APPROVED by Aaron S
09/21/2020 3:38:47 PM

EMH&T

Engineers, Surveyors, Planners, Scientists

* VERIFY THERE IS ADEQUATE RIGHT OF WAY FOR A FIVE LANE SECTION ON BIG WALNUT ROAD ALONG THE FRONTAGE OF THE DEVELOPMENT (WILL BE REQUIRED PRIOR TO PLAN APPROVAL).

August 20, 2020

Michael A. Love, P.E.
Deputy Development Engineer
Delaware County Engineer's Office
50 Channing Street
Delaware, Ohio 43015

Subject: Derstine Tract - Traffic Access Study

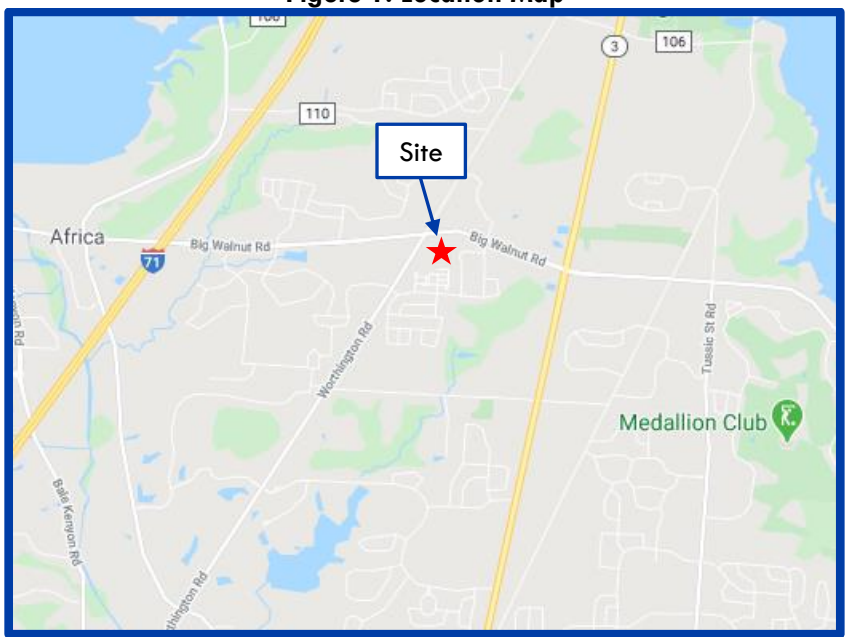
Dear Mr. Love,

The purpose of this report is to summarize the results of our Traffic Access Study (TAS) of the proposed Derstine Tract development. This TAS was prepared in accordance with email and phone conversations between EMH&T and the Delaware County Engineers office (DCEO) between August 3 and August 14, 2020. Big Walnut Road is improved in this area with a two-way-left-turn-lane across the site access point. The scope of this TAS is limited to analysis of right turn lane warrants at the site access.

Proposed Development & Access Plan

The proposed development is located in the southeast quadrant of the Big Walnut Road/Worthington Road intersection as shown in **Figure 1**. It consists of 30 new detached housing units with full movement access to Big Walnut Road as shown on the attached site exhibit. The access on Big Walnut Road is approximately 675 feet east of Worthington Road.

Figure 1: Location Map



Study Area

The Study Area for this TAS consists of a single intersection, Big Walnut Road and Proposed Site Drive.

Data Collection

This study used a 2035 Design Hourly Volume (DHV) of 1680 vehicles on Big Walnut Road, distributed equally eastbound and westbound. This forecasted volume is part of the Design Designation for a CIP project at the Big Walnut Road/Worthington Road intersection, and was used as the background condition for this TAS.

Trip Generation and Distribution

This study estimated new trips generated by development according to the data and procedures contained in the Trip Generation Manual, 10th ed. (Institute of Transportation Engineers, 2017). This study calculated peak-hour trip generation using Land Use Code 210 for detached single family housing as directed by DCEO. While not age-restricted, the new residential units are designed for a senior adult buyer and will likely generate less traffic than forecast for this TAS. The following summarizes site traffic calculated for proposed development:

Table 1: Trip Generation Summary

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family Detached	30 units	210	ADT	Ln(T)=0.92Ln(x)+2.71	344	172	172
			AM Peak	T=0.71(x)+4.8	26	7	20
			PM Peak	Ln(T)=0.96Ln(x)+0.2	32	20	12

PM peak hour trips were assigned to the existing street system according to the traffic distribution discussed with DCEO. The resultant distribution is as follows:

- 67% to/from the west on Big Walnut Road
- 33% to/from the east on Big Walnut Road

Site traffic volumes were combined with existing traffic on the adjacent street. The resultant total establishes design-year (2035) traffic volumes for analysis. This study analyzed projected traffic volumes, limited to the afternoon commuter peak hour.

