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December 4, 2024

(Hand Delivery)

Ms. Stephanie Soulios, Land Use Assistant
City of Summit
Zoning Board of Adjustment
512 Springfield Avenue
Summit, NJ 07901

**Re: Beacon Unitarian Universalist Congregation in Summit
695 Springfield Avenue, Summit, NJ 07901
Application ZB-24-2237**

Dear Ms. Soulios:

I enclose for filing in this matter seventeen (17) copies of the Parking and Traffic Study for the proposed project prepared by Dolan & Dolan Consulting Engineers, LLC.

Please contact me should you have any questions. Thank you.

Very truly yours,

Roger Mehner

RM /lnm



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TRAFFIC & PARKING STUDY

FOR

BEACON UNITERIAN UNIVERSALIST
CONGREGATION IN SUMMIT

PROPOSED CHURCH

695 SPRINGFIELD AVENUE
BLOCK 1702, LOT 47
CITY OF SUMMIT
UNION COUNTY, NEW JERSEY

NOVEMBER 18, 2024

A handwritten signature of Elizabeth Dolan in black ink.

ELIZABETH DOLAN, P.E.
NJ LICENSE No. 37071



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SF/RLK
Union\Summit\Beacon Unitarian Church\Documents\2024-11-18 Traffic & Parking Study.doc

A handwritten signature of Rianna S. Kirchhof in black ink.

RIANNA S. KIRCHHOF, P.E.
NJ LICENSE No. 54558

TRAFFIC ENGINEERING
PARKING STUDIES
HIGHWAY DESIGN
DOT ACCESS PERMITS
MUNICIPAL CONSULTING

INTRODUCTION

At the request of the applicant, Dolan & Dean Consulting Engineers, LLC (D&D) has prepared this Traffic & Parking Study for a church proposed along Springfield Avenue in the City of Summit, Union County, New Jersey. The subject location is illustrated in appended Figure 1, and formerly operated as an American Red Cross chapter headquarters.

The applicant proposes to raze the existing building and construct an 18,024 square-foot, 300-seat church. Site access will continue to be provided via one full-movement driveway along Springfield Avenue.

This study identifies the projected traffic increases on the adjacent roadway system that could occur from the proposed church and has further examined the ability of the roadway system to efficiently accommodate the new traffic demand. In addition, the report also includes a review of the site plan focusing on access design, on-site circulation, and parking supply.



EXISTING CONDITIONS

The subject property is located at 695 Springfield Avenue and is designated as Lot 47 in Block 1702. The site is located west of the intersection with Oakley Avenue. Immediately north of the site is the Wilson Primary School and immediately east and west of the site is Wilson Park.

EXISTING ROADWAY CONDITIONS

Springfield Avenue is an east/west, urban minor arterial roadway, designated as Union County Route 512 and is under County jurisdiction. The roadway generally provides one lane per travel direction with a posted speed limit of 35 miles per hour. Sidewalks are provided along the northern side of the roadway and shoulders of varying width are provided along both sides of the roadway. Parking is permitted on both sides of Springfield Avenue. Land uses along Springfield Avenue are primarily single and some multi-family residential in nature in the site vicinity. East of the site is a paved access to Wilson Park for pedestrians and signed EMERGENCY AND AUTHORIZED VEHICLES ONLY.

Several local roadways intersect Springfield Avenue in the site vicinity, forming STOP sign controlled, T-type intersections. Harrison Court intersects Springfield Avenue from the north, approximately 1300 feet west of the site. East of Wilson Park, Oakley Avenue intersects Springfield Avenue from the north. Parking is prohibited on the west side of Oakley Avenue from 9:00 a.m. to 5:00 p.m. on Saturdays and Sundays.

Fairview Avenue intersects Springfield Avenue from the north, and is east of and parallel to Oakley Avenue. Fairview Avenue and Oakley Avenue intersect Beekman Road to the north.

Pine Grove Avenue intersects Springfield Avenue from the south, east of Fairview Avenue. There is a crosswalk across Springfield Avenue at the intersection.



TRAFFIC CHARACTERISTICS OF THE PROPOSED MIXED-USE BUILDING

Traffic projections were prepared by reviewing trip generation data published by the Institute of Transportation Engineers (ITE) in the 11th Edition of the Trip Generation Manual. The appropriate ITE land use for the proposed development is Land Use Code 560: "Church". Trip generation projections are summarized in Table I based on both building size and the number of seats proposed.

