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TRAFFIC IMPACT STUDY

FOR

DADA BHAGWAN VIGNAN INSTITUTE

BLOCK 37.02, LOT 46.03
SOUTH MIDDLEBUSH ROAD
TOWNSHIP OF FRANKLIN, SOMERSET COUNTY

NOVEMBER 21, 2019

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NJ LICENSE NO. 33722

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INTRODUCTION

A site plan application has been filed with Franklin Township for the construction of a 21,083 square foot spiritual center at 630 South Middlebush Road. Dada Bhagwan Vignan Institute (DBVI) proposes a new house of worship on the east side of South Middlebush Road between Cortelyous Lane and Lenape Drive. This traffic impact study has been prepared as part of the application to address the current and projected traffic volumes in the immediate site vicinity.

Dolan & Dean Consulting Engineers, LLC (D&D) has been commissioned by the applicant to prepare this Traffic Impact Study to determine the anticipated increase in traffic activity associated with the development proposal. This study evaluates the impacts of new site traffic on South Middlebush Road, and assess the driveway operations during periods of peak site activity.



EXISTING CONDITIONS

The subject property is located along northbound South Middlebush Road, south of Cortelyous Lane and north of Lenape Drive, as shown on Figure 1. The site is designated as Lot 46.03, Block 37.02 in Franklin Township, Somerset County, and is currently developed with a single-family dwelling with a gravel driveway on South Middlebush Road.

EXISTING ROADWAY CONDITIONS

South Middlebush Road has a north/south orientation and provides travel between Amwell Road to the north and Route 27 to the south. Within the general site vicinity, the roadway provides one travel lane in each direction with a posted speed limit of 45 miles per hour. South Middlebush Road is under Somerset County jurisdiction and is designated Route 615. NJDOT's Straight Line Diagram classifies South Middlebush Road as an urban minor arterial.



TRAFFIC CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

Little activity is expected during the traditional weekday morning and evening peak hours, as there are no official activities on weekdays between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m. 150 to 175 people may visit the site between 6:00 p.m. and 10:00 p.m. after the evening "rush hour" on Fridays.

Maximum activity will occur on Saturdays. Following is a summary of anticipated attendance levels:

- Saturdays – 3 times per month – there will be 75 to 100 attendees between 11:00 a.m. and 8:00 p.m.
- One Saturday per month – there will be 125 to 140 attendees between 9:00 a.m. and 9:00 p.m.
- Sunday – once a month – there will be 50 to 75 attendees between 10:00 a.m. and 2:00 p.m.

Twice a year, on a Saturday and a Sunday, there will be 225 to 250 people visiting the site between 9:00 a.m. and 9:00 p.m.

Attendees come and go throughout the hours as there are no official service start times.

This analysis focuses on the peak attendance of 150 people on a Saturday. Assuming 3 people per vehicle (as is used in the Township's Parking Calculation) 50 vehicles could possibly enter the site during one hour or leave in one hour.



TRAFFIC VOLUMES

EXISTING TRAFFIC VOLUMES

D&D performed the automatic traffic counts on South Middlebush Road from Thursday, April 4, 2019 through Wednesday, April 10, 2019. The traffic counts are appended and summarize the hourly volumes recorded on a Saturday. The highest volume was recorded from 12:00 p.m. to 1:00 p.m. with 673 northbound vehicles and 705 southbound vehicles. These volumes have been used to analyze future site driveway operations.

FUTURE TRAFFIC VOLUMES

Using the hourly count data combined with the peak hour trip generation, future traffic volumes were projected for the site driveway intersection with South Middlebush Road. NJDOT's 2019-2021 Somerset County growth rate of 1.0% for urban minor arterials was applied to the through volumes on South Middlebush Road, for a two-year build-out period. Future traffic volumes are shown on Figure 2.

Using the Highway Capacity Software, driveway analyses were performed and are appended. During the Saturday peak hour - and assuming all attendees arrive or depart in one hour - any vehicles waiting to leave the site will encounter delay as Level of Service "E" is calculated for the driveway egress. The left-turn into the site is calculated to operate at Level of Service "A."

Based on this analysis, ample capacity is available on South Middlebush Road to process peak Saturday traffic volumes. This conclusion is based on an over-projection, assuming all arrivals in one hour and all departures in one hour. However, attendees will come and go over several hours.



SITE ACCESS, CIRCULATION & PARKING

A traffic engineering review has been made of the Site Plan prepared by The Reynolds Group, Inc. with particular attention focused on the site circulation scheme and overall site access. The following items address our review:

- Site access will be provided via one full-movement driveway, located along South Middlebush Road, at the location of the existing residential driveway.
- 157 parking spaces are proposed in two parking areas. 9 handicap spaces and a one-way drop off area are proposed in front of the building. Conventional spaces will measure 9 feet by 18 feet, and handicap spaces are designed in accordance with ADA requirements.
- The driveway and two-way circulation aisles in the parking lot will be 26 feet wide.

