
MEMO

Date: October 5, 2020
Re: Big Sky Realty – 319, 307 W. Johnstown Road Gahanna Ohio
Attn: John Moorehead, PE Gahanna City Engineer
From: Mark I. Mann, PE Director – Transportation Services

Please consider this memorandum the traffic analysis required for the above referenced multi-family development.

Introduction

Big Sky Realty intends to develop the approximate 2.65 acre site into a 60 unit multi-family development. The site is comprised of two parcels, 307 and 319 W. Johnstown Road with access to both parcel from Johnstown Road. The proposed development will also be accessed from Johnstown Road. Vehicle trips generated by a development of this type and size do not meet the threshold that would require a Traffic Impact Study, however, a trip generation estimate is required to determine the percentage contribution of traffic to the roadway in the design year in order to determine a dollar contribution to a future roadway improvement project. Additionally, the need for left turn and right turn lanes into the site will be evaluated.

Trip Generation

Utilizing the methodologies in the ITE Trip Generation Manual, 10th Edition, is the typically accepted way of developing traffic volumes associated with most types of development. Current zoning of the property would allow for a grocery store to be built. A grocery store (LUC 845) of about 10,000 sq. Ft., 5,000 sq. ft./ acre, would generate between 1,069 and 1,922 trips per day. This volume would have a far greater impact on the roadway system surrounding the site compared to the proposed use of multi-family residences.

Based on this Big Sky development, a multi-family residential development of 60 units, the Land Use Code 220 was be used to determine trip volumes. These calculations show the average weekday traffic volume would be 439 trips per day, the average AM peak hour would be 29 trips, and the average PM Peak hour would be 37 trips.

Design Year (2040) Traffic

The City of Gahanna provided traffic data related to their thoroughfare plan. This data indicates that the 2040 Design Year Average Daily Traffic (ADT) for W. Johnstown Road between IR-270 and Stygler Road is projected to be 10,050 vehicles per day. This traffic volume from the Thoroughfare Plan typically represents the background traffic. When developing a traffic impact study, site specific traffic would be added to this volume.

Therefore, to determine the percentage contribution for the Big Sky development we add the 439 daily site trips to the 10,050 daily background trips and then divide the site trips by this total trip volume.

In addition to the percentage contribution of traffic in the 2040 design year we have examined the potential need for left and right turn lanes into the site. The Ohio Department of Transportation has a warranting process for left and right turn lanes based on the volume of turning traffic and the volume of through traffic.

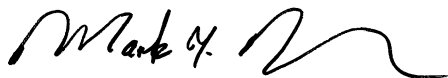
For planning level traffic in a design year the usually accepted percentage of the ADT in the peak hour is 10%. For this location that gives us 1,005 trips for the PM peak. Using the turning movement data provided by the City we have completed the left turn and right turn warrants for the access drive into the apartment development

Conclusion

The site generated traffic for the Big Sky development at 307, 319 W. Johnstown Road in Gahanna, Ohio contributes 4.2% of the overall 2040 Build Traffic on W. Johnstown Road.

The results of the warrant study shows neither a left turn lane or a right turn lane is warranted for the access drive to the apartment development for the 2040 design year traffic