TABLE I
TRIP GENERATION PROJECTIONS
PROPOSED CHURCH

VARIABLE	SUNDAY PEAK HOUR		
	ENTER	EXIT	TOTAL
300 Seats	131	131	262
18,024 SF	90	97	187

As shown, trip estimates based on the number of seats is higher, and therefore used in this analysis. However, because Beacon will hold only one Sunday service, the entering and exiting movements will not occur during the same hour. Rather, incoming trips will occur before 10:00 a.m. and exiting trips will occur after 11:00 a.m.



TRAFFIC VOLUMES

EXISTING TRAFFIC VOLUMES

Beacon proposes to hold one service at 10:00 a.m. on Sundays. Therefore, traffic volumes along Springfield Avenue were counted on Sunday, April 7, 2024, from 9:00 a.m. to 10:00 a.m. and from 11:00 a.m. to 12:00 p.m. The traffic count data is appended. Table II summarizes the church “arrival” and “departure” hours used in this analysis.

TABLE II
EXISTING TRAFFIC VOLUMES

HOUR	SPRINGFIELD AVENUE VOLUMES		
	EASTBOUND	WESTBOUND	TOTAL
Arrival (9:00 – 10:00)	184	193	377
Departure (11:00 – 12:00)	263	297	560

FUTURE TRAFFIC VOLUMES

It is recognized that traffic routinely fluctuates along various state and county roadways, as well as local streets, and varies not only day-to-day, but also on a monthly and yearly basis. As a result of both normal “background” traffic increases, (attributed to continued regional growth and changes in driver demographics), as well as new traffic generated by specific projects, traffic demands on the roadways in the vicinity of the site may increase over current demands (at least to some degree), even if no changes were to occur on the subject property, irrespective of the uses permitted.

Regional traffic growth patterns as compiled by the New Jersey Department of Transportation (NJDOT) were examined for this analysis. Based on NJDOT growth patterns for roadways in Union County, traffic volumes along the subject roadway are projected to annually increase by 2.25%. Therefore, existing volumes were increased by 2.25% per year, compounded over 3 years, to a 2027 “build” year.



Figure 2 shows the future driveway intersection volumes, with site traffic assigned 50% to/from the east and 50% to/from the west.

For the purpose of analysis, 10 trips have been estimated to leave the site during the arrival peak hour and 10 trips have been estimated to enter during the departure peak hour.

ANALYSIS OF FUTURE TRAFFIC VOLUMES

While traffic volumes provide a measure of activity on the area roadway system, it is also important to evaluate how well that system can accommodate those volumes – i.e., a comparison of peak hour traffic volumes with available roadway capacity. By definition, capacity represents the maximum number of vehicles that can be accommodated given the constraints of roadway geometry, environment, traffic characteristics, and controls. Intersections are usually the critical point in any road network since it is at such points that conflicts exist between through, crossing, and turning traffic. It is at these locations where congestion is most likely to occur. A description of intersection Levels of Service is noted below:

INTERSECTION LEVELS OF SERVICE AND DELAY		
Level of Service	Signalized Delay per Vehicle (seconds)	Unsignalized Delay per Vehicle (seconds)
A	< 10.0	<0-10
B	>10 and <20	>10 to <15
C	>20 and < 35	>15 to <25
D	>35 and < 55	> 25 to <35
E	>55 and < 80	> 35 to <50
F	> 80	>50

A volume/capacity, Level of Service analysis was conducted for the projected driveway volumes using the updated Highway Capacity Manual (HCM) and the Synchro (Version 11) modeling software that follows the HCM procedures. This type of analysis is performed to assess intersection operations and to identify any areas of excessive delay or congestion.



The appended analyses indicate acceptable Levels of Service during the church arrival and departure peak hours. While some on-site queuing may develop as people leave the site, the relatively low traffic volumes on Springfield Avenue will allow the exit movement to operate at Level of Service B. Level of Service A is calculated for the left-turn into the site, which means limited queueing will occur during the peak arrival hour, and there will be minimal impact to through-moving eastbound traffic on Springfield Avenue.

As shown on Figure 2, approximately 70 vehicles are estimated to/from the west to/from the west during Sunday peak hours. This volume is not considered “significant” which is 100 or more trips an hour, as defined in the State Highway Access Management Code. In the ITE Manual of Transportation Engineering Studies, 100 or more trips in a peak hour is the threshold for analysis. As such, site generation traffic will have a nominal impact to the surrounding roadway network.