The site plan has been designed in accordance with recognized design guidelines to promote safe and efficient traffic flow, with ample room for parking maneuvers.



TECHNICAL APPENDIX

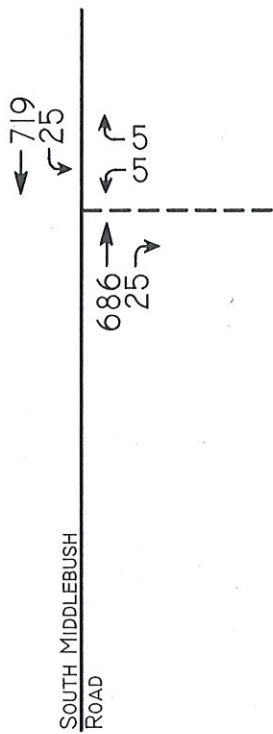


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 SOMERSET COUNTY, NEW JERSEY

FIGURE I

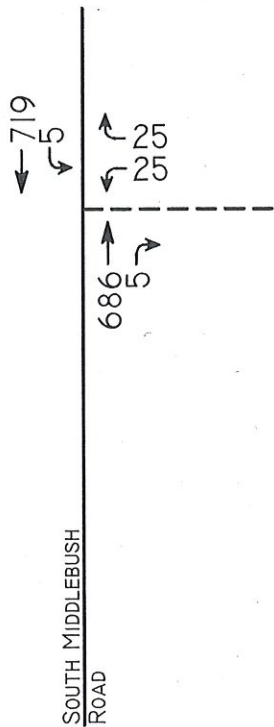


SITE LOCATION MAP



SITE

PEAK ARRIVAL



SITE

PEAK DEPARTURE

Legend

- = Existing Roadway
- = Proposed Driveway

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SOMERSET COUNTY, NEW JERSEY

FIGURE 2



FUTURE TRAFFIC VOLUMES
SATURDAY PEAK HOUR

Sai Datta, South Middlebush Road, Franklin Twp, Somerset Co
 April 2019 Traffic Counts

START TIME	THURS 4/4/2019			FRI 4/5/2019			MON 4/8/2019			TUES 4/9/2019			WED 4/10/2019			AVERAGE WEEKDAY		
	NB	SB	TOTAL	NB	SB	TOTAL	NB	SB	TOTAL	NB	SB	TOTAL	NB	SB	TOTAL	NB	SB	TOTAL
12:00 AM	31	56	87	48	63	111	33	44	77	17	59	76	28	45	73	31	53	85
1:00 AM	19	31	50	20	27	47	16	24	40	18	32	50	10	21	31	17	27	44
2:00 AM	13	15	28	12	22	34	10	15	25	7	16	23	16	18	34	12	17	29
3:00 AM	11	17	28	20	30	50	8	18	26	13	14	27	17	10	27	14	18	32
4:00 AM	35	33	68	40	32	72	42	23	65	41	33	74	46	31	77	41	30	71
5:00 AM	201	84	285	195	78	273	185	89	274	220	84	304	200	92	292	200	85	286
6:00 AM	727	313	1040	675	290	965	728	292	1020	752	316	1068	758	347	1105	728	312	1040
7:00 AM	1290	604	1894	1186	594	1780	1231	634	1865	1234	637	1871	1230	653	1883	1234	624	1859
8:00 AM	1210	643	1853	1114	609	1723	1215	619	1834	1275	593	1868	1159	635	1794	1195	620	1814
9:00 AM	806	428	1234	680	446	1126	832	430	1262	791	431	1222	793	459	1252	780	439	1219
10:00 AM	466	340	806	433	342	775	501	310	811	469	342	811	491	396	887	472	346	818
11:00 AM	408	387	795	409	341	750	367	375	742	374	337	711	407	372	779	393	362	755
12:00 PM	423	401	824	404	441	845	383	372	755	383	396	779	372	428	800	393	408	801
1:00 PM	404	450	854	465	454	919	432	410	842	369	436	805	432	472	904	420	444	865
2:00 PM	544	601	1145	558	670	1228	432	634	1066	514	575	1089	510	620	1130	512	620	1132
3:00 PM	570	874	1444	536	964	1500	554	857	1411	562	865	1427	537	825	1362	552	877	1429
4:00 PM	712	1094	1806	700	1048	1748	682	1087	1769	697	1132	1829	641	1143	1784	686	1101	1787
5:00 PM	674	1218	1892	669	1123	1792	676	1158	1834	691	1123	1814	675	1144	1819	677	1153	1830
6:00 PM	613	1033	1646	590	923	1513	533	1043	1576	596	982	1578	611	1013	1624	589	999	1587
7:00 PM	364	751	1115	434	579	1013	344	630	974	351	591	942	408	645	1053	380	659	1019
8:00 PM	271	536	807	251	367	618	220	438	658	233	403	636	408	398	661	248	428	676
9:00 PM	198	409	607	237	340	577	192	275	467	187	271	458	195	270	465	202	313	515
10:00 PM	140	213	353	205	317	522	110	145	255	117	139	256	116	130	246	138	189	326
11:00 PM	65	118	183	110	209	319	55	103	158	78	85	163	53	85	138	72	120	192
24 HOUR	10195	10649	20844	9951	10309	20300	9781	10025	19806	9989	9892	19881	9968	10252	20220	9985	10225	20210

