



TMS Engineers, Inc.

Transportation Management Services

2112 Case Parkway South, #7 • Twinsburg, Ohio 44087
www.TMSEngineers.com

June 3, 2026

Mr. Leon S. Sampat
LS Architects
22082 Lorain Road
Fairview Park, Ohio 44126

**Re: Proposed Dentist Office
Trip Generation Analysis
Hudson, Ohio**

TMS Engineers, Inc. has performed the following trip generation analysis for the proposed dentist office which is to be located at 1465 Norton Road in Hudson, Ohio (See **Location Map, Figure 1**). The purpose of the trip generation analyses is to estimate the additional traffic that will be generated by the dentist office. The site plan can be seen in **Figure 2**. The following are the results of our trip generation analysis.

Site Generated Traffic

The calculation of future traffic requires an estimate of traffic the development will generate after construction. The most widely accepted method of determining the amount of traffic that a proposed development will generate is to compare the proposed site with existing facilities of the same use. This estimate is typically expressed as a trip rate. 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 Institute of Transportation Engineers (ITE) provides a web-based application, *ITETripGen*, that will be used to calculate the expected future driveway trips using the data from the Trip Generation Manual. The *ITETripGen* web-based app can be accessed through a subscription at the following address:

<https://itetripgen.org/>

An independent variable is used in trip generation calculations, which consists of a physical, measurable and predictable characteristic that describes the study site. This has a direct relationship to the variation in the number of trips generated by the land use. The independent variable is gross floor area for Medical-Dentist Office Building ITE #720.

Proposed Trip Generation Calculations

The table below shows the estimated site generated traffic during the AM and PM peak hours of the adjacent streets for the proposed dentist office based on the previously discussed trip generation analysis procedures. Copies of the trip generation worksheets can be seen in **Appendix A**.

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-Dentist Office Building	5,000	13	3	4	9
TOTAL NEW TRIPS			16		13	

Conclusions

The previous table shows that the proposed dentist office is expected to generate a total of 16 trips in the AM peak hour and 13 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 by the dentist office 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 this development are less than daily variations in the current volumes on the local roadway network and should not be perceived by the traveling public.

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**. 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 since the proposed dentist office is expected to generate less than 60 trips.

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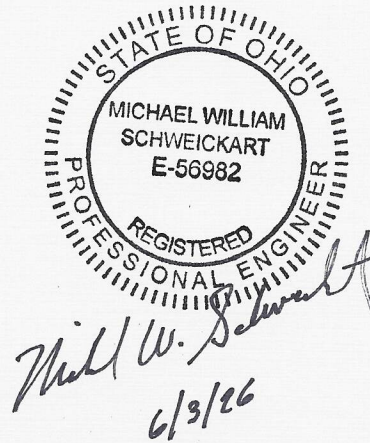
If you have any questions or need additional information, please do not hesitate to contact me.