The study therefore demonstrates that the proposed development will not have a negative or perceptible impact on operating conditions at surrounding off-tract intersections.



PARKING

As mentioned, 300 seats are proposed in the new church. Based on the Ordinance, 1 space per 3 seats, or 100 parking spaces are required. The Ordinance also requires 1 parking space per 10 square feet of gross floor area. The proposed building area is 19,264 square feet, which would require an unrealistic amount of parking, and essentially accounts for all areas of the building being used simultaneously. When ancillary building areas are provided at a house of worship, not all areas within the structure are used at the same time. For example, when the sanctuary is in use for service, the office space and fellowship area will not be occupied. Therefore, use of the building area is not an appropriate independent variable for calculating anticipated parking demands.

The site plan includes 42 spaces on-site parking spaces and states that 58 spaces can be accommodated along Springfield Avenue.

To substantiate the ability of street parking to support the parking variance, parking usage counts were conducted along Springfield Avenue, between Harrison Court and Fairview Avenue, on Sunday, February 25, 2024, from 9:00 a.m. to 12:00 p.m. in 30-minute intervals. The attached spreadsheet shows a maximum of 2 cars parked on Springfield Avenue at any one time during the study.

A supplemental count was performed between 9:30 and 10:30 a.m. on Sunday, April 21, 2023. Only 3 vehicles were parked on Springfield Avenue in the study area.

This study has demonstrated that ample street parking is available to support church parking variance.



