

McDonough & Rea Associates, Inc.

Traffic and Transportation Consulting

Kevin P. McDonough (1953-1994)
John H. Rea, P.E.
Jay S. Troutman, Jr., P.E.
Scott T. Kennel

December 18, 2019

Township of Franklin
475 DeMott Lane
Somerset, New Jersey 08873

Re: Traffic Impact Study
Pillar of Fire Parking Lot Expansion
Block 516.01, Lot 1.01
Franklin Township, Somerset County, NJ
MRA File No. 07-193

Dear Board Members:

McDonough & Rea Associates (MRA) has prepared this *Traffic Impact Study* pursuant to plans prepared by Van Cleef Engineering Associates (VCEA) for a parking lot expansion for the existing church at the Zarephath Ministry Center. The subject property is located along the east side of Weston Canal Road, as shown on the attached Site Location Map. The applicant is proposing to add 224 parking spaces to the site in order to accommodate peak parking demand that occurs during the changeover between their two existing Sunday morning worship services. The site currently has 251 parking spaces so the proposed future parking supply is 475 spaces.

EXISTING TRAFFIC AND ROADWAY CONDITIONS

The Zarephath Ministry Center property has access to Weston Canal Road by way of an existing stop-controlled T-shaped intersection with Ministry Center Drive providing access to the site and approaching Weston Canal Road from the east as the stem of the T under stop control. The existing site access intersection was constructed based on approval from Somerset County and includes a southbound exclusive left-turn lane for traffic entering Ministry Center Drive from Weston Canal Road along with separate left and right turn lanes for traffic exiting the site. The posted speed limit along Weston Canal Road is 45 miles per hour in the vicinity of the site.

Please reply to:

- 1431 Lakewood Road, Suite C, Manasquan, NJ 08736 • (732) 528-7076 • Fax (732) 528-6673
- 105 Elm Street, Lower Level, Westfield, NJ 07090 • (908) 789-7180 • Fax (908) 789-7181



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Township of Franklin

- 2 -

December 18, 2019

EXISTING 2019 TRAFFIC VOLUMES

MRA conducted manual turning movement traffic counts at the intersection of Weston Canal Road and Ministry Center Drive on Sunday November 17, 2019 from 8:30 AM to 1:00 PM. The Sunday morning time frame is the busiest time period for traffic activity at the existing site with well attended church services at 9:00 AM and 11:00 AM. There is a much smaller church service on Saturday evening and no other activities that generate significant traffic during the rest of the week. A full copy of the traffic count data report is included in the Appendix. The highest hour of traffic during the count period was 10:15 to 11:15 AM, which is during the changeover between the two Sunday worship services. Table I provides a summary of existing Sunday morning peak hour traffic volumes.

**Table I
Existing 2019 Sunday Peak Hour Traffic Volumes
Weston Canal Road & Ministry Center Drive**

	<u>Sunday Peak Hour</u>
	<u>10:15 to 11:15 AM</u>
Westbound Left	91
Westbound Right	98
Northbound Thru	352
Northbound Right	74
Southbound Left	111
Southbound Thru	267
TOTAL	993

ANALYSIS OF EXISTING TRAFFIC CONDITIONS

Existing Sunday peak hour traffic conditions have been analyzed through completion of level of service calculations in accordance with procedures outlined in the Highway Capacity Manual (HCM) published by the Transportation Research Board. Levels of service are calculated based on average vehicular delay and range from "A" to "F" with "A" being the highest or best level of service and "F" being the lowest or worst level of service. A copy of the level of service calculations is provided in the Appendix.



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- 3 -

December 18, 2019

Analysis of the intersection of Weston Canal Road and Ministry Center Drive shows that southbound left-turn movements from Weston Canal Road into Ministry Center Drive are operating at level of service "A" during the Sunday morning peak hour. Left-turn movements exiting Ministry Center Drive are operating at level of service "D" and right-turn movements exiting Ministry Center Drive are operating at level of service "B" during the Sunday morning peak hour.

PARKING AND ON-SITE TRAFFIC CIRCULATION

The plans prepared by VCEA show the integration of additional parking spaces to connect with the existing on-site parking areas. The proposed parking expansion plan has been designed with properly sized parking spaces and two-way traffic circulation aisles to accommodate efficient on-site traffic flow and parking stall access.

CONCLUSIONS

Based on the analysis contained in the body of this report, it is concluded that the proposed parking expansion will improve on-site parking conditions during the changeover between church services on Sunday morning. This plan is proposed in order to accommodate existing parking activity and no additional traffic impact is expected to be generated by this application. This site does not generate significant existing traffic (except on Sunday mornings) and a police traffic director is present on site each Sunday from 8:30 AM to 1:00 PM in order to control the existing traffic, as necessary, even though the intersection of Weston Canal Road and Ministry Center Drive is operating at acceptable levels of service. Overall, existing traffic conditions at the site are acceptable and are not expected to change in the future.

