



TMS Engineers, Inc.

Transportation Management Services

2112 Case Parkway South, #7 • Twinsburg, Ohio 44087

www.TMSEngineers.com

September 15, 2025

Ms. Elizabeth Swearingen
Peninsula Architects
1775 Main Street
Peninsula, Ohio 44264

**Re: Proposed Dental Office Expansion
Hudson, Ohio
Trip Generation Analysis**

Dear Ms. Swearingen:

TMS Engineers, Inc. has performed the following trip generation analysis for a proposed expansion to the existing Village Dental building. Village Dental is located at 41 E Main Street in the city of Hudson. (See **Location Map, Figure 1**).

The purpose of the trip generation analyses is to estimate the traffic that will be generated by the Village Dental expansion. The site plan can be seen in **Figure 2**. The following are the results of our trip generation analysis.

SITE GENERATED TRAFFIC

Calculating future total driveway trips requires an estimate of the traffic generated by the proposed development. The most widely accepted method of determining the amount of traffic that the proposed development will generate is to compare the proposed land use with existing facilities of the same use. The Institute of Transportation Engineers (ITE) has prepared a document titled "**Trip Generation Manual**", which is a compilation of similar traffic generation studies to aide in making such a comparison. The most recent update of this manual is the 12TH edition and was utilized for this analysis.

The proposed development is expected to consist of the following land use:

- **Medical-Dental Office Building (LU #720)**

PROPOSED TRIP GENERATION CALCULATIONS

Trip generation calculations were performed utilizing data contained in the **Trip Generation Manual, 12TH Edition** and the methods outlined in the (ITE) **Trip Generation Handbook**. Based on the previously discussed trip generation analysis procedures, the table below shows the estimated site generated traffic during the AM and PM peak hours of the adjacent streets for the existing Village Dental building and the Village Dental building with the proposed expansion. The existing site generated traffic volumes were subtracted from the proposed site generated traffic to arrive at the site generated traffic from the expansion. A copy of the trip generation worksheets can be seen in **Appendix A**.

NEW TRIP GENERATION

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Gross Floor Area (SF)	Weekday AM Peak Hour of Adjacent Streets (Enter/Exit)		Weekday PM Peak Hour of Adjacent Streets (Enter/Exit)	
720	Medical-Dental Office Building (Proposed)	4,582	12	3	3	8
	Medical-Dental Office Building (Existing)	3,485	-9	-3	-2	-5
TOTAL NEW TRIPS			3	0	1	3
			3		4	

CONCLUSIONS

The previous table shows that the proposed Village Dental expansion is expected to generate a total of 3 trips in the AM peak hour and 4 trips in the PM peak hour. It is our opinion that, when the anticipated changes in traffic volumes are at these levels, the traffic generated the proposed Village Dental expansion should not have an impact on the surrounding street network system.

This opinion is based upon the fact that traffic impact studies are recommended to be performed by the **Institute of Transportation Engineers** whenever an increase in trips in any peak hour is greater than 100 trips per hour. This recommendation is made because this is the point where a change in roadway capacity may be found and mitigation may or may not be needed. The anticipated generated volumes from the proposed Village Dental expansion is less than daily variations in the current volumes on the local roadway network and should not be perceived by the traveling public.

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The Ohio Department of Transportation concedes that traffic studies are only necessary when the resulting trip increase is more than 60 trips in either of the peak hours. This is stated in their **State Highway Access Management Manual**. Since the proposed Village Dental expansion is expected to generate less than 60 trips, it is our professional opinion that the change in the amount of generated traffic will **not** have an impact on the surrounding roadway network nor require a traffic analyses.

If you have any questions or need additional information, please do not hesitate to contact me.