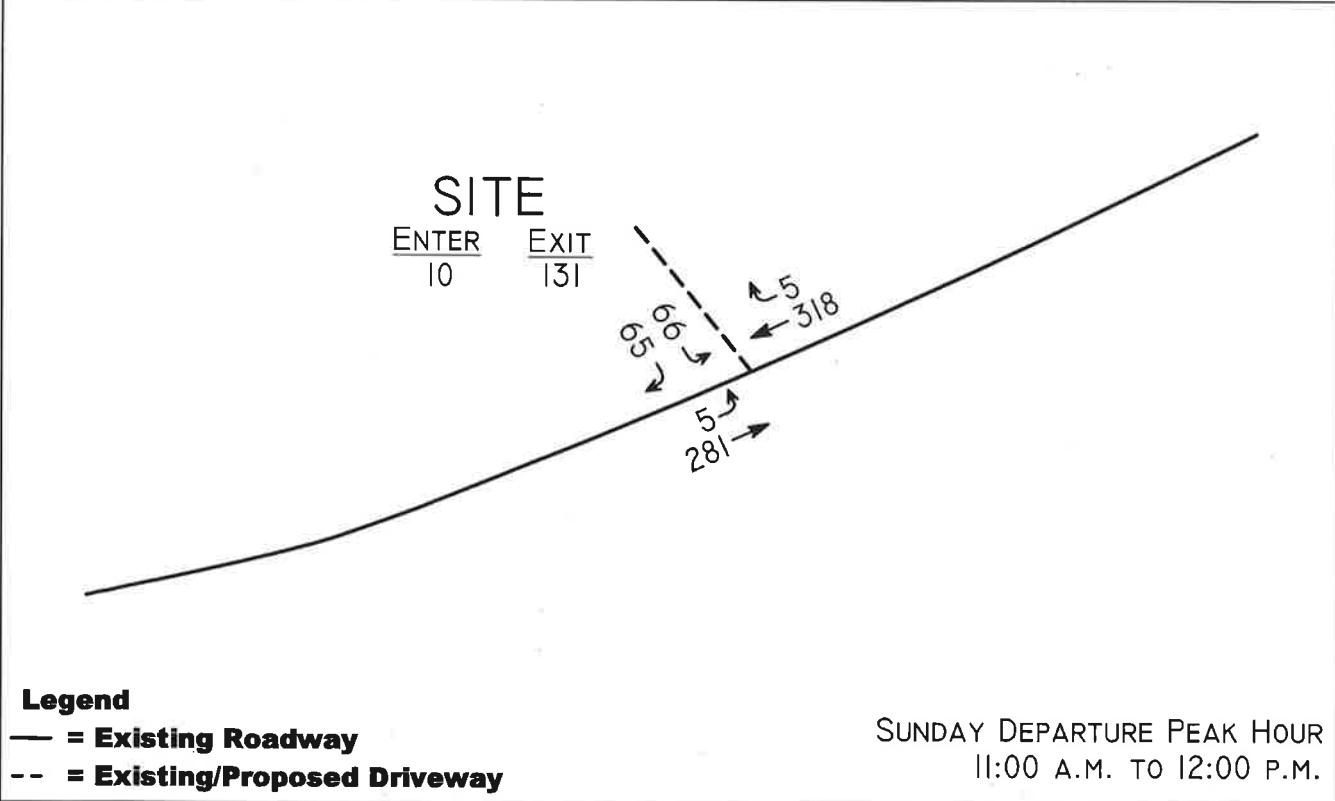
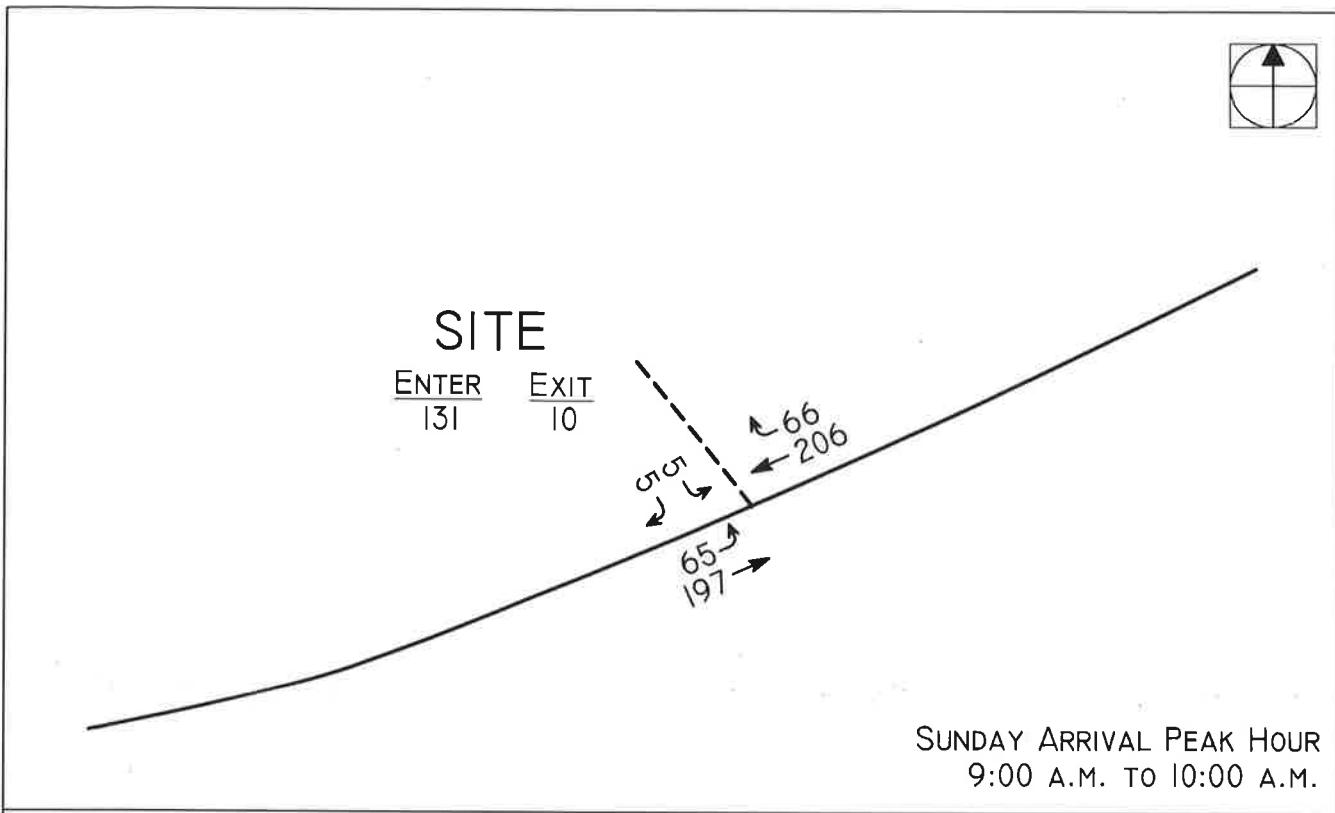
APPENDIX



