

# Memo

TO: Thomas Forster – Varnum LLP

Attorney-Client Privilege

FROM: Timothy J. Likens, PE, PTOE

DATE: December 20, 2023 PROJECT NO.: 230233

SUBJECT: Traffic Impact Study – Field Site

Alternative Routes (M-59)

#### Overview

Fishbeck has been providing traffic engineering services for the Levy site in Springfield Township, Oakland County, Michigan. Per our conference call on October 4, 2023 the following routes have been evaluated:

2a. Ormond Road Davisburg Road Milford Road Clyde Road Hickory Ridge M-59

2b. Ormond Road ← Davisburg Road ← Milford Road ← M-59

Along these alternative haul routes, the following intersections will experience truck turning movements and are therefore included in this evaluation:

- a. Ormond Road and Davisburg Road (minor stop-control);
- b. Davisburg Road and Milford Road (minor stop-control);
- c. Milford Road and Clyde Road East (all-way stop-control);
- d. Milford Road and Clyde Road West (all-way stop-control);
- e. Clyde Road and Hickory Ridge Road (all-waystop-control);
- f. Hickory Ridge Road and M-59 (signalized boulevard);
- g. M-59 and WB to EB Crossover at Hickory Ridge Road (signalized); and
- h. M-59 and EB to WB Crossover at Hickory Ridge Road (signalized).

Evaluation of these alternative haul routes included completion of the following keytasks:

- 1. Visit the site and drive these alternative routes, while recording photos and videos. General observation of pavement conditions were noted and PASER ratings were evaluated based on current conditions.
- 2. Review current Road Commission for Oakland County (RCOC) and Michigan Department of Transportation (MDOT) maps to identify currently published PASER ratings, classifications, and truck operator designations (seasonal restrictions).
- 3. Develop maps to highlight key observations from the field review including areas of interest that may relate to hauling operations.

- 4. Collect turning movement count data at each of the study intersections on a single weekday from 7:00to 9:00 a.m. and 4:00 to 6:00 p.m. and identify the peak hour volumes at each intersection.
- 5. Model the study intersections along the alternative routes in Synchro traffic analysis software and evaluate operations (vehicle delay, Level of Service, queues) with and without the proposed hauling activity.

## Field Review

Fishbeck engineers visited the site and drove the alternative haul routes on October 18, 2023. Field notes, photos, and videos were condensed into PDF maps and Google Earth KMZ files that provide an overview of physical elements along the alternative haul routes. Recorded observations include intersection traffic controls, speed limits, PASER ratings, centerline corrugations, and shoulder widths. A secure cloud file location has been established to deliver these materials for review by Levy.

## Operations

Operational results were calculated based on Highway Capacity Manual (HCM) methodologies based on the recorded traffic volumes, intersection geometries, and traffic controls. Overall, the network operates acceptably and will continue to do so with the proposed hauling operation. Changes to vehicle delay and Level of Service are negligible. Current intersection operations are not expected to inhibit hauling operations. Results for future conditions with and without the proposed project are outlined in tables on the following pages of this memo.

Two operational deficiencies were noted in the analyses of future conditions. These issues are currently present and are respective of movements not on the proposed haul routes:

## Haul Route 2a (Hickory Ridge Road Route)

At the intersection of M-59 (Highland Road) and Hickory Ridge Road, the NB right turn movement and the NB approach operate at LOS F in the p.m. peak hour. Additionally, significant queueing occurs on this approach, with 95th percentile queues of 991 feet (40 vehicles) in the northbound direction. Currently, there is 100 feet of storage for the right turn movement (4-5 vehicles). During the p.m. peak hour, the NB right turn movement is approximately 2 times heavier than the NB thru movement. The NB right turn movement exceeds the provided storage length for the majority of the peak hour, leading to the queueing issues for northbound traffic. It is not uncommon for thru traffic to be stuck behind a right turning vehicle waiting to merge into the right turn lane and missing the green phase due to these delays.