Turn Lane Warrant Analysis

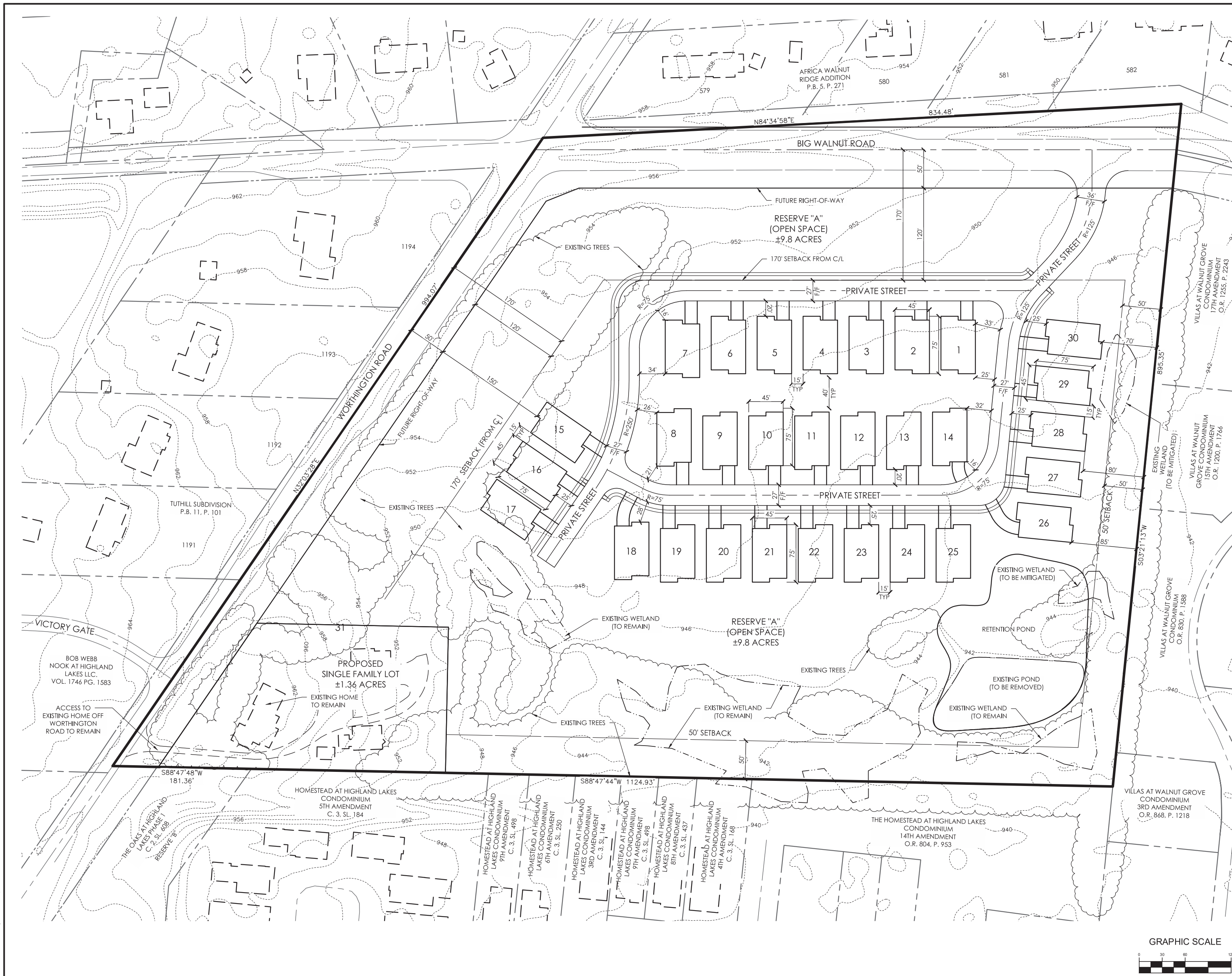
This study evaluated a right turn lane warrant at the proposed site access point for eastbound traffic on Big Walnut Road. Our turn lane evaluation is in accordance with the Location and Design Manual §401.6 (Ohio Department of Transportation). The results of the turn lane warrant analysis show that a right turn lane is not warranted. A copy of the turn lane warrant analysis chart is attached.