Sincerely,



Mark I. Mann, PE
Director – Transportation Services

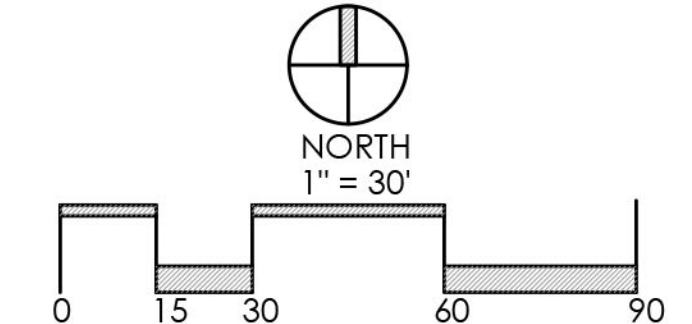


SITE DATA	
TOTAL ACRES	±2.65 ACRES
TOTAL UNITS	60 UNITS
TOTAL PARKING	114 SPACES
PARKING DENSITY	±1.9 SPACE/UNIT

SITE PLAN

317, 309 W. JOHNSTOWN ROAD

PREPARED FOR BIG SKY REALTY
DATE: 5/14/20



Faris Planning & Design
 LAND PLANNING LANDSCAPE ARCHITECTURE
 243 N. 5th Street Suite 401 Columbus, OH 43215
 p (614) 487-1964 www.farisplanninganddesign.com

Supermarket (850)

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

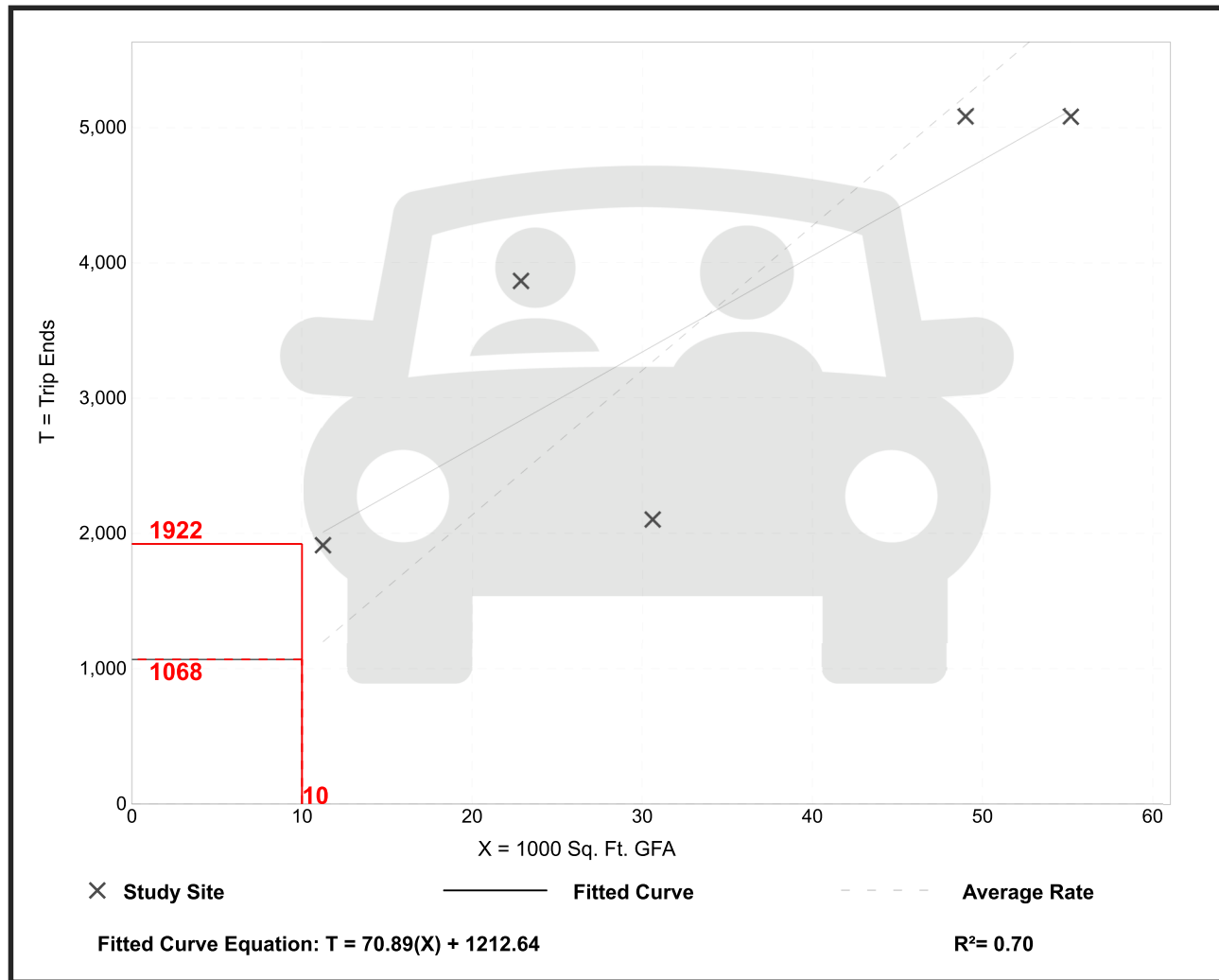
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GFA: 34
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
106.78	68.67 - 170.24	37.56