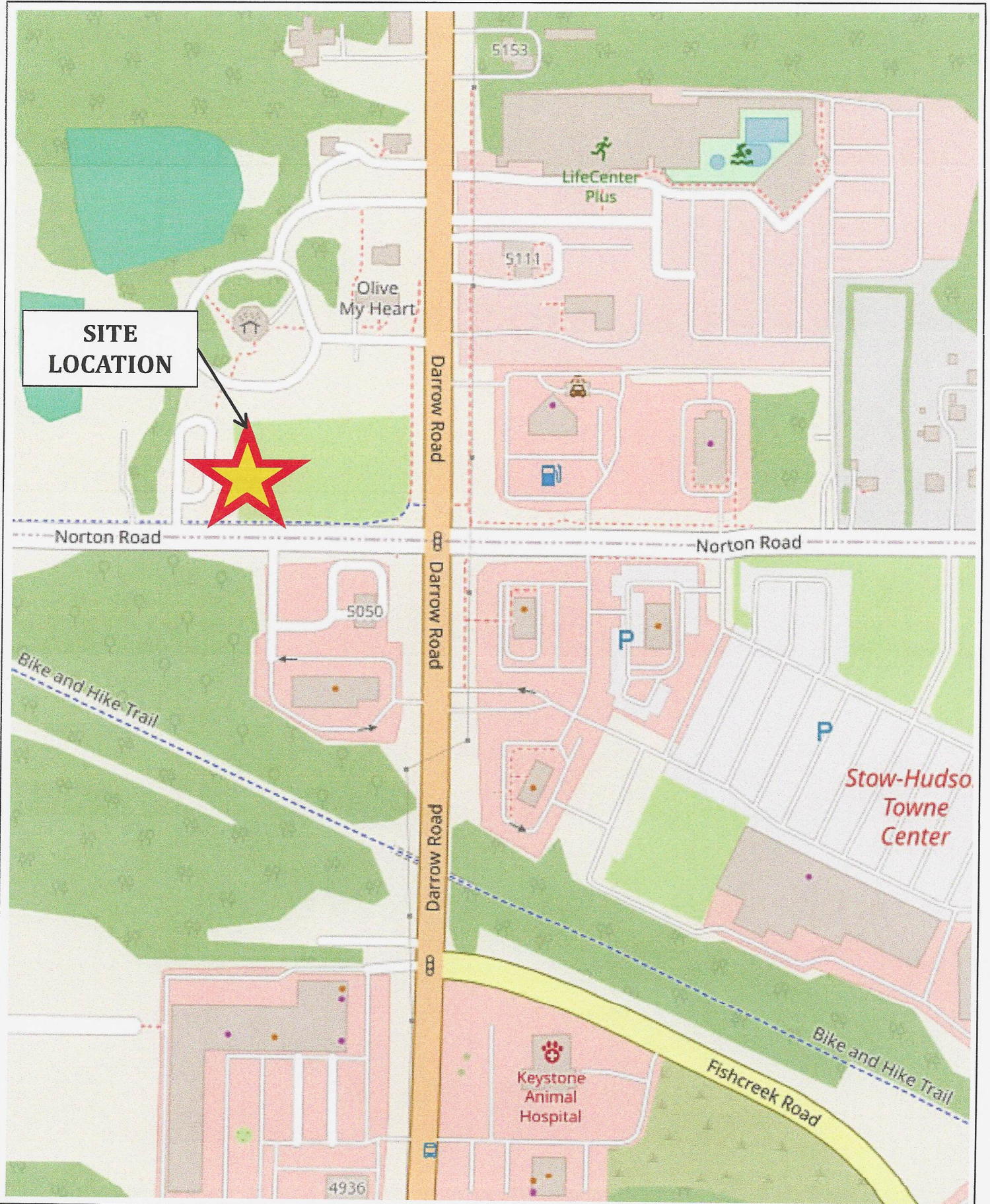
Very truly yours,

TMS Engineers, Inc.



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





TME Engineers, Inc.

2112 Case Parkway S., Unit 7,
Twinsburg, Ohio 44087
www.TMSEngineers.com

**Proposed Dentist Office
Hudson, Ohio
Trip Generation Analysis**

Location Map

↑
NORTH
NOT TO