Conclusions and Recommendations

The results of the turn lane warrant analysis show that an eastbound right turn lane is not warranted at the Big Walnut Road/Site Access intersection. Therefore, no turn lane is recommended at the site access point. Should questions or comments arise during your review of this report or if I may be of further assistance in this matter, please feel free to contact me at (614) 775-4640.

Sincerely,

Lawrence C. Creed, Esp., PE
Principal
Director of Traffic Engineering Services



LOCATION MAP

NOT TO SCALE

SITE STATISTICS:

PROPOSED ZONING: .... PRD W/ CONSERVATION

TOTAL AREA: .... 20.945 ACRES
FUTURE R/W DEDICATION: .... 2.754 ACRES
GROSS PROJECT AREA: .... 18.191 ACRES
(20.945-2.754)

NDA CALCULATION: .... -3.828 ACRES
NET DEVELOPABLE AREA: .... 14.363 ACRES
(18.191-3.828)

TOTAL NUMBER OF UNITS: 31
GROSS DENSITY: .... 1.7 UNITS /ACRE
NET DENSITY: .... 2.16 UNITS/ACRE
OPEN SPACE:
REQUIRED (18.191x0.5): .... 9.45 ACRES
PROVIDED: .... 9.45 ACRES

CALCULATION:

NET DEVELOPABLE AREA:
15% OF GROSS PROJECT AREA: .... 2.73 ACRES
(18.191x0.15)
WETLANDS TO REMAIN: .... 1.1 ACRES
NET DEVELOPABLE AREA (18.191-3.828) .... 14.363 ACRES

OPEN SPACE
OPEN SPACE AREA: .... 10.36 ACRES
PROPOSED SWM AREAS: .... 0.81 ACRES
ENTRY FEATURE AREAS: .... 0.1 ACRES
OPEN SPACE AREA PROVIDED PER CODE: .... 9.45 ACRES (50%)

DESIGN STANDARDS:

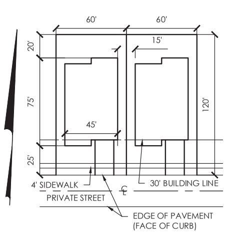
UNITS 1-30:
MINIMUM FRONTAGE (BUILDING LINE): .... 60 FEET
MINIMUM BLDG AREA: .... 7,200 SF (60x120)
MINIMUM FRONT YARD SETBACK: .... 25 FEET W/O SIDEWALK
.... 30 FEET W/ SIDEWALK
MINIMUM SIDE YARD SETBACK: .... 7.5 FEET (TOTAL 15 FEET)
MINIMUM REAR YARD SETBACK: .... 20 FEET
PERIMETER SETBACK: .... 50 FEET
EXISTING ROAD SETBACK: .... 170' FROM CENTERLINE
SEE NOTE A

NOTE:

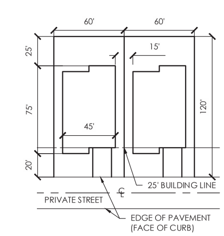
NOTE "A": THE DEVELOPER WILL REQUEST A DIVERGENCE FROM SECTION 903.03 REQUIRING A 170' SETBACK FROM R/W FROM ARTERIAL AND COLLECTOR ROADS, TO 170 FEET FROM CENTERLINE. JUSTIFICATION: TO ALLOW ADDITIONAL SETBACK FROM EAST AND SOUTH PROPERTY LINES.

NOTE "B": LOT 31 WILL NOT BE A PART OF THE CONDOMINIUM ASSOCIATION. LOT AREA IS CONSIDERED A PART OF THE GROSS PROJECT AREA, HOWEVER NONE OF THE PROPOSED LOT 31AREAS IS INCLUDED IN THE OPEN SPACE CALCULATION.

NOTE "C": THE DEVELOPER SHALL REQUEST A DIVERGENCE FROM SECTION 903.01 THAT STATES THE MINIMUM LOT SIZE FOR A PRD IS 25 ACRES.



TYPICAL LOT
(UNITS 15-30)
SCALE: 1"=50'



TYPICAL LOT
(UNITS 1-14)
SCALE: 1"=50'

GRAPHIC SCALE
1 inch = 60 feet

REVISIONS	
DATE	DESCRIPTION

EMHT
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Phone: 614.775.4500 Toll Free: 888.775.3648
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148 WEST SCHROCK ROAD
WESTERVILLE, OHIO 43081
PHONE: 1-614-891-2042

GENOA TOWNSHIP, DELAWARE COUNTY, OHIO
SKETCH PLAN
FOR

5481 WORTHINGTON ROAD

SITE PLAN

LOCATED IN:
FARM LOT 13, QUARTER TOWNSHIP 2, TOWNSHIP 3, RANGE 17
UNITED STATES MILITARY LANDS
TOWNSHIP OF GENOA, COUNTY OF DELAWARE, STATE OF OHIO