Data Plot and Equation

Caution – Small Sample Size



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Multifamily Housing (Low-Rise) (220)

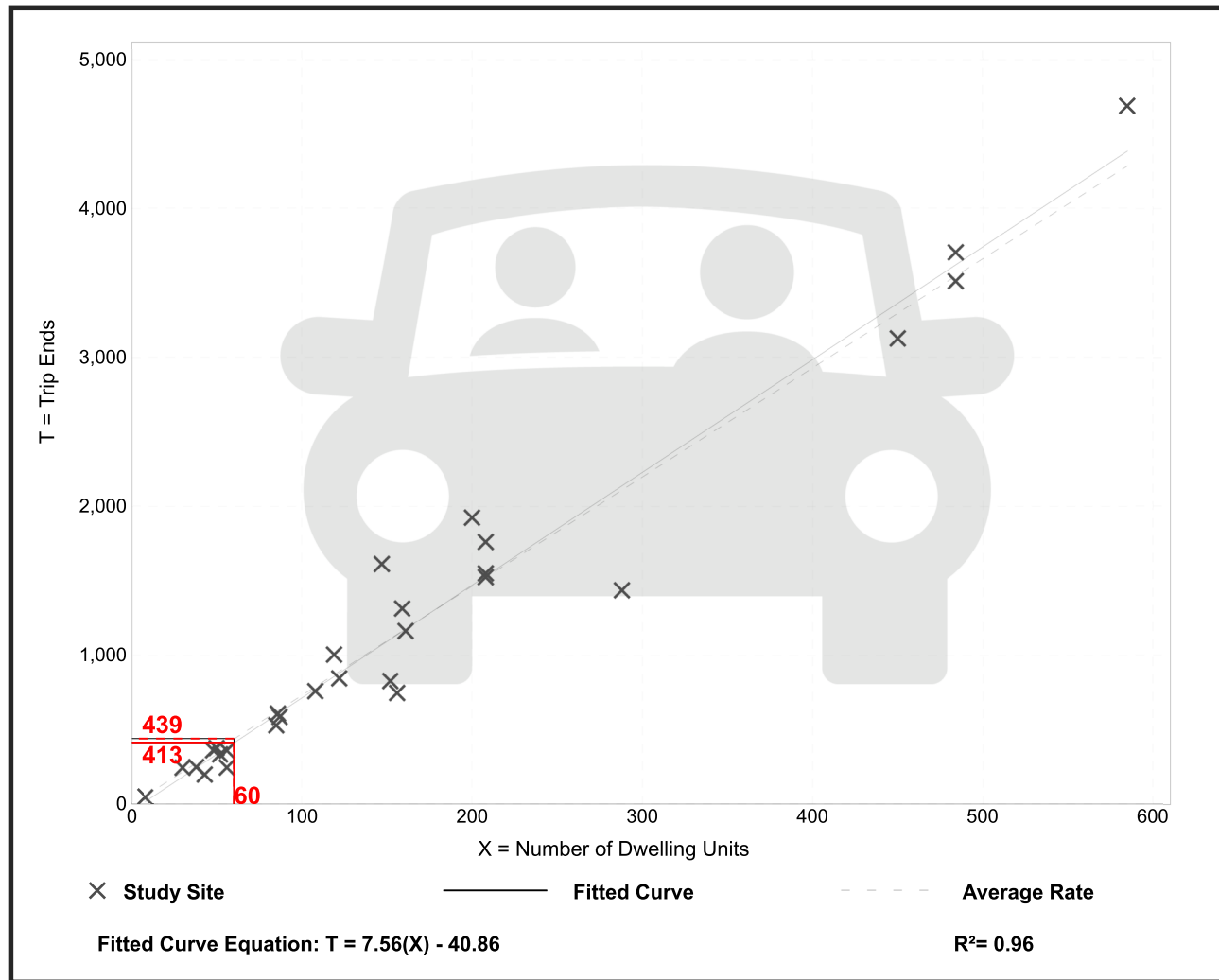
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