SCALE

Figure: 1

Attachment

Appendix A
ITE Traffic Generation Worksheets

Medical-Dental Office Building – ITE CODE #720

Size: **5,000 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:

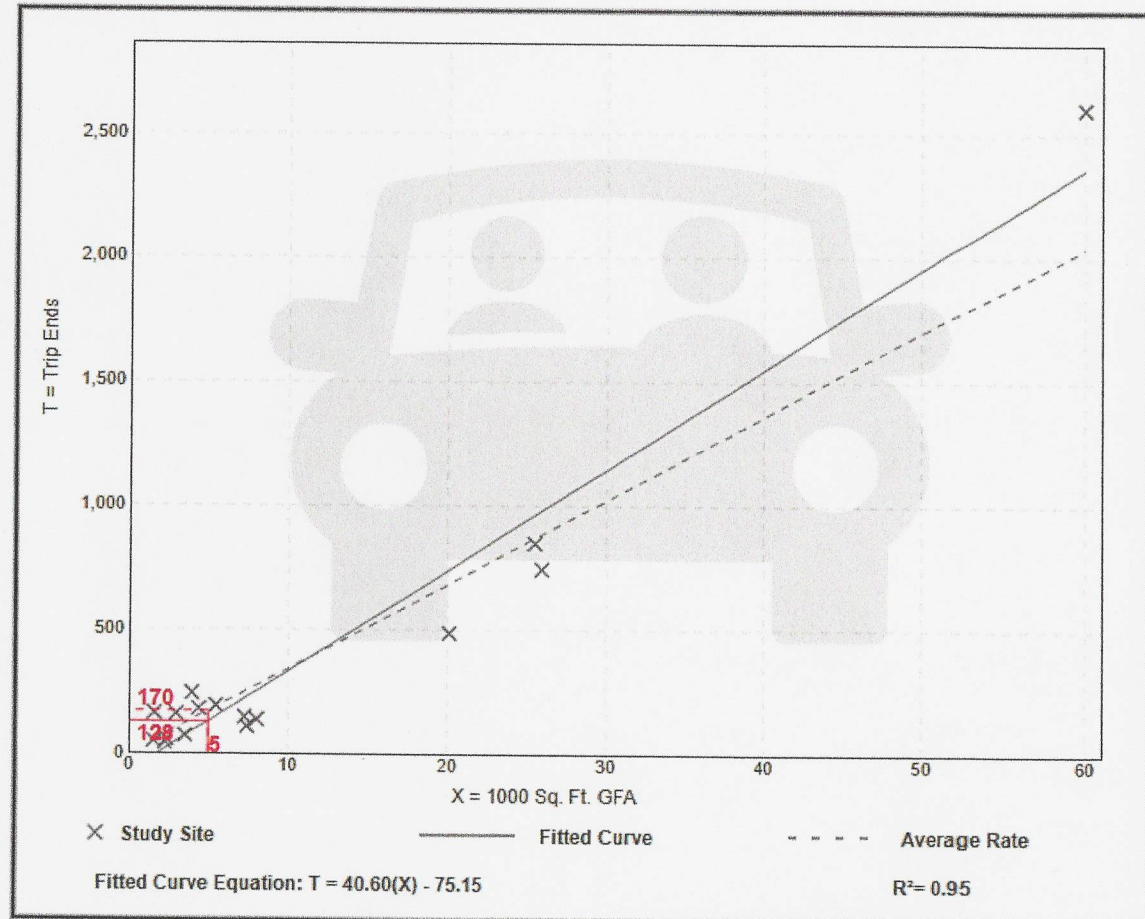
50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 170 (Total), 85 (Entry), 85 (Exit)