PROPOSED CHURCH
CITY OF SUMMIT
UNION COUNTY, NEW JERSEY

FIGURE 1

SITE LOCATION MAP



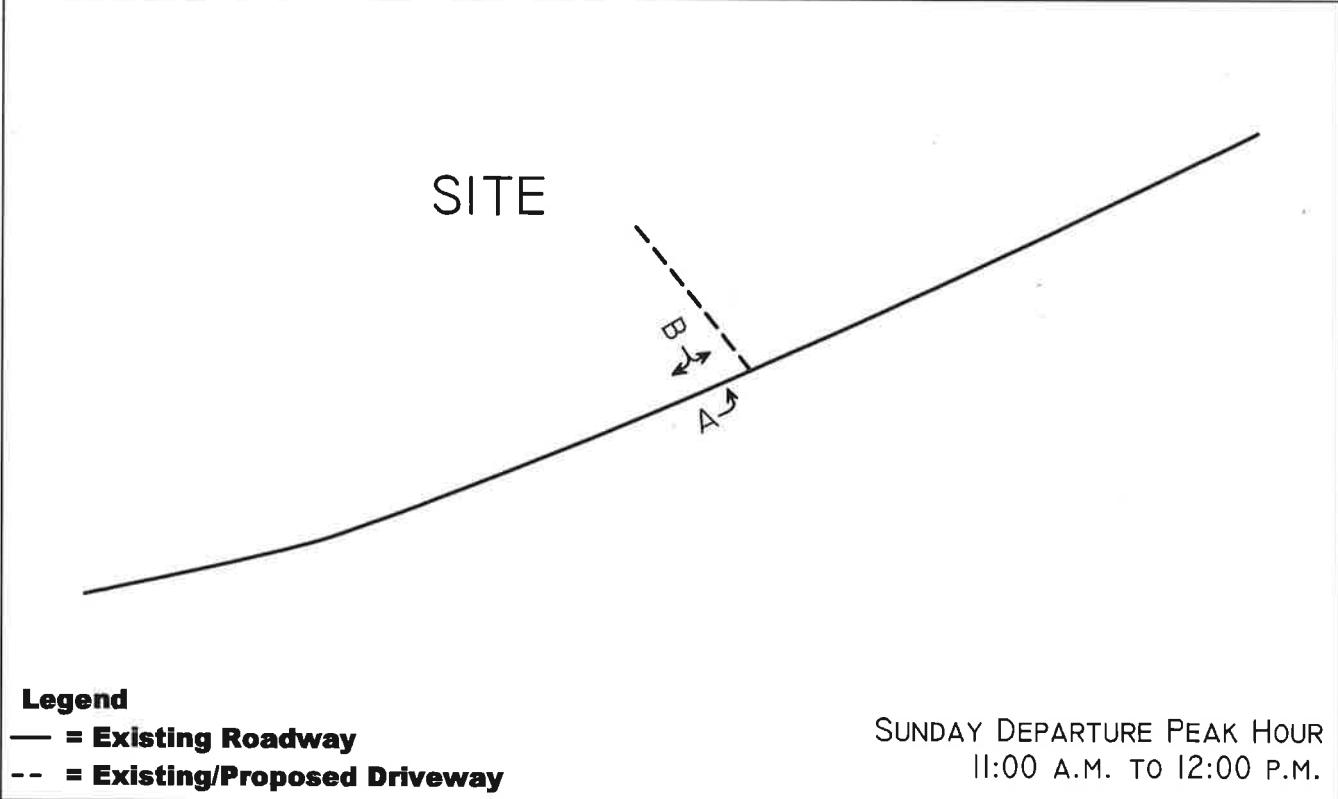
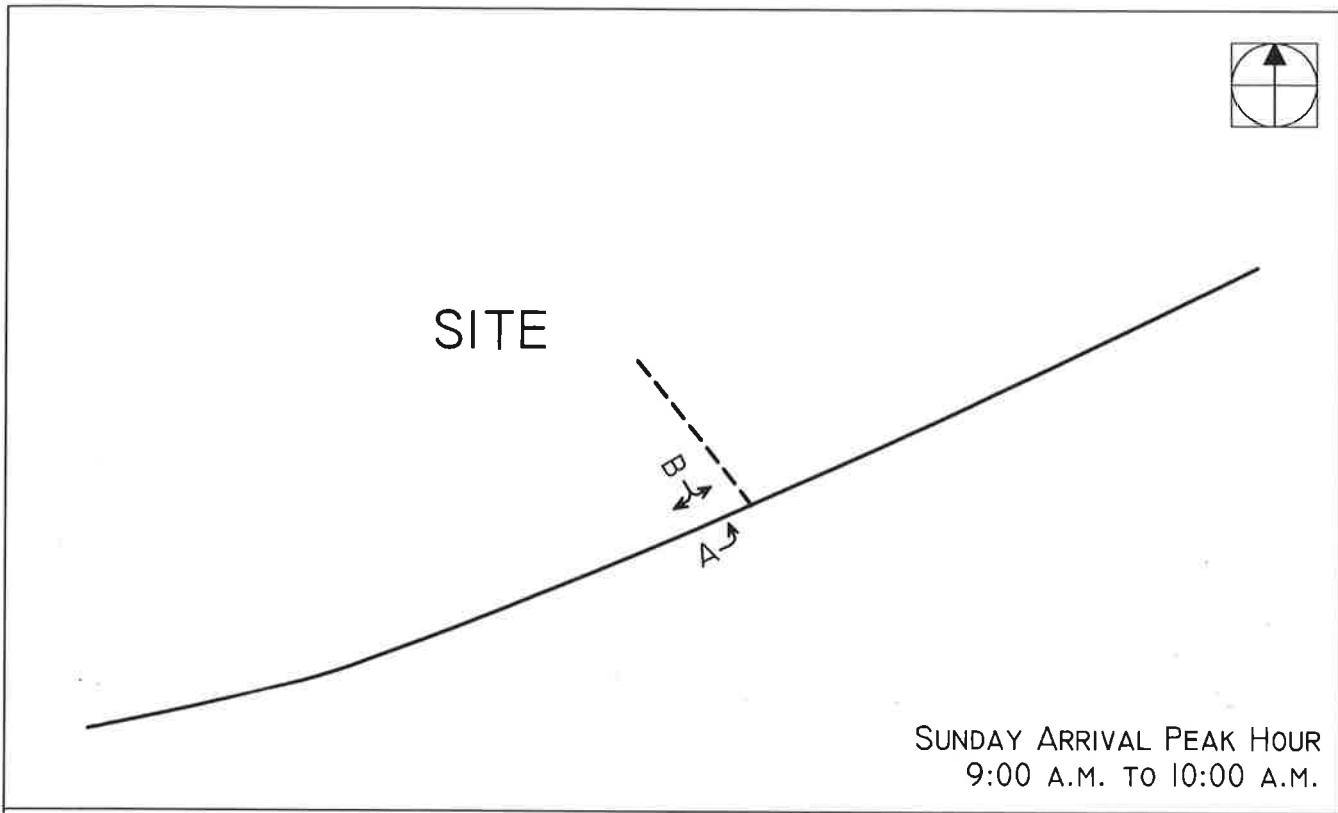
Legend