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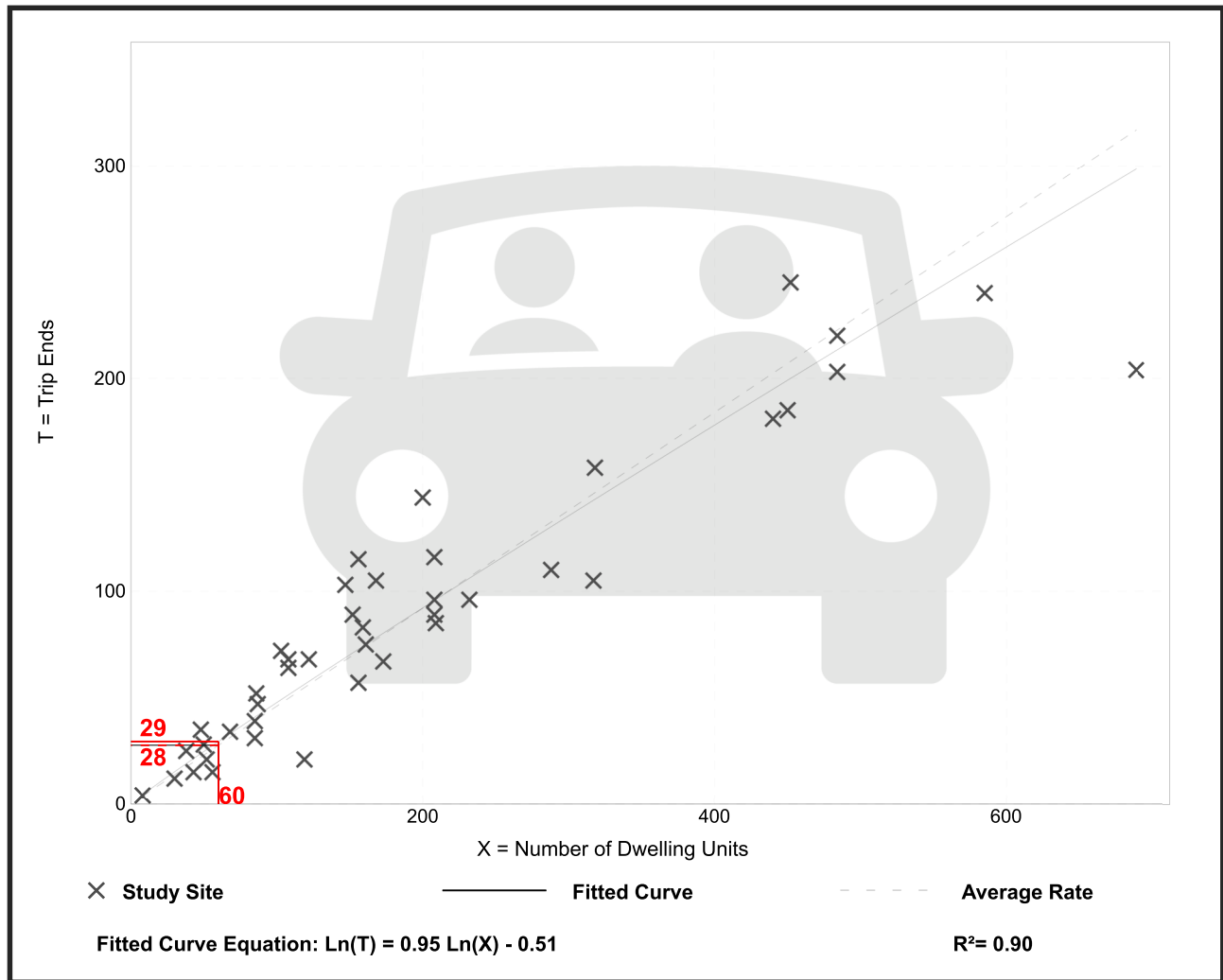
Multifamily Housing (Low-Rise) (220)