## Haul Route 2b (Milford Road Route)

At the intersection of M-59 (Highland Road) and Milford Road, the EB right turn movement operates at a LOS E in the a.m. and p.m. peak hours. Review of the 95th percentile queue lengths indicates that the 95th percentile queue does not exceed 152 feet (6 vehicles) in the a.m. peak hour and 152 feet (6 vehicles) in the p.m. peak hour. Both of these queue lengths are typical for a signalized intersection.

### Outcomes

Based on our field observations, modeling, and analysis of the alternative haul routes, we believe the decision to utilize either of these routes would be based on the physical rather than operational characteristics. Factors such as pavement condition, shoulder widths, curvature/turning radii, and adjacent land uses are expected to drive decision-making rather than operational impacts or concerns. We recommend the best course of action is to review these findings with you to determine Levy's direction to select a preferred route, update the traffic impact study report, and/or conduct further investigation.

Table 1 – LOS Analysis for No-Build Conditions – Haul Route 2a (without hauling operations)

Approach	Lane Group		LOS/De	elay(s)		
Дриоасп	Lane Group	a.m. Peak Hour		p.m. Peak Hour		
Ormond Road and Davisburg Road	d (NB Stop-Controlled)					
	Thru	А	0.0	А	0.0	
EB Davisburg Road	Right	А	0.0	Α	0.0	
	Overall	А	0.0	Α	0.0	
WB Davisburg Road	Left	А	8.1	А	7.9	
	Thru	А	0.0	А	0.0	
	Overall	А	4.0	А	3.6	
NB Ormond Road	Overall	В	12.0	В	14.0	
	Overall	А	4.8	А	5.5	
Milford Road and Davisburg Road						
EB Davisburg Road	Overall	С	16.7	В	13.2	
WB Davisburg Road	Overall	В	12.4	<u>B</u>	13.9	
NB Milford Road	Overall	Α	0.0	A	0.1	
SB Milford Road	Overall	A	3.2	A	3.6	
Add In In In In	Overall	A	4.8	А	5.5	
Milford Road and Harvey Lake Roa						
EB Milford Road	Overall	В	11.0	В	14.9	
WB White Lake Road	Overall	В	11.1	С	15.2	
ND Hama	Left/Thru	A	9.9	C	17.7	
NB Harvey Lake Road	Right	Α	9.0	A	9.5	
	Overall Loft/Thru	A	9.5	С	16.1	
CD Milford Dood	Left/Thru	В	12.6	B	12.4	
SB Milford Road	Right Overall	<u>А</u> В	8.5 11.7	<u>А</u> В	9.6 11.7	
	Overall	В	11.7	В	14.9	