— = Existing Roadway

-- = Existing/Proposed Driveway

PROPOSED CHURCH
CITY OF SUMMIT
UNION COUNTY, NEW JERSEY

FIGURE 2



PROPOSED CHURCH
CITY OF SUMMIT
UNION COUNTY, NEW JERSEY

FIGURE 3

SPRINGFIELD AVENUE TRAFFIC COUNT
BEACON UNITERIAN CHURCH
SUMMIT, NJ

SUNDAY, APRIL 7, 2024

START

TIME	EASTBOUND	WESTBOUND
9:00 AM	28	52
9:15 AM	49	38
9:30 AM	50	48
9:45 AM	57	55
<hr/> TOTAL	184	193
 11:00 AM	63	61
11:15 AM	73	82
11:30 AM	53	73
11:45 AM	74	81
<hr/> TOTAL	263	297

SPRINGFIELD AVENUE PARKING COUNT
BEACON UNITERIAN CHURCH
SUMMIT, NJ

SUNDAY, FEBRUARY 25, 2024

	NUMBER OF CARS PARKED ON SPRINGFIELD AVENUE						
	9:00 AM	9:30 AM	10:00 AM	10:30 AM	11:00 AM	11:30 AM	12:00 PM
<u>SOUTH SIDE OF SPRINGFIELD AVENUE</u>							
FROM HARRISON COURT TO FAIRVIEW AVENUE	1	1	0	0	0	1	1
<u>NORTH SIDE OF SPRINGFIELD AVENUE</u>							
FROM HARRISON COURT TO OAKLEY AVENUE	0	0	1	1	1	1	1
FROM OAKLEY AVENUE TO FAIRVIEW AVENUE	0	0	0	0	0	0	0

Church (560)