START TIME	SAT 4/6/2019			SUN 4/7/2019		
	NB	SB	TOTAL	NB	SB	TOTAL
12:00 AM	63	122	185	85	125	210
1:00 AM	23	56	79	59	95	154
2:00 AM	18	32	50	24	45	69
3:00 AM	17	18	35	13	20	33
4:00 AM	35	26	61	11	13	24
5:00 AM	78	35	113	44	19	63
6:00 AM	155	95	250	98	66	164
7:00 AM	299	208	507	194	108	302
8:00 AM	517	298	815	398	162	560
9:00 AM	633	426	1059	488	293	781
10:00 AM	555	468	1023	475	365	840
11:00 AM	587	578	1165	510	516	1026
12:00 PM	673	705	1378	494	571	1065
1:00 PM	606	669	1275	535	551	1086
2:00 PM	635	627	1262	571	598	1169
3:00 PM	630	630	1260	487	594	1081
4:00 PM	552	642	1194	509	597	1106
5:00 PM	603	640	1243	434	517	951
6:00 PM	529	514	1043	339	533	872
7:00 PM	353	466	819	325	399	724
8:00 PM	244	379	623	280	315	595
9:00 PM	234	309	543	230	375	605
10:00 PM	233	299	532	117	147	264
11:00 PM	174	263	437	62	88	150
24 HOUR	8446	8505	16951	6637	6967	13604

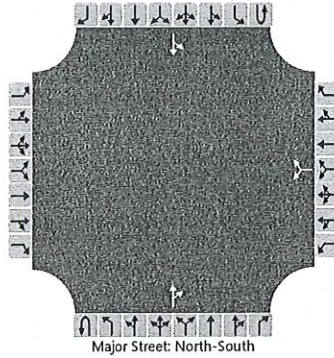


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HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	ED	Intersection	S. Middlebush & Driveway
Agency/Co.	D&D	Jurisdiction	
Date Performed	NOV '2019	East/West Street	Site Driveway
Analysis Year		North/South Street	South Middlebush Road
Time Analyzed	Sat 12-1 PM pre event	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	****		

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		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR			LT	
Volume (veh/h)						5		5			686	25			25	719
Percent Heavy Vehicles (%)						1		1							1	
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type Storage							Undivided									

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.41		6.21							4.11	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.51		3.31							2.21	

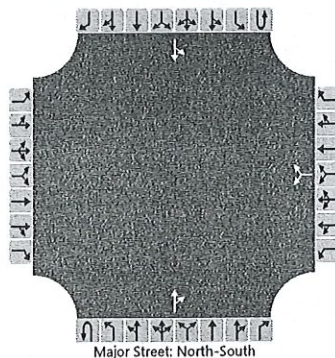
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						13									31	
Capacity, c (veh/h)						127									766	
v/c Ratio						0.10									0.04	
95% Queue Length, Q ₉₅ (veh)						0.3									0.1	
Control Delay (s/veh)						36.5									9.9	
Level of Service (LOS)						E									A	
Approach Delay (s/veh)						36.5									1.1	
Approach LOS						E										

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General Information				Site Information			
Analyst	ED	Intersection	S. Middlebush & Driveway				
Agency/Co.	D&D	Jurisdiction					
Date Performed	NOV 2019	East/West Street	Site Driveway				
Analysis Year		North/South Street	South Middlebush Road				
Time Analyzed	Sat 12-1 PM post event	Peak Hour Factor	0.80				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	DBVI Franklin						

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		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						25		25			686	5		5	719	
Percent Heavy Vehicles (%)						1		1						1		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.41		6.21							4.11	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.51		3.31							2.21	

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						63									6	
Capacity, c (veh/h)						144									783	
v/c Ratio						0.43									0.01	
95% Queue Length, Q ₉₅ (veh)						1.9									0.0	
Control Delay (s/veh)						47.8									9.6	
Level of Service (LOS)						E									A	
Approach Delay (s/veh)						47.8									0.2	
Approach LOS						E										