

MEMO

VIA EMAIL nazir.j@icloud.com

To: Nazir Jawich
Bright Way Construction, LLC

From: Jacob Swanson, PE, PTOE
Paul Bonner, EIT
Fleis & VandenBrink

Date: October 4, 2024

Re: Proposed Commercial Development
White Lake Township, Michigan
Rezoning Traffic Study

1 INTRODUCTION

This memorandum presents the results of the Rezoning Traffic Study (RTS) for the project site, located generally in the southwest quadrant of the Highland Road (M-59) & Elizabeth Lake Road intersection, as shown below in **Figure 1**. The subject property is proposed to be rezoned from the existing Agricultural (AG) zoning to a General Business (GB) zoning classification, in order to accommodate a potential future development of commercial land uses on this property.

Figure 1: Site Location Map



In accordance with the White Lake Township Zoning Ordinance, an RTS is required for the proposed rezoning of a parcel. Included within this study are the following: background information, description of the requested use, trip generation evaluation, and available traffic count data (peak hour and daily) within one (1) mile of the proposed subject property.

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2 BACKGROUND INFORMATION

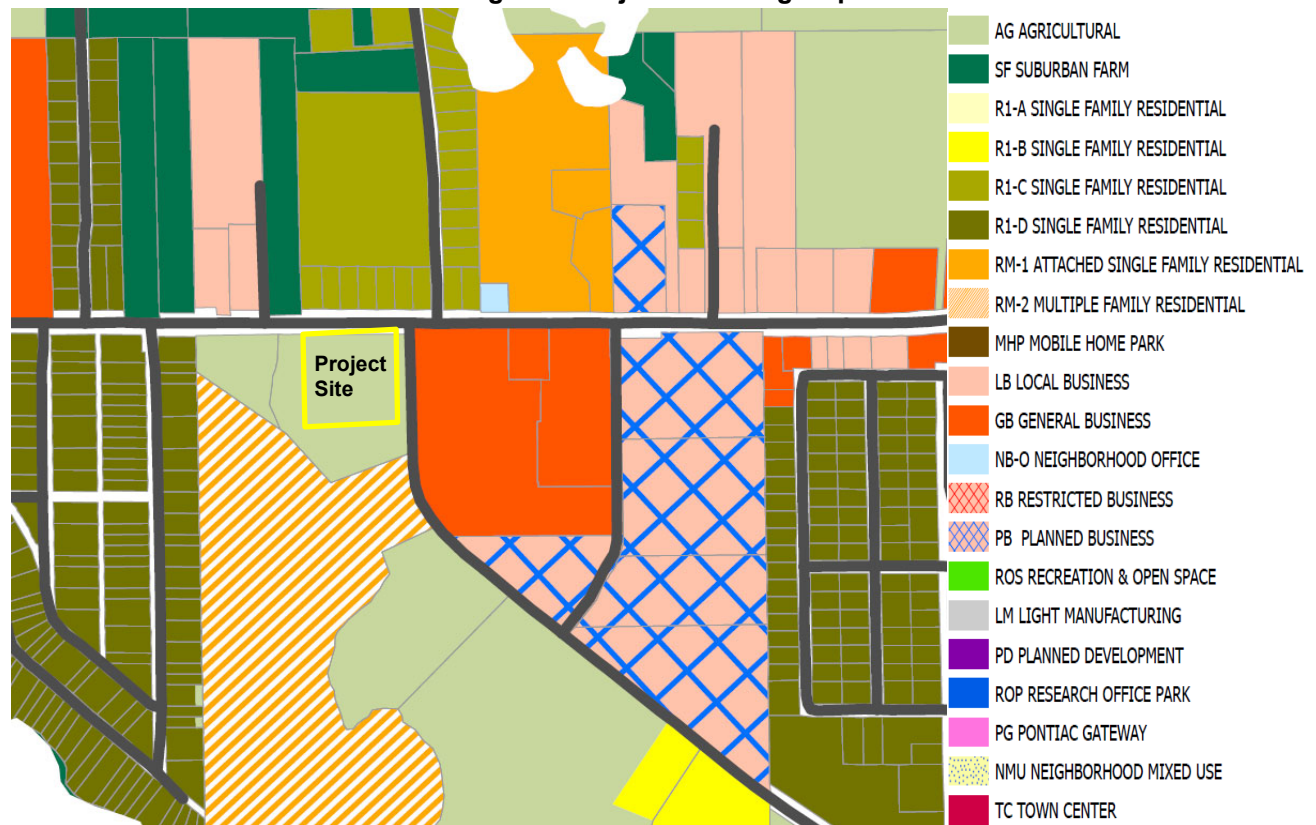
The project site is located in the southwest quadrant of the Highland Road (M-59) & Elizabeth Lake Road intersection, in White Lake Township, Michigan. Additional roadway information is attached and summarized in **Table 1**.