Vehicle Trip Ends vs: Dwelling Units
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: 42
 Avg. Num. of Dwelling Units: 199
 Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



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Multifamily Housing (Low-Rise) (220)

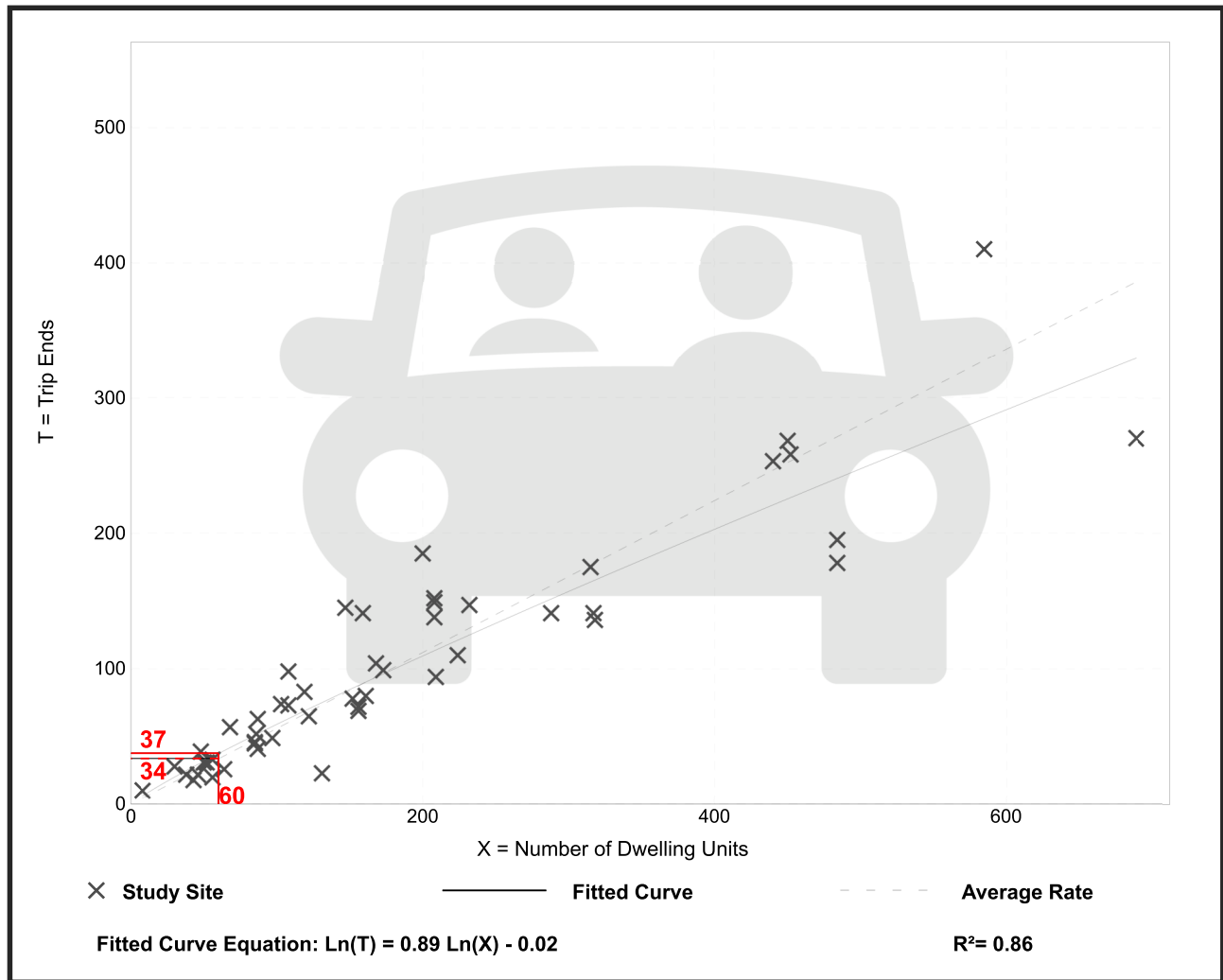
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 50
 Avg. Num. of Dwelling Units: 187
 Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation

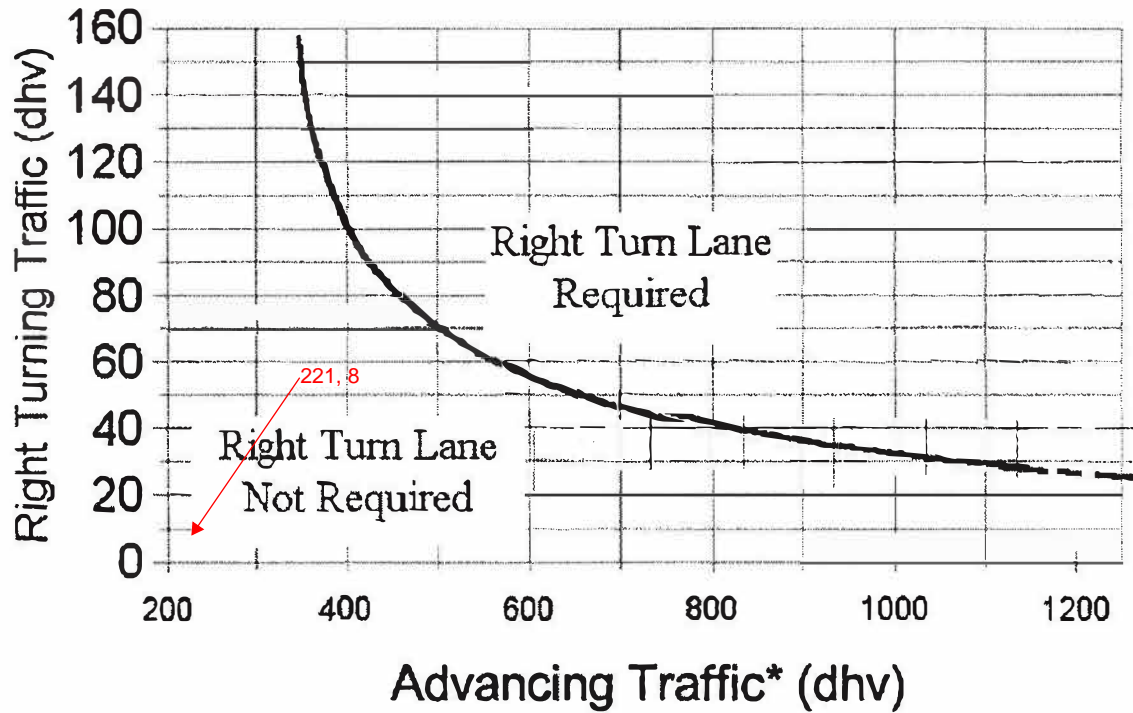


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2-Lane Highway Right Turn Lane Warrant