Very truly yours,

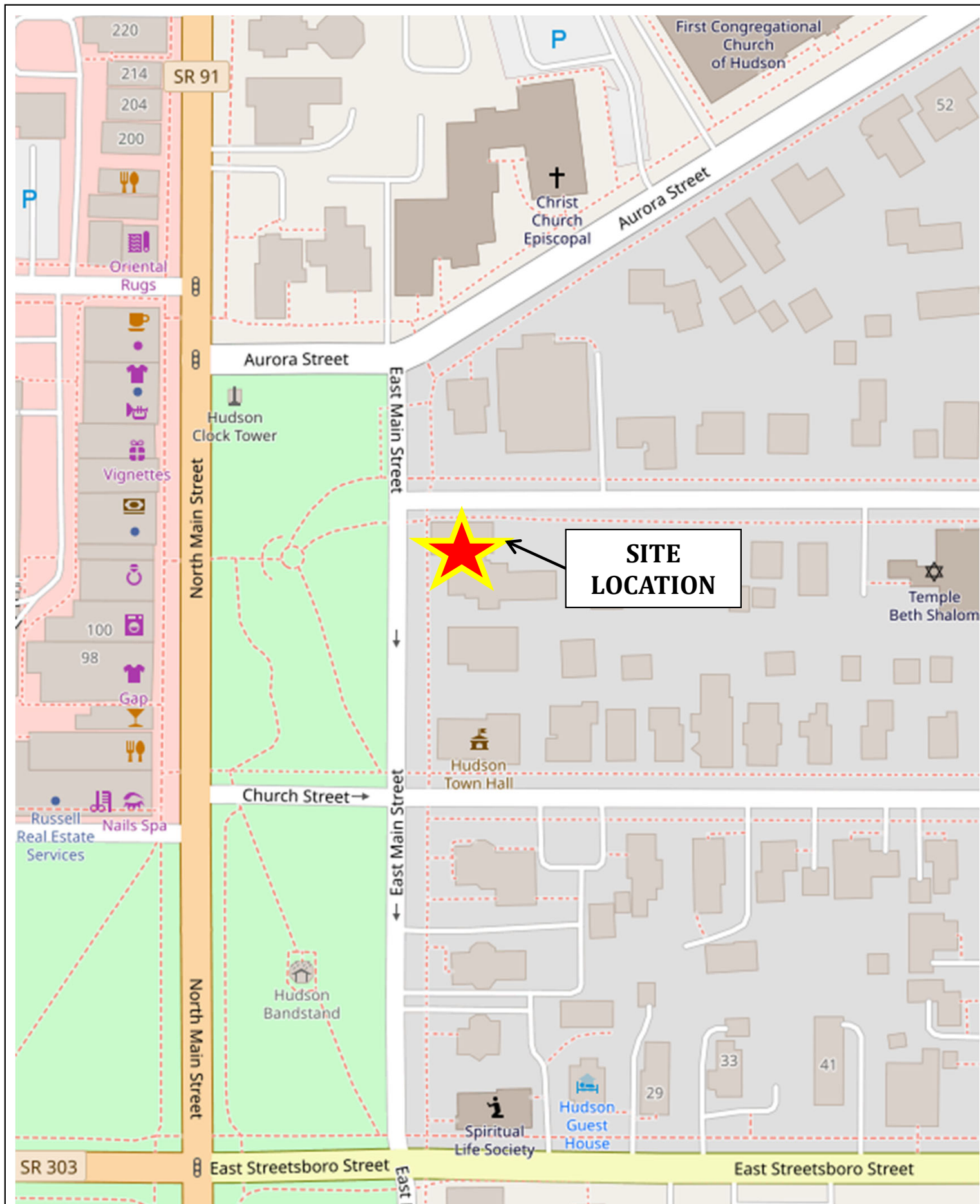
TMS Engineers, Inc.



Michael W. Schweickart, P.E., PTOE
President


9/15/25

Appendix A
Trip Generation Worksheets



TMS Engineers, Inc.