Table 1: Roadway Information

Roadway Segment	Highland Road (M-59)	Elizabeth Lake Road
Number of Lanes	5 (2-lanes each direction and a center TWLTL)	2 (1-lane each direction)
Functional Classification	Other Principal Arterial	Minor Arterial
Roadway Jurisdiction	MDOT	RCOC
Posted Speed Limit	50-mph	35-mph
Traffic Volumes	24,022 vpd (MDOT 2023)	8,629 vpd (MDOT 2022)

The majority of land uses adjacent to the project site are residential, business, and agricultural type uses. The adjacent zoning classifications are shown below on **Figure 2**.

Figure 2: Adjacent Zoning Map



3 TRIP GENERATION

White Lake Township Ordinance describes the land uses permitted by-right under the existing Agricultural (AG) and proposed General Business (GB) zoning classification. In order to determine the maximum site trip generation potential under the existing and proposed zoning classifications, the principal uses permitted under each zoning classification must be matched to the land use categories described by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, 11th Edition*. ITE publishes trip generation data using different independent variables, such as square feet (SF), units, and rooms, for various uses. Therefore, the maximum allowable density within the existing AG zoning was determined based on the size of the parcel and information provided by the developer for the project site.

The White Lake Township Ordinance definition of uses permitted under the AG zoning includes farming, dairying, forestry operations and other agricultural activities, as well as outdoor recreation uses, private stables, single family detached homes, temporary agricultural uses, and more. Review of the ITE land use descriptions indicates that the Single-Family Detached (LUC 210) land use generates the largest number of trips and best matches the uses defined and permitted by right by the Ordinance under the existing AG zoning.

The requested zoning, associated with the proposed development plan is proposed as General Business (GB) for the project site. The White Lake Township Ordinance definition of uses permitted under the GB zoning includes restaurants, commercial retail, government offices, medical and administrative offices, banks, etc. Review of the ITE land use descriptions indicates that the General Office Building (LUC 710), Medical-Dental Office Building (LUC 720), and Strip Retail Plaza (LUC 822) land uses generate the largest number of trips and best match the uses defined by the Ordinance and permitted by right under the proposed GB zoning.

An analysis was performed in order to determine the maximum site trip generation potential currently permitted by right under the existing AG zoning, as compared to the maximum potential trip generation associated with the proposed GB zoning. The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the existing and proposed zoning classifications, were calculated based on information published by ITE in *Trip Generation Manual, 11th Edition*. The results of the trip generation analysis comparison are summarized in **Table 2**.

Table 2: Rezoning Site Trip Generation Comparison

Zoning	Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
						In	Out	Total	In	Out	Total
Existing Zoning (AG)	Single-Family Detached	210	5	DU	64	1	4	5	4	2	6
Max for existing zoning (AG)					64	1	4	5	4	2	6
Proposed Zoning (GB)	General Office Building	710	33,000	SF	442	57	8	65	11	55	66
	Medical-Dental Office Building	720	33,000	SF	1,310	70	19	89	39	92	131
	Strip Retail Plaza (<40k SF)	822	33,000	SF	1,622	47	31	78	91	91	182
Max for proposed zoning (GB)					1,622	70	19	89	91	91	182
Difference					1,558	69	15	84	87	89	176

The results of the rezoning trip generation comparison evaluation indicates that the proposed rezoning to General Business (GB) will generate more trips than the existing Agricultural (AG) zoning classification.