Very truly yours,

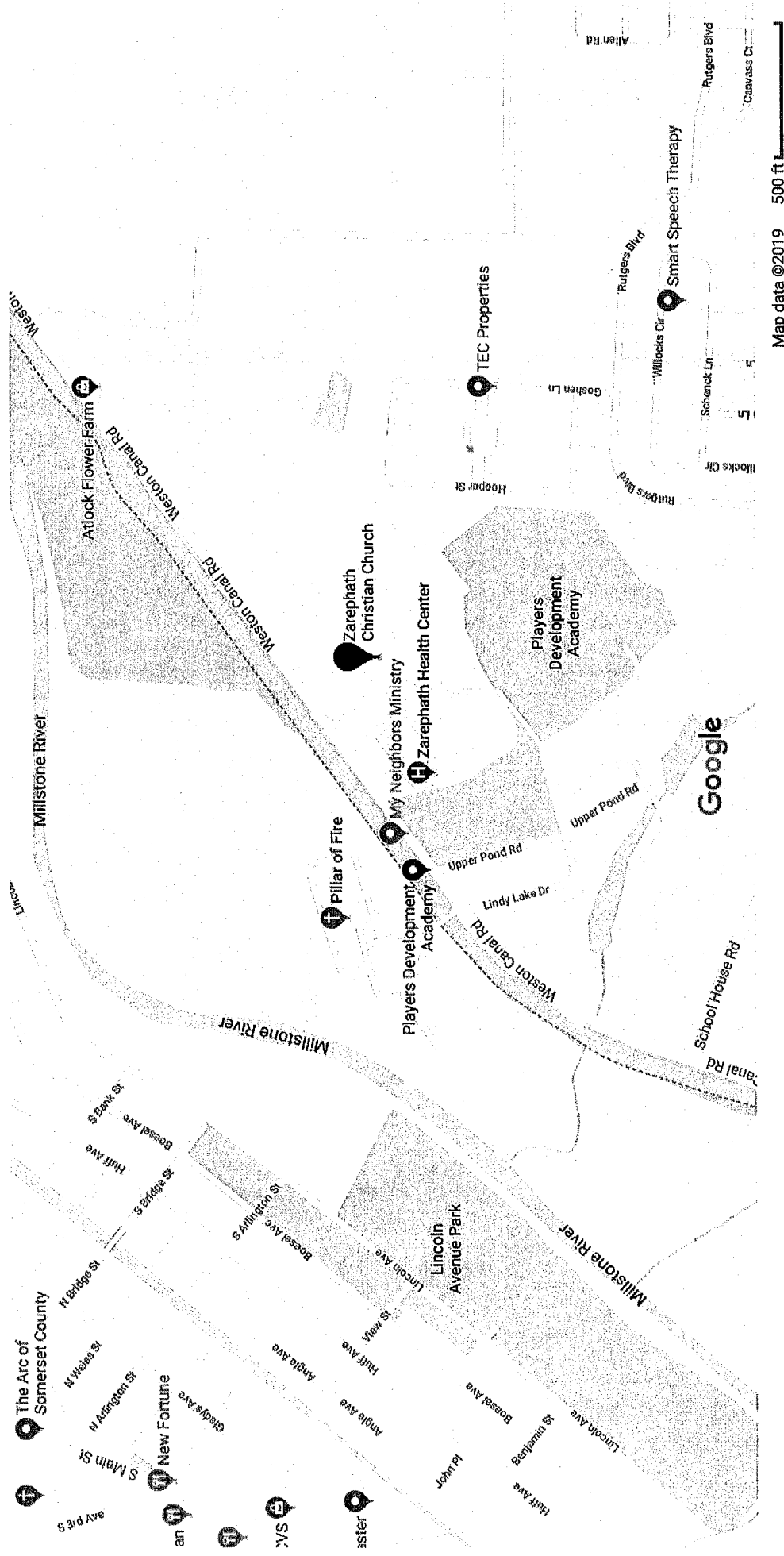
Jay S. Troutman Jr. PE

Attachments

Google Maps

Zarephath Christian Church

Site Location Map



APPENDIX

Date: Sunday - 11/17/2019
 Period: 8:30 AM to 1:00 PM
 Location: Weston Canal Road & Ministry Center Drive, Franklin Township, Somerset County, NJ (07-193)