Milford Dood and Chida Dood (All)		D	11.0	D	14.9	
Milford Road and Clyde Road (All-		^	0.4	^	0.0	
EB Clyde Road	Overall	A	8.4	A	9.8	
WB Milford Road	Overall	A	9.0	В	10.6	
NB Milford Road	Overall	Α	8.3	<u>A</u>	9.9	
	Overall	А	8.6	В	10.1	
Hickory Ridge Road and Clyde Roa		-	10.1		10.2	
	Left	В	10.1	В	10.3	
EB Clyde Road	Thru/Right	В	10.2	В	10.1	
	Overall Left	<u>В</u> В	10.2 11.2	<u>В</u> В	10.2 10.5	
WB Clyde Road	Thru/Right	<u>В</u>	9.7	В В	10.5	
VVB Ciyde Road	Overall	В	10.7	В	10.8	
	Left	<u>В</u>	9.3	B	9.6	
NB Hickory Ridge Road	Thru/Right	B	10.4	C	15.7	
TVD Friekory Mage Moda	Overall	В	10.3	В	15.0	
	Left	A	9.5	A	9.7	
SB Hickory Ridge Road	Thru/Right	В	14.7	В	10.1	
	Overall	В	14.0	A	10.0	
	Overall	В	12.2	В	12.5	
M-59 (Highland Road) and Hickory	Ridge Road (Signalized)					
, ,	Thru	А	6.3	А	8.2	
EB M-59 (Highland Road)	Right	A	3.5	A	2.0	
, ,	Overall	Α	5.5	A	7.2	
	Thru	В	10.6	А	9.8	
WB M-59 (Highland Road)	Right	А	9.9	А	2.6	
,	Overall	В	10.6	А	8.8	
	Thru	С	23.8	С	32.4	
NB Hickory Ridge Road	Right	С	33.1	F	158.0	
	Overall	С	31.2	F	111.9	
	Thru	С	34.3	С	26.0	
SB Hickory Ridge Road	Right	С	26.0	С	26.5	
	Overall	С	30.9	С	26.3	
	Overall	В	15.6	D	38.6	
		ırdware (Sign	alized)			
EB M-59 (Highland Road) and WB	to EB Crossover/True Value Ha	\ 0				
	to EB Crossover/True Value Ha	A	8.6	А	6.8	
EB M-59 (Highland Road)	Overall Overall		24.4	A C	6.8 28.1	
EB M-59 (Highland Road) NB True Value Hardware	Overall Overall	A C C	24.4 27.9	C C	28.1 28.0	
EB M-59 (Highland Road) NB True Value Hardware SB Crossover	Overall Overall Overall Overall	A C	24.4	С	28.1	
EB M-59 (Highland Road) NB True Value Hardware SB Crossover	Overall Overall Overall Overall	A C C	24.4 27.9	C C	28.1 28.0	
EB M-59 (Highland Road) NB True Value Hardware SB Crossover WB M-59 (Highland Road) and EB	Overall Overall Overall Overall	A C C	24.4 27.9	C C	28.1 28.0	
EB M-59 (Highland Road) and WB EB M-59 (Highland Road) NB True Value Hardware SB Crossover WB M-59 (Highland Road) and EB WB M-59 (Highland Road) NB Crossover	Overall Overall Overall Overall to WB Crossover (Signalized)	A C C B	24.4 27.9 11.5	C C A	28.1 28.0 9.7	