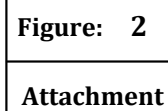
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**Village Dental
Hudson, Ohio
Trip Generation Analysis**

Location Map

**↑
NORTH
NOT TO
SCALE**

**Figure: 1
Attachment**



Medical-Dental Office Building – ITE CODE #720

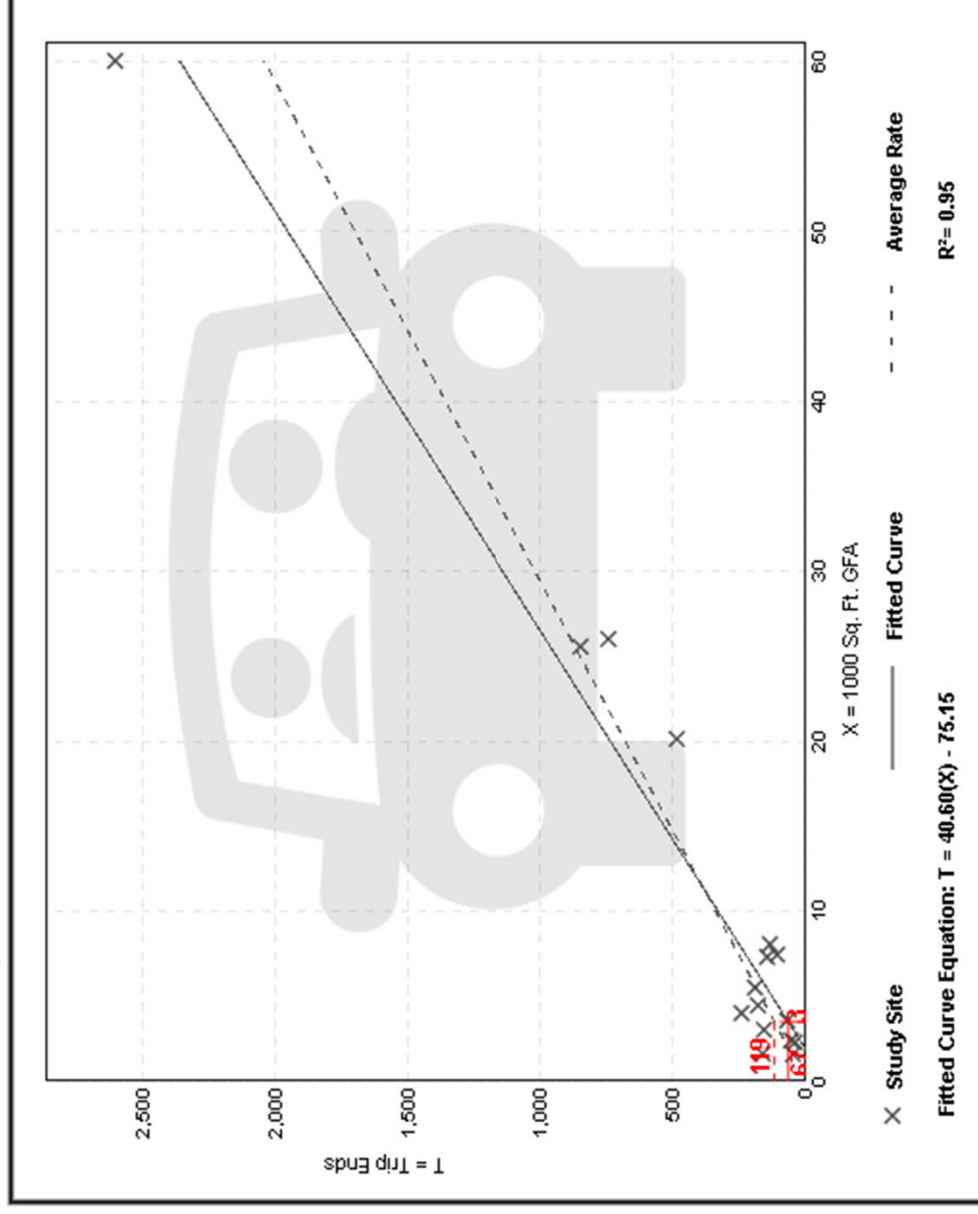
Size: **3,485 SF**

WEEKDAY

Weekday

DATA STATISTICS	
Land Use:	Medical-Dental Office Building - Stand-Alone (720)
Click for Description and Data Plots	
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	16
Avg. 1000 Sq. Ft. GFA:	11
Average Rate:	34.03
Range of Rates:	14.52 - 100.75
Standard Deviation:	12.64
Fitted Curve Equation:	$T = 40.60(X) - 75.15$
R²:	0.95
Directional Distribution:	50% entering, 50% exiting
Calculated Trip Ends:	Average Rate: 119 (Total), 59 (Entry), 60 (Exit) Fitted Curve: 67 (Total), 33 (Entry), 34 (Exit)