**Vehicle Trip Ends vs: Seats
On a: Weekday**

Setting/Location: General Urban/Suburban

Number of Studies: 4

Avg. Num. of Seats: 524

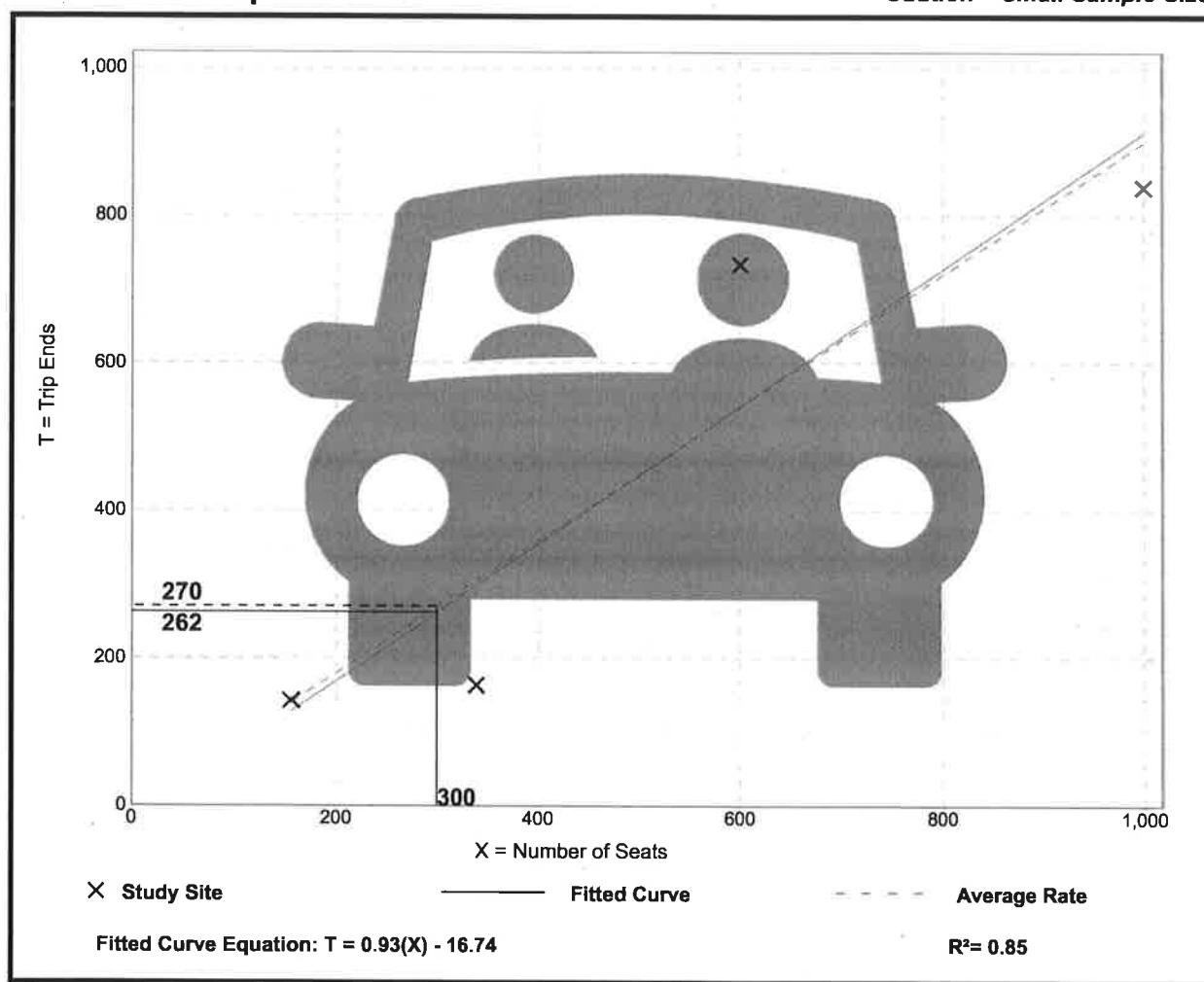
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.90	0.48 - 1.22	0.28