Table 2 – LOS Analysis for Future Conditions – Haul Route 2a (with hauling operations)

Approach	Lane Group	LOS/De a.m. Peak Hour		lay(s) p.m. Peak Hour	
Ormond Road and Davisburg Road	d (NB Stop-Controlled)				
<u> </u>	Thru	А	0.0	А	0.0
EB Davisburg Road	Right	Α	0.0	Α	0.0
	Overall	А	0.0	Α	0.0
	Left	А	8.2	А	7.9
WB Davisburg Road	Thru	A	0.0	A	0.0
	Overall	А	4.1	Α	3.6
NB Ormond Road	Overall	В	14.4	С	17.7
	Overall	А	5.6	Α	6.9
Milford Road and Davisburg Road					
EB Davisburg Road	Overall	С	17.1	В	13.4
WB Davisburg Road	Overall	С	17.4	C	17.4
NB Milford Road	Overall	A	0.0	A	0.1
SB Milford Road	Overall	A	3.2	A	3.6
SB WIIIOI a Road	Overall	A	6.2	A	6.7
\A:\f\D\D\D				A	0.7
Milford Road and Harvey Lake Roa					
EB Milford Road	Overall	С	15.1	С	19.0
WB White Lake Road	Overall	В	11.7	С	16.3
	Left/Thru	В	10.5	С	19.1
NB Harvey Lake Road	Right	А	9.4	А	9.8
	Overall	А	10.0	С	17.3
	Left/Thru	В	13.4	В	12.9
SB Milford Road	Right	А	9.2	В	10.3
	Overall	В	12.2	В	12.0
	Overall	В	12.6	С	16.6
Milford Road and Clyde Road (All-	Way Stop-Controlled)		I		
EB Clyde Road	Overall	А	9.2	В	10.9
WB Milford Road	Overall	A	9.1	В	11.2
NB Milford Road	Overall	A	8.4	В	10.3
ND WIIIIOTA NOBA	Overall	A	9.0	В В	10.8
lighton, Didge Dood and Chyde Doo			5.0		10.0
Hickory Ridge Road and Clyde Roa			10.4		10.5
	Left	В	10.4	В	10.5
EB Clyde Road	Thru/Right	В	10.5	В	10.3
	Overall	В	10.5	В	10.4
	Left	В	12.6	В	11.9
WB Clyde Road	Thru/Right	Α	9.9	В	11.0
	Overall	В	11.8	В	11.4
	Left	Α	9.5	Α	9.7
NB Hickory Ridge Road	Thru/Right	В	11.2	С	17.6
	Overall	В	11.1	С	16.8
	Left	Α	9.8	А	9.9
SB Hickory Ridge Road	Thru/Right	С	15.5	В	10.4
,	Overall	В	14.7	В	10.3
	Overall	В	12.8	В	13.6
M-59 (Highland Road) and Hickory	/ Ridge Road (Signalized)				
, , ,	Thru	А	6.5	А	8.2
EB M-59 (Highland Road)	Right	A	3.6	A	1.5
15 W 55 (Mgmana Noau)	Overall	A	5.6	A	7.0
	Thru	B	11.3	A	9.3
A/D NA EO (Highland Desell)					
WB M-59 (Highland Road)	Right	В	12.1	Α	2.9
	Overall	В	11.4	Α	8.3
10.11.1	Thru	С	23.8	С	32.4
NB Hickory Ridge Road	Right	С	33.5	F	158.0
	Overall	С	31.6	F	111.9
	Thru	С	34.3	С	26.0
SB Hickory Ridge Road	Right	С	28.0	С	27.9
	Overall	С	31.6	С	27.2
	Overall	В	16.4	D	38.3
EB M-59 (Highland Road) and WB	to EB Crossover/True Value Ha	ardware (Sign	alized)		
EB M-59 (Highland Road)	Overall	A	9.3	А	7.4
NB True Value Hardware	Overall	С	23.8	С	27.4
6B Crossover	Overall	C	29.0	C	29.1
<del>-:</del>	Overall	В	12.3	В	10.5
WB M-59 (Highland Road) and EB		<u> </u>	12.0		10.5
		Λ	7 /	D	100
WB M-59 (Highland Road)	Overall	A	7.4	В	16.2
NB Crossover	Overall	D	46.9	С	32.0
	Overall	В	13.6	С	20.4
Ormond Road and Site Driveway (	EB Stop-Controlled)				
ED C:+- D.::	Overall	В	13.3	В	13.9
EB Site Driveway					
NB Ormond Road	Overall	Α	0.2	Α	0.0
·	Overall Overall	A A	0.2	<u>А</u> А	0.0