4 CONCLUSIONS

- The results of the rezoning trip generation comparison evaluation indicates that the proposed rezoning to General Business (GB) will generate more trips than the existing Agricultural (AG) zoning classification.
- Additional analysis may be required for this site as part of a site plan application and further review of the White Lake Township “Determination of Need for Traffic Study” will be required at that time.

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

A handwritten signature in black ink that reads "Jacob Swanson".

Digitally signed by
Jacob Swanson
Date: 2024.10.04
10:59:49 -04'00'

Attachments: Site Concept Plan
Background Traffic Data

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Disclaimer: The Michigan Department of Transportation (MDOT) works with individual agencies (cities/villages, counties, metropolitan planning organizations (MPOs), regional planning organizations (RPOs), and other areas of MDOT) to identify existing traffic count programs and/or traffic data. [... more](#)

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Record 1 of 1 Goto Record <input type="text"/> go			
Location ID	63-0735	MPO ID	2712
Type	SPOT	HPMS ID	
On NHS	No	On HPMS	No
LRS ID	0632401	LRS Loc Pt.	0.393638
SF Group	Urban Non State (2024)	Route Type	
AF Group	NoFactor (2024)	Route	
GF Group	Urban Non State (2024)	Active	Yes
Class Dist Grp	NTL_4 (2024)	Category	Primary
Seas Clss Grp			
WIM Group			
QC Group	Default		
Funct'l Class	(4) Minor Arterial	Milepost	
Located On	Elizabeth Lake Rd		
Loc On Alias			
WEST OF	Teggerdine Rd		
More Detail ▶			

STATION DATA

Directions: [2-WAY](#) [NW](#) [SE](#) [?](#)

AADT ?								
Year	AADT	DHV-30	K %	D %	PA	BC	Src	
2023	8,629 ³		8		8,396 (97%)	233 (3%)	Grown from 2022	
2022	8,443	693	8		8,200 (97%)	243 (3%)		

VOLUME COUNT			
	Date	Int	Total
	Thu 6/9/2022	60	8,563

VOLUME TREND ?	
Year	Annual Growth
2023	2%

CLASSIFICATION		
Date	Int	Total
No Data		

NOTES/FILES		
	Note	Date

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Record	1	of 1	Goto Record	<input type="text"/>	go
Location ID	63-0091	MPO ID	38851		
Type	SPOT	HPMS ID			
On NHS	Yes	On HPMS	No		
LRS ID	0648906	LRS Loc Pt.	10.248		
SF Group	Urban (2024)	Route Type	M Rte		
AF Group	South (2024)	Route	059		
GF Group	Urban (2024)	Active	Yes		
Class Dist Grp	2_059_004 (2024)	Category	Primary		
Seas Clss Grp					
WIM Group					
QC Group	Default				
Funct'l Class	(3) Other Principal Arterial	Milepost			
Located On	M-59				
Loc On Alias	M 59				
	100 FT W OF LAKESIDE DR				

STATION DATA

Directions: [2-WAY](#) [EB](#) [WB](#) [?](#)

AADT								
Year	AADT	DHV-30	K %	D %	PA	BC	Src	
2023	24,022 ³		9	54	23,470 (98%)	552 (2%)	Grown from 2022	
2022	23,413	2,099	9	54	22,876 (98%)	537 (2%)		
2021	25,384 ³		10	59	24,699 (97%)	685 (3%)	Grown from 2020	
2020	22,306 ³		10	59	21,704 (97%)	602 (3%)	Grown from 2019	
2019	27,917	2,906	10	59	27,163 (97%)	754 (3%)		

VOLUME COUNT			
Date	Int	Total	
Tue 3/1/2022	15	29,500	
Mon 2/28/2022	15	28,583	
Tue 8/20/2019	15	35,970	
Mon 8/19/2019	15	35,468	
Mon 8/29/2016	60	37,945	
Sun 8/28/2016	60	34,512	
Tue 10/15/2013	60	35,549	
Mon 10/14/2013	60	35,055	
Wed 7/7/2010	60	35,039	
Tue 7/6/2010	60	35,131	

VOLUME TREND	
Year	Annual Growth
2023	3%
2022	-8%
2021	14%
2020	-20%
2019	-27%
2018	0%
2017	1%
2016	14%
2015	3%
2014	2%

CLASSIFICATION		
Date	Int	Total
No Data		