Data Plot and Equation



Trip Gen Manual, 12th Edition

• Institute of Transportation Engineers

Date: **09/15/2025**

Medical-Dental Office Building – ITE CODE #720

Size: **3,485 SF**

WEEKDAY

Peak Hour of Adjacent Street Traffic: 7-9 AM

DATA STATISTICS

Land Use:

Medical-Dental Office Building - Stand-Alone (720)

[Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic

One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

20

Avg. 1000 Sq. Ft. GFA:

23

Average Rate:

3.21

Range of Rates:

0.87 - 14.30

Standard Deviation:

1.61

Fitted Curve Equation:

$\ln(T) = 0.90 \ln(X) + 1.33$

R^2

0.80

Directional Distribution:

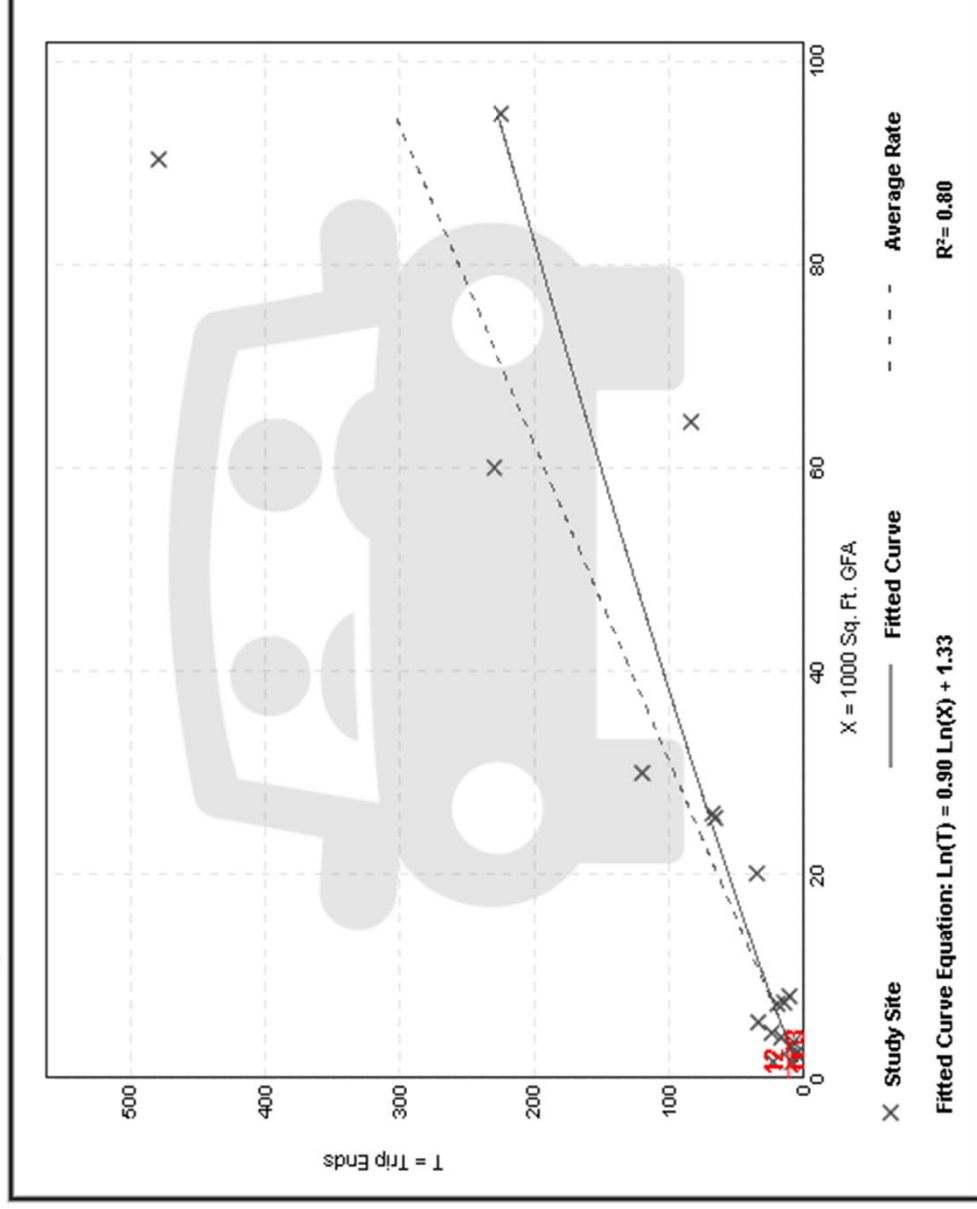
78% entering, 22% exiting

Calculated Trip Ends:

Average Rate: 11 (Total), 9 (Entry), 2 (Exit)

Fitted Curve: 12 (Total), 9 (Entry), 3 (Exit)