Table 3 – LOS Analysis for No-Build Cor	minons Tradi Noute 20 (WITHOU	t Hauling Op	LOS/De	elav(s)	
Approach	Lane Group	a.m. Po	eak Hour		eak Hour
Ormond Road and Davisburg Road (NB	Stop-Controlled)	<u> </u>		P	
· ·	Thru	А	0.0	А	0.0
EB Davisburg Road	Right	Α	0.0	А	0.0
G	Overall	А	0.0	А	0.0
WB Davisburg Road	Left	А	8.1	Α	7.9
	Thru	А	0.0	А	0.0
	Overall	Α	4.0	Α	3.6
NB Ormond Road	Overall	В	12.0	В	14.0
	Overall	А	4.8	А	5.5
Milford Road and Davisburg Road (EB/					
EB Davisburg Road	Overall	С	16.7	В	13.2
WB Davisburg Road NB Milford Road	Overall	В	12.4	В	13.9
SB Milford Road	Overall Overall	Α	0.0 3.2	Α	0.1 3.6
SB Millord Road	Overall	<u>А</u> А	4.8	<u>А</u> А	5.5
Milford Road and Harvey Lake Road an				A	3.5
·			1		
EB Milford Road	Overall	В	11.0	В	14.9
WB White Lake Road	Overall	В	11.1	С	15.3
	Left/Thru	A	9.9	C	17.7
NB Harvey Lake Road	Right	Α	9.0	A	9.5
	Overall	A	9.5	С	16.1
CD Milford D	Left/Thru	<u>В</u>	12.6 8.5	<u>В</u>	12.5 9.6
SB Milford Road	Right Overall	<u>А</u> В	8.5 11.7	<u>А</u> В	9.6
	Overall	В	11.7	В В	11.8
Milford Road and Clyde Road (All-Way		U	11.0	В	14.5
EB Clyde Road	Overall	Α	8.4	A	9.8
WB Milford Road	Overall	A	9.0	B	10.6
NB Milford Road	Overall	A	8.3	A	9.9
	Overall	A	8.6	В	10.1
Milford Road and E Wardlow Road/Apo			- 1-		
, 1	Left	C	20.5	А	0.0
EB Apollo Center Bus Driveway	Thru/Right	В	19.8	В	19.8
,	Overall	С	20.2	В	19.8
	Left	С	22.6	С	21.8
WB Wardlow Road	Thru/Right	С	20.2	С	21.0
	Overall	С	22.2	С	21.5
	Left/Thru	А	8.4	В	11.6
NB Milford Road	Right	Α	8.0	Α	8.5
	Overall	Α	8.3	В	11.0
	Left	A	9.4	В	15.2
SB Milford Road	Thru/Right	В	10.2	A	9.5
	Overall	В	10.2	В	10.2
14.50 (H: 11 12 1) 144:K 12	Overall	В	11.9	В	12.1
M-59 (Highland Road) and Milford Roa			45.0		10.2
	Left	В	15.9	В	18.3
EB M-59 (Highland Road)	Thru Right	C E	24.5 56.6	C E	26.0 69.5
	Right Overall	C	29.5	C	33.6
WB M-59 (Highland Road)	Thru	В	11.7	В	17.8
	Right	B	7.9	В	9.1
	Overall	B	11.3	B	16.9
	Thru	C	23.9	C	28.0
NB Hickory Ridge Road	Right	С	25.8	С	32.5
	Overall	С	25.1	С	30.3
	Thru	С	29.5	С	23.9
SB Milford Road	Right	С	26.3	С	23.3
	Overall	С	28.1	С	23.7
	Overall	С	25.2	С	29.8
EB M-59 (Highland Road) and WB to EE	3 Crossover (Signalized)				
EB M-59 (Highland Road)	Overall	В	12.4	В	12.3
SB Crossover	Overall	В	19.7	С	24.5
	Overall	В	13.9	В	14.9
WB M-59 (Highland Road) and EB to W		•	•		
WB M-59 (Highland Road)	Overall	A	0.0	Α	0.0
NB Crossover	Overall	В	14.5	C	19.0
	Overall	Α	0.4	Α	1.1

Table 4 – LOS Analysis for Future Conditions – Haul Route 2b (with hauling operations)