Time (PM)	Class	Vehicle Movement											
		NB - Weston Canal Road			WB - Ministry Center Drive			SB - Weston Canal Road					
		Thru	Right	Left	Right	Left	Right	Left	Thru	Left	Right	Thru	Total
8:30 - 8:45	Total	43	11	0	0	0	1	20	31	0	0	0	106
	HV	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	Total	53	31	1	0	0	0	39	32	0	0	0	156
	HV	2	0	0	0	0	0	0	0	0	0	0	2
9:00 - 9:15	Total	53	36	0	0	0	0	45	39	0	0	0	173
	HV	0	0	0	0	0	0	0	0	0	0	0	1
9:15 - 9:30	Total	69	18	2	0	0	1	15	35	0	0	0	140
	HV	0	0	0	0	0	0	0	0	0	0	0	1
9:30 - 9:45	Total	93	6	0	0	0	0	6	53	0	0	0	158
	HV	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	Total	76	2	0	0	0	0	1	54	0	0	0	133
	HV	3	0	0	0	0	0	0	0	0	0	0	3
10:00 - 10:15	Total	77	1	1	0	0	1	0	54	0	0	0	134
	HV	2	0	0	0	0	0	0	0	0	0	0	3
10:15 - 10:30	Total	85	2	63	0	0	58	4	61	0	0	0	273
	HV	3	0	0	0	0	0	0	0	0	0	0	4
10:30 - 10:45	Total	99	11	17	0	0	26	15	58	0	0	0	226
	HV	2	0	0	0	0	0	0	0	0	0	0	3
10:45 - 11:00	Total	82	31	8	0	0	9	42	75	0	0	0	247
	HV	1	0	0	0	0	0	0	0	0	0	0	2
11:00 - 11:15	Total	86	30	3	0	0	5	50	73	0	0	0	247
	HV	0	0	0	0	0	0	0	0	0	0	0	1
11:15 - 11:30	Total	92	24	5	0	0	6	21	84	0	0	0	232
	HV	0	0	0	0	0	0	0	0	0	0	0	3
11:30 - 11:45	Total	97	8	1	0	0	3	5	72	0	0	0	186
	HV	0	0	0	0	0	0	0	0	0	0	0	1
11:45 - 12:00	Total	108	2	2	0	0	4	3	78	0	0	0	197
	HV	3	0	0	0	0	0	0	0	0	0	0	3
12:00 - 12:15	Total	89	1	3	0	0	1	3	78	0	0	0	175
	HV	1	0	0	0	0	0	0	0	0	0	0	1
12:15 - 12:30	Total	91	0	6	0	0	6	3	72	0	0	0	178
	HV	1	0	0	0	0	0	0	0	0	0	0	4
12:30 - 12:45	Total	121	3	59	0	0	76	1	76	0	0	0	336
	HV	0	0	0	0	0	0	0	0	0	0	0	1
12:45 - 1:00	Total	125	1	13	0	0	25	3	107	0	0	0	274
	HV	0	0	0	0	0	0	0	0	0	0	0	3
	Total	979	149	113	0	0	132	204	712	0	0	0	2289

575
627
604
565
698
766
880
993
952
912
862
790
793
886
835

10:15 - 11:15 AM - Peak Hour	352	74	91	98	111	267	993
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PHF	0.889	0.597	0.361	0.422	0.555	0.890	0.909
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HCS7 Two-Way Stop-Control Report

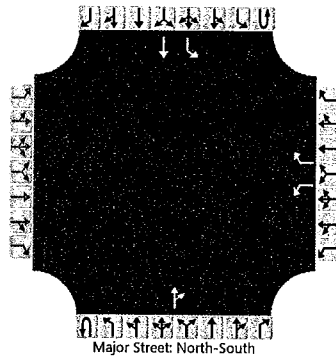
General Information

Analyst	Jay Troutman
Agency/Co.	McDonough & Rea Assoc.
Date Performed	12/17/2019
Analysis Year	2019
Time Analyzed	Existing Sunday Peak Hour
Intersection Orientation	North-South
Project Description	07-193 Pillar of Fire

Site Information

Intersection	Weston Canal&Ministry Ctr
Jurisdiction	Franklin Twp,Somerset Cty
East/West Street	Ministry Center Drive
North/South Street	Weston Canal Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	1	0	0	1	0	0	1	1	0
Configuration						L		R				TR		L	T	
Volume (veh/h)						91		98			352	74		111	267	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized							No									
Median Type Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.40		6.20							4.10	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.50		3.30							2.20	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						100		108							122	
Capacity, c (veh/h)						254		632							1104	
v/c Ratio						0.39		0.17							0.11	
95% Queue Length, Q ₉₅ (veh)						1.8		0.6							0.4	
Control Delay (s/veh)						28.1		11.9							8.7	
Level of Service (LOS)						D		B							A	
Approach Delay (s/veh)							19.7								2.5	
Approach LOS							C									