Fitted Curve: 128 (Total), 64 (Entry), 64 (Exit)

Data Plot and Equation



Medical-Dental Office Building – ITE CODE #720

Size: **5,000 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:

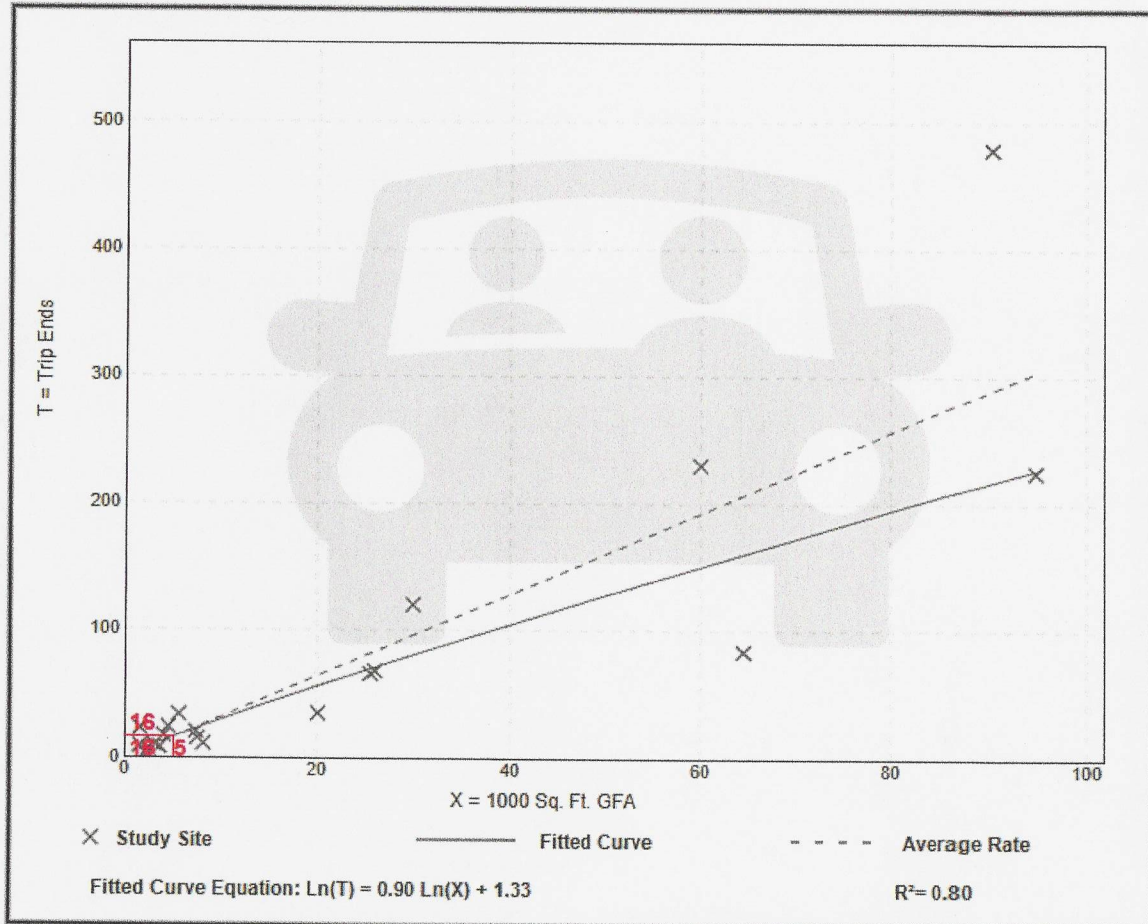
7% entering, 22% exiting

Calculated Trip Ends:

Average Rate: 16 (Total), 13 (Entry), 3 (Exit)

Fitted Curve: 16 (Total), 13 (Entry), 3 (Exit)

Data Plot and Equation



Medical-Dental Office Building – ITE CODE #720

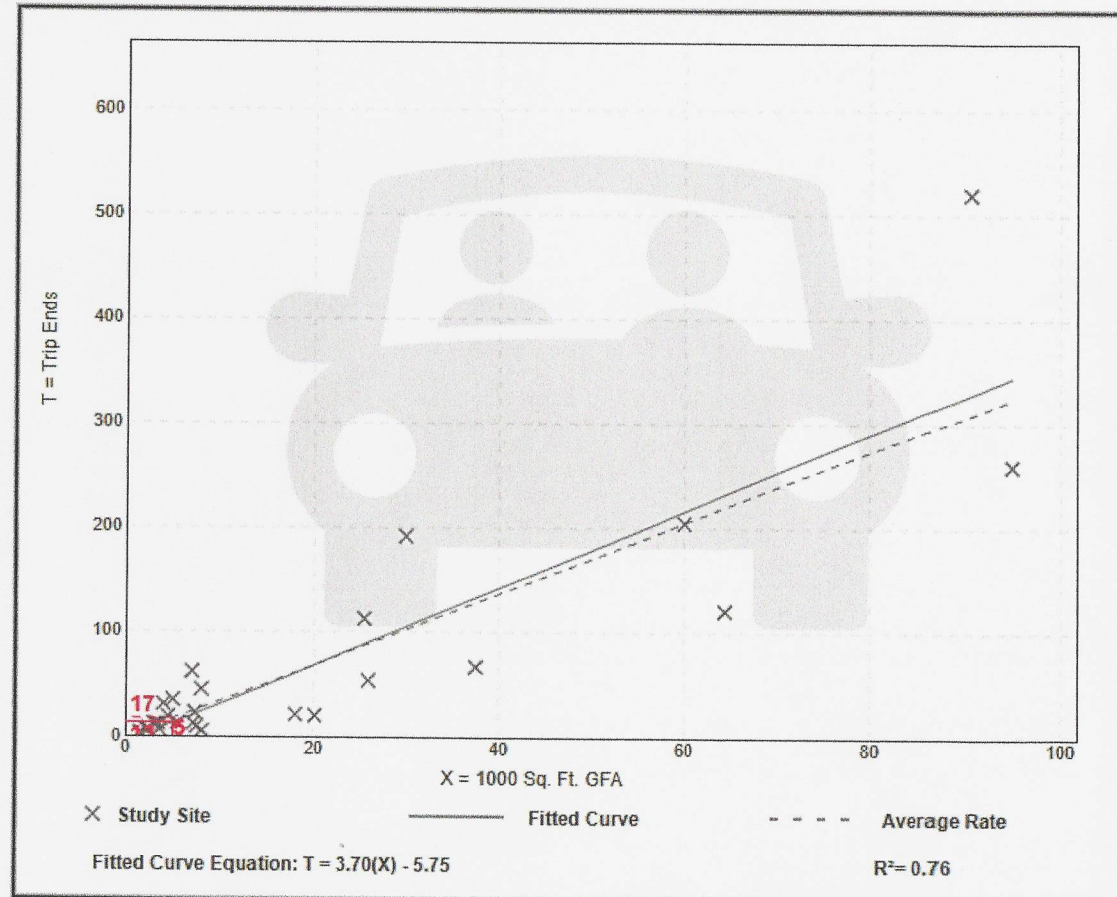
Size: **5,000 SF**

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:	$T = 3.70(X) - 5.75$
R ² :	0.76
Directional Distribution:	30% entering, 70% exiting
Calculated Trip Ends:	
Average Rate:	17 (Total), 5 (Entry), 12 (Exit)
Fitted Curve:	13 (Total), 4 (Entry), 9 (Exit)

Data Plot and Equation





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2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087

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Date: June 10, 2026

To: Mr. Leon S. Sampat
LS Architects

From: Michael Schweickart, P.E., PTOE
TMS Engineers, Inc.