= < 40 mph or 70 kph Posted Speed

W. Johnstown Rd. & Access Drive



*Includes Right Turns

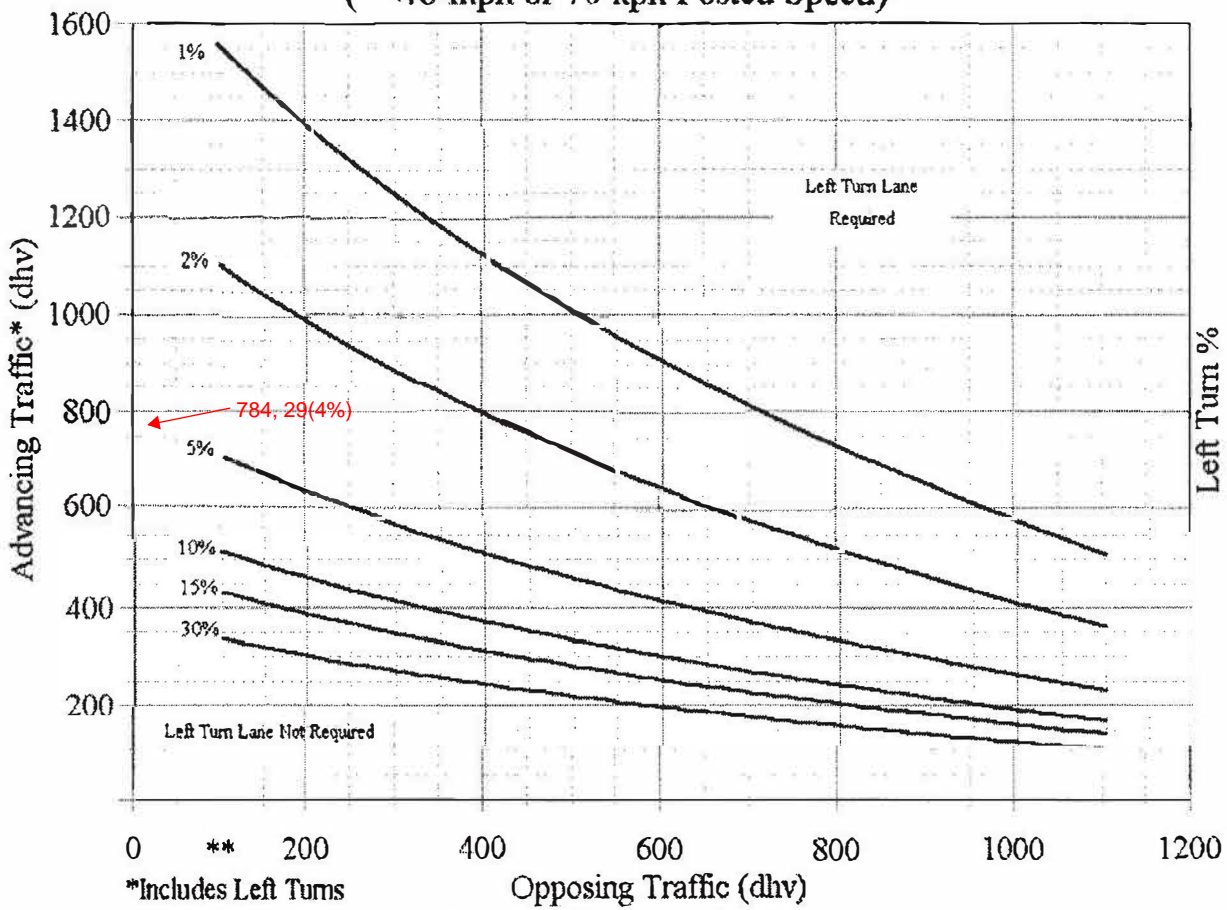
October 2004

2-LANE RIGHT TURN LANE
WARRANT (LOW SPEED)

REFERENCE SECTION
401.6.3

401-6a

W. Johnstown Road & Access Drive
2-Lane Highway Left Turn Lane Warrant
 (= < 40 mph or 70 kph Posted Speed)



October 2004

*Includes Left Turns
 ** There is no minimum number of turns

2-LANE LEFT TURN LANE WARRANT (LOW SPEED)
401-5a REFERENCE SECTION 401.6.1