Data Plot and Equation



Trip Gen Manual, 12th Edition

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Date: **09/15/2025**

Medical-Dental Office Building – ITE CODE #720

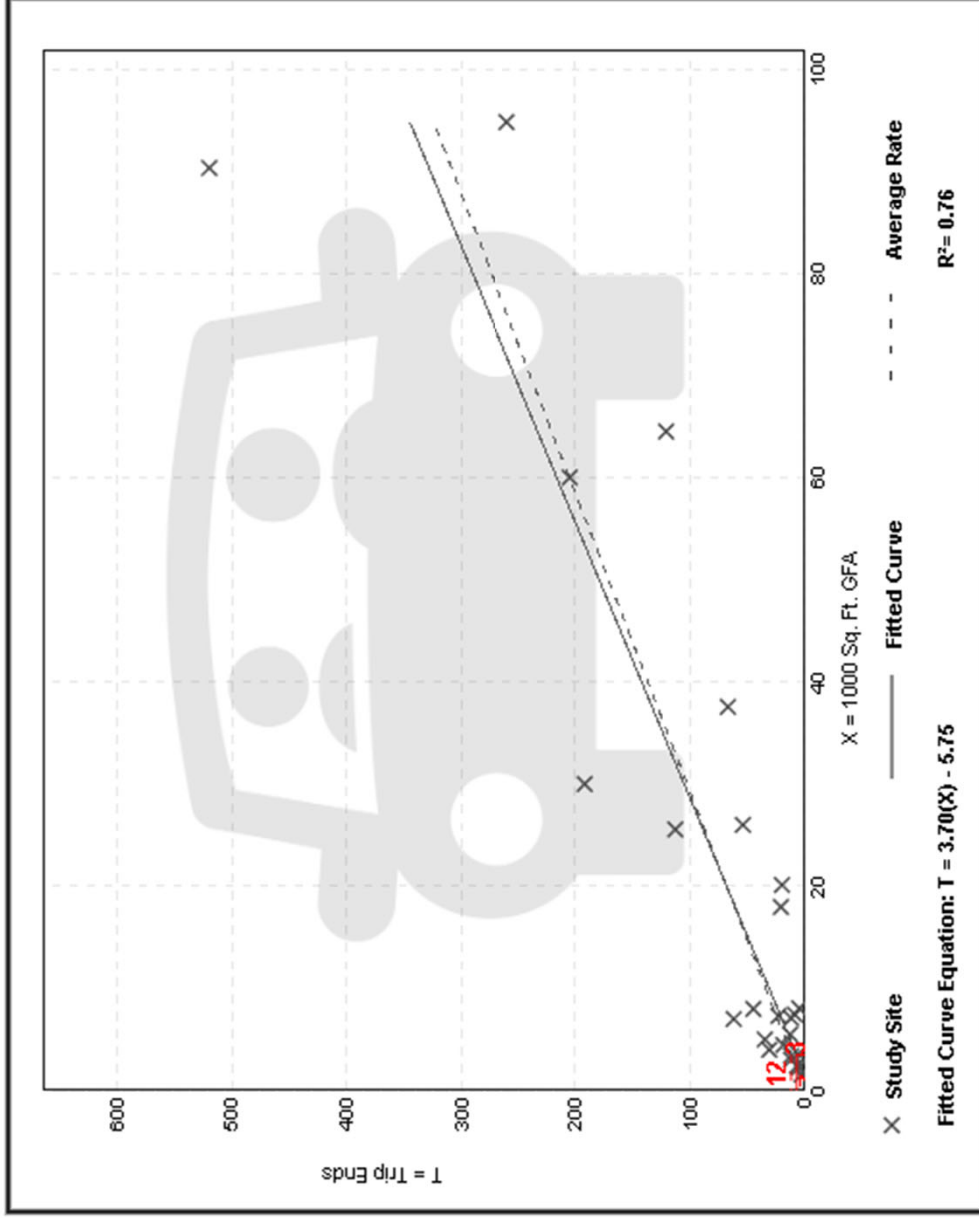
WEEKDAY

Size: 3,485 SF

Peak Hour of Adjacent Street Traffic: 4-6 PM

DATA STATISTICS	
Land Use:	Medical-Dental Office Building - Stand-Alone (720)
Click for Description and Data Plots	
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday
Peak Hour of Adjacent Street Traffic	
One Hour Between 4 and 6 p.m.	