Subject: Proposed Dentist Office - Hudson, Ohio
Traffic Impact Study Need

TMS Engineers, Inc. previously submitted a Trip Generation Analysis dated June 3, 2026 for the proposed 5,000 square-foot dental office located at 1465 Norton Road in Hudson, Ohio. The analysis documented the expected site generated traffic associated with the proposed development. The purpose of this correspondence is to further address a request for a comprehensive Traffic Impact Study (TIS) in light of the documented results and existing roadway conditions.

EXISTING ROADWAYS

The site is located at the northeast corner of Norton Road and Lawnmark Drive. Norton Road is an east–west oriented minor arterial roadway and Lawnmark Drive is a north–south local roadway. The intersection operates as a stop-controlled T-intersection, where movements from Lawnmark Drive are controlled by a stop sign and Norton Road operates under free-flow conditions with turning movements accommodated based on available gaps in arterial traffic.

Norton Road consists of a three-lane cross-section in the vicinity of the site, with one travel lane in each direction and a center two-way left-turn lane (TWLTL). The proposed site driveway is located approximately 215 feet east of Lawnmark Road. The TWLTL extends approximately 475 feet east of Lawnmark Drive.

Minor arterials like Norton Road are intended to provide service for trips of moderate length, interconnect and augment the principal arterial system, distribute traffic to smaller geographic areas than higher-order facilities, and provide a greater degree of land access than principal arterials without penetrating identifiable neighborhoods.

TRAFFIC IMPACT CONSIDERATIONS

As documented in the June 3, 2026 Trip Generation Analysis, the proposed development is expected to generate 16 AM peak hour trips (13 entering/3 exiting) and 13 PM peak hour (4 entering/9 exiting). These volumes represent a minimal increase to background traffic conditions on Norton Road and at the Norton Road/Lawnmark Drive intersection.

At this level of trip generation, site traffic is well within normal daily and peak-hour traffic variation observed on typical arterial roadway facilities.



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Daily traffic variation refers to routine fluctuations in traffic volumes caused by normal demand variability, driver behavior, weather conditions, seasonal changes, and the stochastic nature of trip distribution. Arterial roadways routinely experience peak hour fluctuations that are comparable to, or greater than, the incremental traffic associated with small-scale developments. This condition is consistent with the volume thresholds commonly applied by agencies such as ITE and ODOT for determining when a Traffic Impact Study may be necessary.

It is our opinion that the proposed site-generated traffic is not of a magnitude that would alter existing traffic patterns or measurably affect intersection operations, queueing, or delay.

The driveway location, approximately 215 feet east of Lawnmark Drive, further provides separation from intersection related queueing and gap formation, allowing site access movements to operate independently of the Norton Road and Lawnmark Drive intersection.

The TWLTL provides approximately 150 feet of available storage prior to the location of the proposed site driveway, which is sufficient to accommodate the anticipated left turn ingress demand without spillback into through lanes or impact to through traffic operations on Norton Road.

In addition, the TWLTL can facilitate two-stage left turn egress movements from the site, allowing vehicles to complete left turns in two separate steps within the center lane when gaps are available, thereby improving access efficiency and minimizing potential disruption to through traffic.

CONCLUSION

The proposed development will generate 16 AM peak hour trips and 13 PM peak hour trips, which are significantly below levels typically associated with the need for a comprehensive Traffic Impact Study. At this magnitude of development, traffic impacts are minor, localized and not expected to influence corridor or intersection operations.

Access to the site is provided from Norton Road, a three-lane minor arterial with a center two-way left-turn lane (TWLTL). The driveway is located approximately 215 feet east of Lawnmark Road, providing adequate separation from the adjacent stop-controlled T-intersection. The existing roadway configuration provides sufficient operational flexibility to accommodate site access movements, including left turn ingress storage (150') and two-stage left turn egress operations, without adverse impacts to through traffic flow on Norton Road.

It is therefore respectfully requested that the requirement for a full Traffic Impact Study be reconsidered, as the proposed development does not generate traffic of a magnitude that would warrant detailed operational or network-level analysis and the existing access spacing and roadway configuration along Norton Road can adequately accommodate site generated movements without adverse effects to corridor or intersection operations.