Date	Job No.
AUGUST 3, 2020	20200756
Scale	Sheet
1"=60'	1/1

SKETCH PLAN FOR 5481 WORTHINGTON ROAD

Big Walnut Road @ Private Street
2-Lane Highway Right Turn Lane Warrant
>40 mph or 70 kph Posted Speed

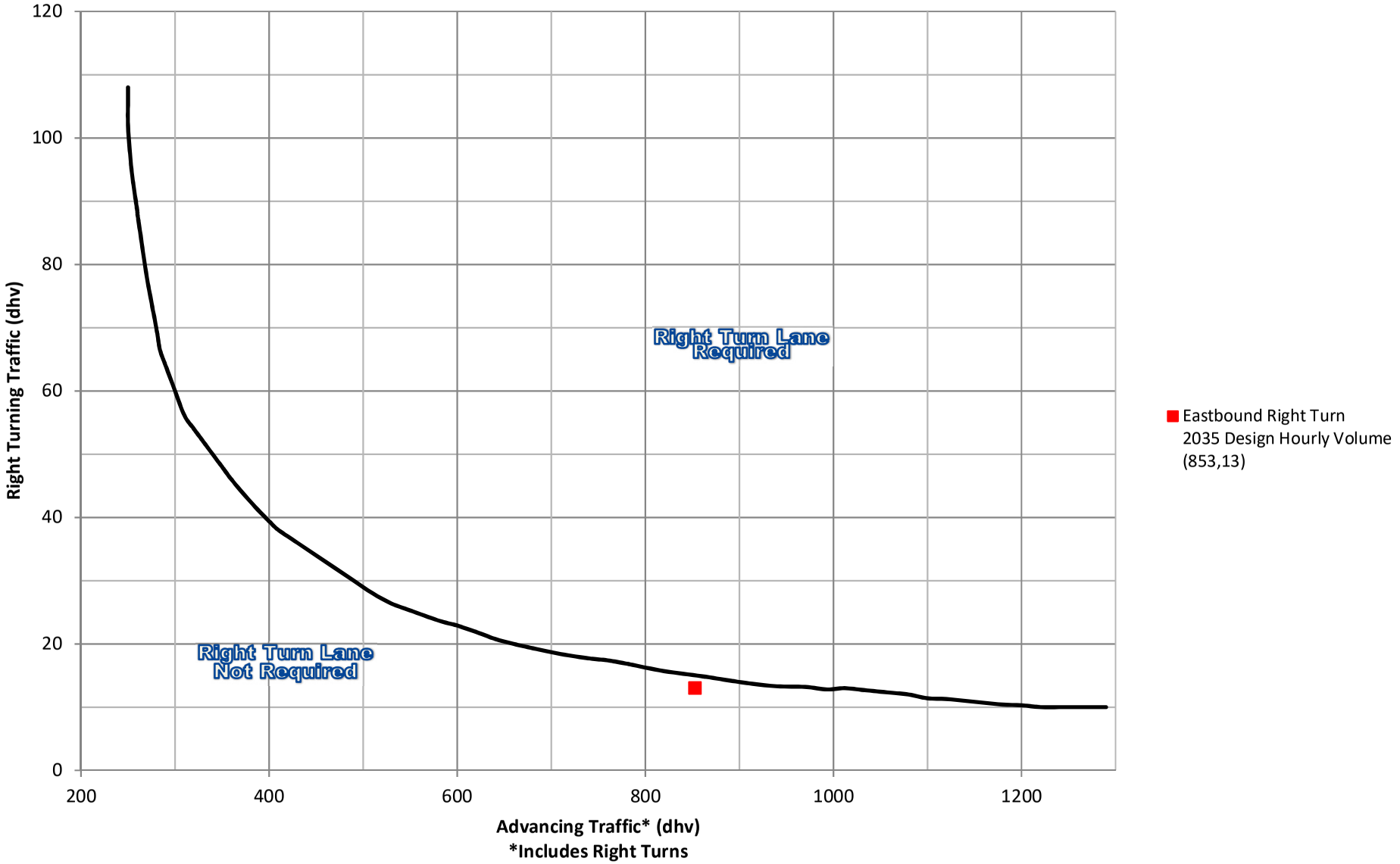

Fig. 401-6bE
ODOT Location and Design Manual, Volume One October 2004

Derstine Tract

Traffic Impact Study

Trip Generation Calculations

Institute of Transportation Engineers, 10th Edition

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
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2035 Design Hourly Volume **PM Peak Hour**