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	26
Avg. 1000 Sq. Ft. GFA:	21
Average Rate:	3.42
Range of Rates:	0.62 - 8.86
Standard Deviation:	1.89
Fitted Curve Equation:	$T = 3.70(X) - 5.75$
R^2 :	0.76
Directional Distribution:	30% entering, 70% exiting
Calculated Trip Ends:	Average Rate: 12 (Total), 4 (Entry), 8 (Exit) Fitted Curve: 7 (Total), 2 (Entry), 5 (Exit)

Data Plot and Equation



Trip Gen. Manual, 12th Edition

• Institute of Transportation Engineers

Date: 09/15/2025

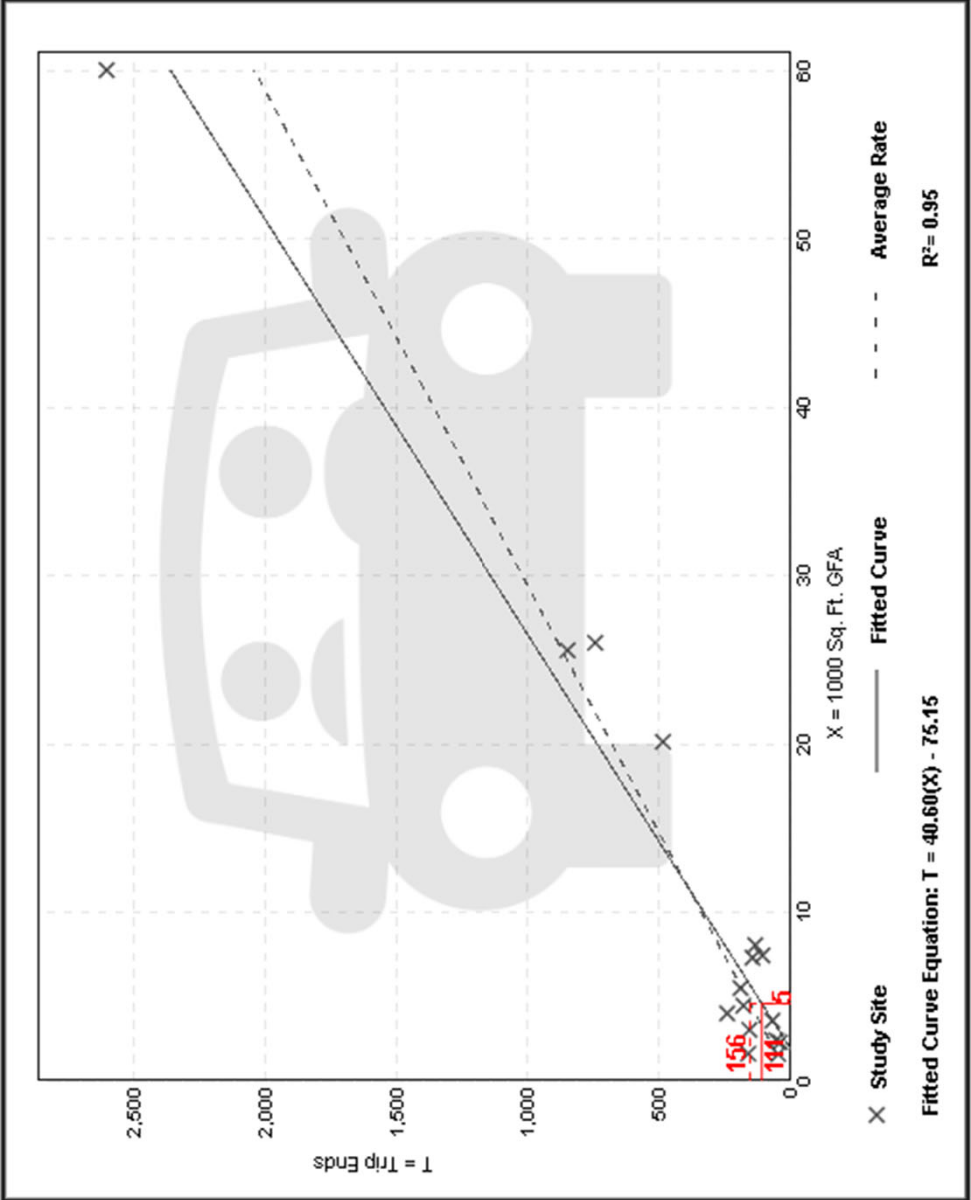
Medical-Dental Office Building – ITE CODE #720