Table 4 – LOS Analysis for Future Condition	ons – Haul Route 2b (with hat	aling operation	•	alay/s)	
Approach	Lane Group	LOS/D a.m. Peak Hour		p.m. Peak Hour	
Ormond Road and Davisburg Road (NB S		Δ.	0.0	Δ.	0.0
ER Davishurg Road	Thru Right	<u>А</u> А	0.0	<u>А</u> А	0.0
EB Davisburg Road	Overall	A	0.0	A	0.0
	Left	A	8.2	A	8.0
WB Davisburg Road	Thru	A	0.0	A	0.0
	Overall	A	4.1	A	3.7
NB Ormond Road	Overall	В	13.6	В	17.8
	Overall	А	5.3	А	6.7
Milford Road and Davisburg Road (EB/W	B Stop-Controlled)		<u>'</u>		
EB Davisburg Road	Overall	С	17.1	В	13.4
WB Davisburg Road	Overall	С	17.4	В	17.4
NB Milford Road	Overall	А	0.0	А	0.1
SB Milford Road	Overall	А	3.2	Α	3.6
	Overall	А	6.2	Α	6.7
Milford Road and Harvey Lake Road and	White Lake Road (All-Way Sto	p-Controlled	)		
EB Milford Road	Overall	С	15.1	С	19.0
WB White Lake Road	Overall	В	11.7	С	16.3
	Left/Thru	В	10.5	С	19.1
NB Harvey Lake Road	Right	А	9.4	А	9.8
	Overall	A	10.0	С	17.3
	Left/Thru	В	13.4	В	12.9
SB Milford Road	Right	A	9.2	В	10.3
	Overall	В	12.2	В	12.0
A 416	Overall	В	12.6	С	16.6
Milford Road and Clyde Road (All-Way St			- T		4 =
EB Clyde Road	Overall	A	8.6	В	10.1
WB Milford Road	Overall	В	10.1	В	12.1
NB Milford Road	Overall	Α	8.5	В	10.5
N 4:15 D	Overall Overall	A	9.2	В	11.0
Milford Road and E Wardlow Road/Apoll		•	20.5	•	0.0
	Left	С	20.5	A	0.0
EB Apollo Center Bus Driveway	Thru/Right	В	19.8	В	19.8
	Overall Left	C	20.2	<u>В</u> С	19.8 21.8
WB Wardlow Road	Thru/Right	С	22.6 20.2	C	21.8
VVB VVaruiow Road	Overall	С	20.2	C	21.5
	Left/Thru	A	8.8	В	12.2
NB Milford Road	Right	A	8.0	A	8.5
NB Williona Road	Overall	A	8.6	В	11.4
	Left	A	9.9	В	16.1
SB Milford Road	Thru/Right	В	10.7	Α	9.9
	Overall	В	10.7	В	10.6
	Overall	В	12.1	В	12.5
M-59 (Highland Road) and Milford Road	(Signalized)				
	Left	В	16.0	В	18.3
	Thru	С	24.8	С	26.1
EB M-59 (Highland Road)	Right	E	56.0	Е	68.4
	Overall	С	29.5	С	33.3
	Thru	В	11.9	В	17.8
WB M-59 (Highland Road)	Right	А	8.2	А	9.4
	Overall	В	11.4	В	16.9
	Thru	С	23.7	С	28.0
NB Hickory Ridge Road	Right	С	25.6	С	32.5
	Overall	С	25.0	С	30.3
	Thru	С	29.1	С	23.9
SB Milford Road	Right	С	28.9	С	24.8
	Overall	С	29.0	С	24.3
50.44.50.000.11	Overall	С	25.3	С	29.7
EB M-59 (Highland Road) and WB to EB (		_	, <u>.</u>		
EB M-59 (Highland Road)	Overall	В	12.4	В	12.4
SB Crossover	Overall	С	20.8	С	25.0
AND NA COURT II IS IN 150	Overall Overall	B -1\	14.2	В	15.1
WB M-59 (Highland Road) and EB to WB			2.2	•	^ -
WB M-59 (Highland Road)	Overall	Α	0.0	A	0.0
NB Crossover	Overall	С	15.3	С	20.1
Owns and Deed and Lotte D. 1 (50.0)	Overall Overall	А	0.5	А	1.2
Ormond Road and Site Driveway (EB Stop	, , , , , , , , , , , , , , , , , , ,	<u> </u>	12.2	D	12.0
EB Site Driveway	Overall	В	13.3	В	12.8
NB Ormond Road	Overall	A	0.2	A	0.0
SB Ormond Road	Overall	A	0.0	A	0.0
	Overall	А	0.8	А	0.8

By email

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# Memo

TO: Thomas Forster – Varnum LLP

Attorney-Client Privilege

FROM: Timothy J. Likens, PE, PTOE

DATE: January 17, 2024 PROJECT NO.: 230233

SUBJECT: Traffic Impact Study – Field Site

Alternative Routes (M-59)

Fishbeck has been providing traffic engineering services for the Levy site in Springfield Township, Oakland County, Michigan. To date, Fishbeck has delivered site observation materials and findings, as well as a draft traffic impact study report relative to this fixed haul route. Fishbeck also provided a memorandum dated December 20, 2023 which outlined findings of an operational analysis utilizing Milford Road and Hickory Ridge between the site and M-59.

