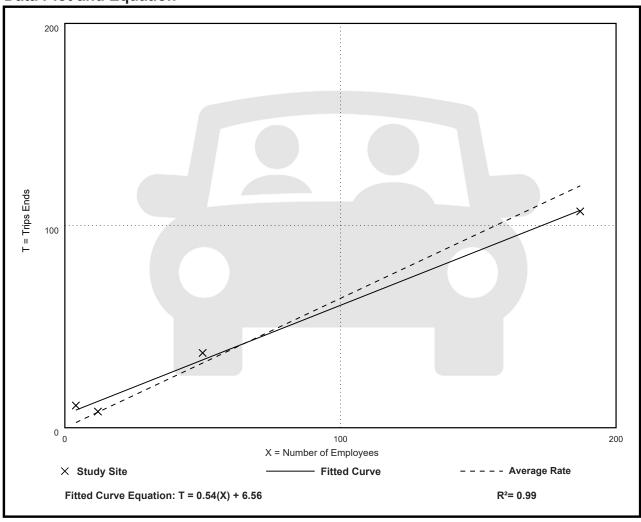
Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. Num. of Employees: 63

Directional Distribution: 83% entering, 17% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.64	0.57 - 2.75	0.32





Vehicle Trip Ends vs: Employees

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

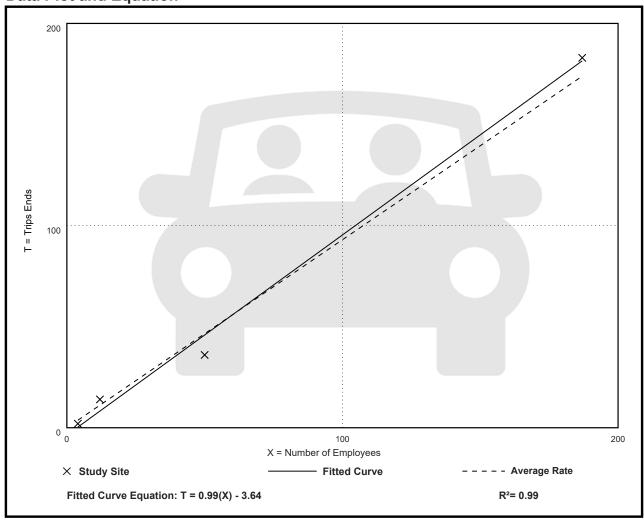
Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. Num. of Employees: 63

Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.93	0.50 - 1.17	0.15





Vehicle Trip Ends vs: Employees On a: Weekday, **AM Peak Hour of Generator**

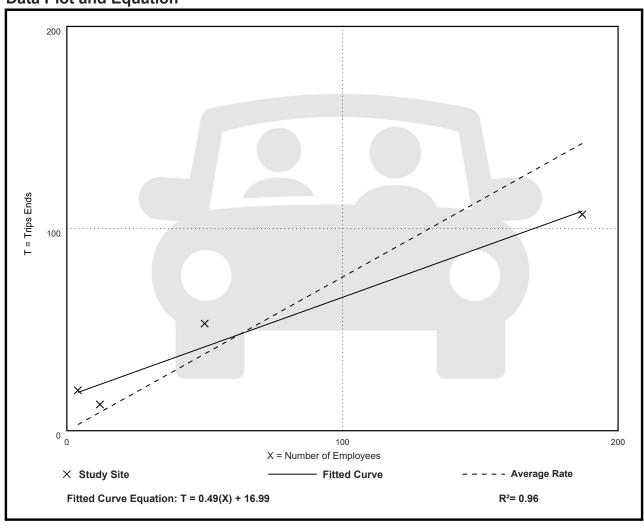
Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. Num. of Employees: 63

Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.76	0.57 - 5.00	0.67





Vehicle Trip Ends vs: Employees
On a: Weekday,
PM Peak Hour of Generator

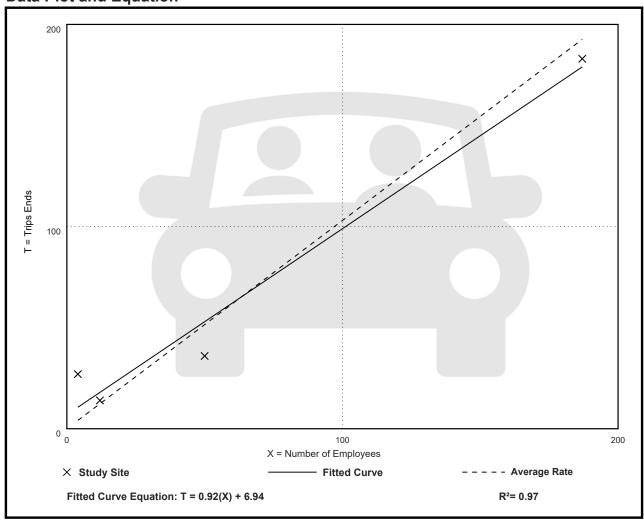
Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. Num. of Employees: 63

Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
1.03	0.72 - 6.75	0.85







Sean Kellar, PE, PTOE

Principal Engineer

Education

B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration

Colorado, Professional Engineer (PE) Wyoming, Professional Engineer (PE) Idaho, Professional Engineer (PE) Arizona, Professional Engineer (PE) Kansas, Professional Engineer (PE) Missouri, Professional Engineer (PE) Professional Traffic Operations Engineer (PTOE)

Professional Memberships

Institute of Transportation Engineers (ITE)

Industry Tenure

25 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal



warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004