WEEKDAY
Weekday

Size: 4,582 SF

DATA STATISTICS	
Land Use:	Medical-Dental Office Building - Stand-Alone (720)
Click for Description and Data Plots	
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	16
Avg. 1000 Sq. Ft. GFA:	11
Average Rate:	34.03
Range of Rates:	14.52 - 100.75
Standard Deviation:	12.64
Fitted Curve Equation:	$T = 40.60(X) - 75.15$
R²:	0.95
Directional Distribution:	50% entering, 50% exiting
Calculated Trip Ends:	Average Rate: 156 (Total), 78 (Entry), 78 (Exit) Fitted Curve: 111 (Total), 55 (Entry), 56 (Exit)

Data Plot and Equation



Medical-Dental Office Building – ITE CODE #720

Size: 4,582 SF

WEEKDAY

Peak Hour of Adjacent Street Traffic: 7-9 AM

DATA STATISTICS

Land Use:
Medical-Dental Office Building - Stand-Alone (720)

[Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic

One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

20

Avg. 1000 Sq. Ft. GFA:

23

Average Rate:

3.21

Range of Rates:

0.87 - 14.30

Standard Deviation:

1.61

Fitted Curve Equation:

$\ln(T) = 0.90 \ln(X) + 1.33$

R²:

0.80

Directional Distribution:

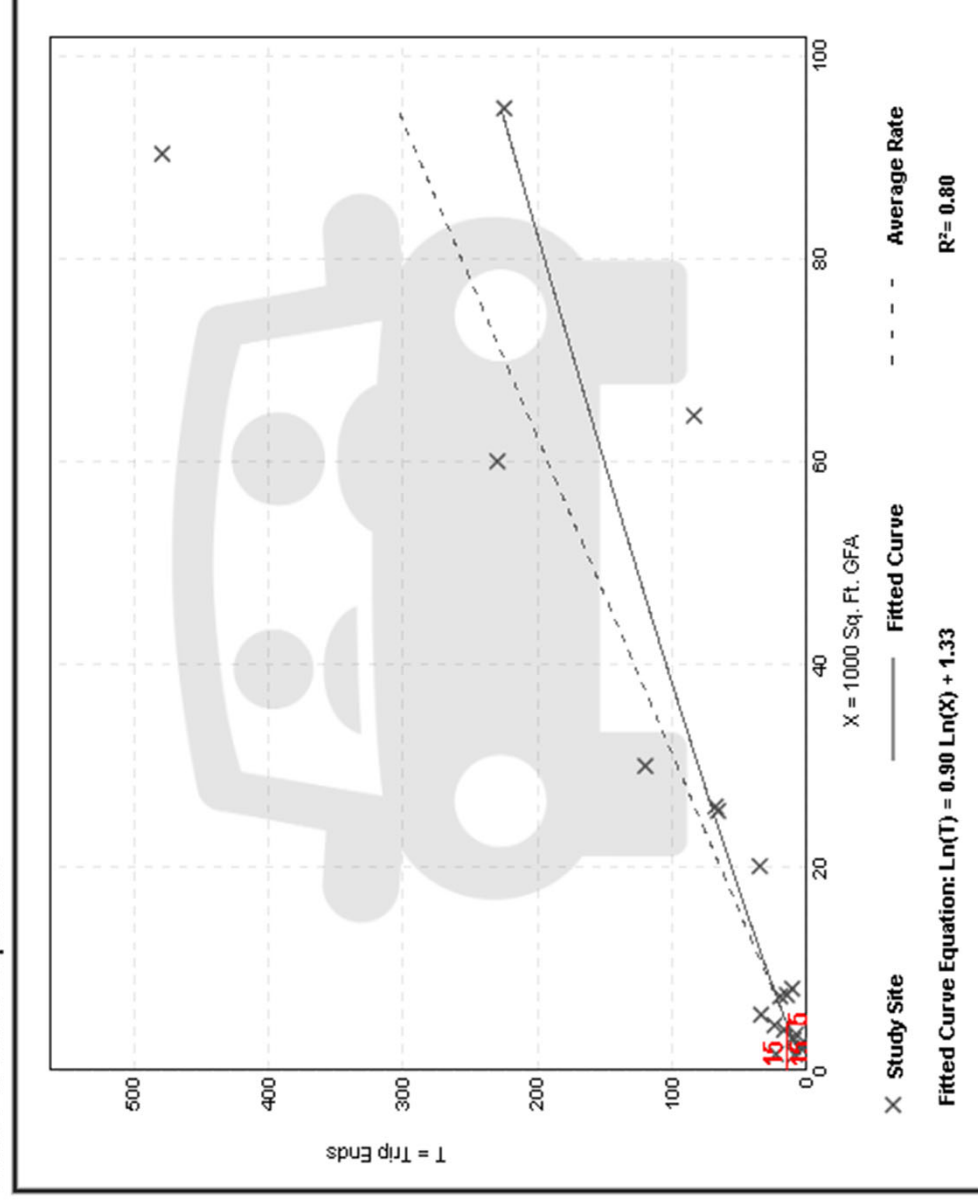
78% entering, 22% exiting

Calculated Trip Ends:

Average Rate: 15 (Total), 11 (Entry), 4 (Exit)

Fitted Curve: 15 (Total), 12 (Entry), 3 (Exit)

Data Plot and Equation



Trip Gen Manual, 12th Edition

• Institute of Transportation Engineers

Date: 09/15/2025

Medical-Dental Office Building – ITE CODE #720

Size: **4,582 SF**

WEEKDAY

Peak Hour of Adjacent Street Traffic: 4-6 PM

DATA STATISTICS	
Land Use:	Medical-Dental Office Building - Stand-Alone (720)
Click for Description and Data Plots	
Independent Variable:	1000 Sq. Ft. GFA
Time Period:	Weekday
Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.	
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	26
Avg. 1000 Sq. Ft. GFA:	21
Average Rate:	3.42
Range of Rates:	0.62 - 8.86
Standard Deviation:	1.89
Fitted Curve Equation:	$T = 3.70(X) - 5.75$
R²:	0.76
Directional Distribution:	30% entering, 70% exiting
Calculated Trip Ends:	Average Rate: 16 (Total), 5 (Entry), 11 (Exit) Fitted Curve: 11 (Total), 3 (Entry), 8 (Exit)

Data Plot and Equation