Subsequent to completion of this work, Fishbeck staff met virtually with Levy on January 10, 2024. During this meeting the team discussed key findings of the alternative route analysis and field investigation. The following summarize those findings, points of discussion, and related information:

- 1. The study intersections along the alternative routes operate acceptably, resulting in the following conclusions:
  - a. New truck traffic would not adversely impact operations along the alternative routes.
  - b. Material hauling would not be inhibited by existing capacity deficiencies along the alternative routes.
- 2. Trucks destined for M-59 must make a left-turn from STOP from WB Davisburg Road to SB Milford Road. Operational results indicate that adequate gaps are available on Milford Road to complete this turn; however, there is a horizontal curve on Milford Road to the north. Overhead flashing beacons (amber for Milford Road, red for Davisburg Road) are installed above the intersection to enhance safety.
  - a. Generally, vegetation clearing at intersections to improve sight distance may be desirable to both Levy and Oakland County.
- 3. South of Clyde Road, considerations for the use of Milford Road versus Hickory Ridge Roadinclude:
  - a. Milford Road is abutted by more densely developed land uses than Hickory Ridge Road.
  - b. Traffic along Milford Road will encounter an additional traffic signal; whereas traffic along Hickory Ridge Road will encounter an additional 4-way STOP.
  - c. 2023 PASER pavement condition ratings indicate fair to good pavement conditions along both alternative routes. Milford Road was resurfaced in 2019 within the limits of Highland Township.

- 4. The intersections of M-59 with Milford Road and Hickory Ridge Road are controlled by traffic signals and indirect left-turns (crossovers), except as noted below. Turning movements operate acceptably and turn lane storage lengths are adequate to accommodate additional truck volumes.
  - a. The left-turn movement from EB M-59 to NB Milford Road is currently permitted directly at Milford Road, which is atypical of a boulevard with crossovers but functions acceptably.
  - b. Portions of M-59 have recently been resurfaced and traffic signals modernized in this vicinity; therefore, removal of this direct left-turn in the immediate future is not expected.
  - c. Truck traffic on EB M-59 destined for NB Milford Road should continue to utilize the signalized direct left-turn at Milford Road; whereby the EB to WB crossover east of Milford Road is STOP controlled with limited visibility of conflicting WB traffic over a crest vertical curve.
  - d. Although unlikely in the near term, future elimination of this direct left-turn is expected to trigger the need for signalization of the EB to WB crossover on M-59 east of Milford Road.
- 5. The Road Commission for Oakland County (RCOC) truck operator's map indicates that Milford Road is "Designated" (formerly Class A) between Davisburg Road and M-59. Hickory Ridge Road is "Special Designated" between Clyde Road and M-59; however, Clyde Road is classified "Normal" (formerly Class B) between Milford Road and Hickory Ridge Road (approximately 2.25 miles).
  - a. "Designated" routes carry a 25% weight reduction when Spring restrictions are in force. "Normal" routes carry a 35% reduction when Spring restrictions are in place. "Special Designated" routes do not typically carry a Spring weight restriction.
- 6. Michigan Department of Transportation (MDOT) Annual Average Daily Traffic (AADT) volume maps indicate the following existing (2022) two-way volumes of total and commercial (heavy vehicle) traffic. These data indicate these roadways carry approximately 3% heavy vehicle traffic. Peak hour data collected by Fishbeck across the study network indicates similar overall percentages.

Study Area AADT/CAADT Volumes (vehicles per day)

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Roadway	AADT	CAADT			
Ormond Road	3229	93			
Davisburg Road	4054	117			
Milford Road (N of Clyde)	4857	142			
Milford Road (S of Clyde)	11830	343			
Clyde Road	3258	95			
Hickory Ridge Road	7303	212			

## By email

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