Data Plot and Equation

Caution – Small Sample Size



Church (560)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 16

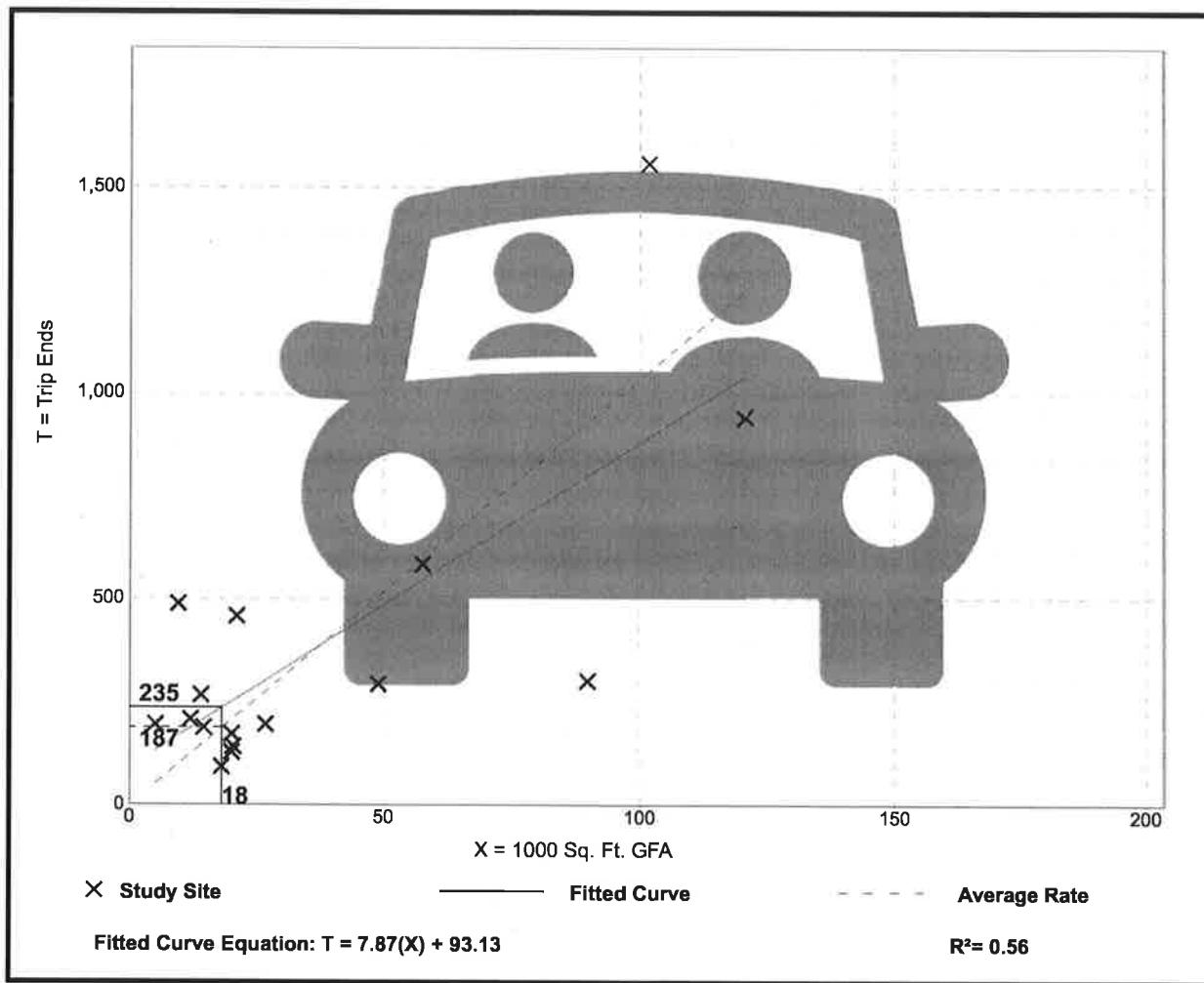
Avg. 1000 Sq. Ft. GFA: 38

Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.36	3.36 - 51.31	7.83

Data Plot and Equation



Proposed Church
1: Springfield Avenue & Site Driveway

Build
AM

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	Y		
Traffic Vol, veh/h	65	197	206	66	5	5
Future Vol, veh/h	65	197	206	66	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	226	237	76	6	6

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	313	0	-
Stage 1	-	-	275
Stage 2	-	-	376
Critical Hdwy	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	1247	-	433 764
Stage 1	-	-	771
Stage 2	-	-	694
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1247	-	403 764
Mov Cap-2 Maneuver	-	-	403
Stage 1	-	-	718
Stage 2	-	-	694

Approach	EB	WB	SB
HCM Control Delay, s	2	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	528
HCM Lane V/C Ratio	0.06	-	-	-	0.022
HCM Control Delay (s)	8.1	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Proposed Church
1: Springfield Avenue & Site Driveway

Build
PM

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	5	281	318	5	66	65
Future Vol, veh/h	5	281	318	5	66	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	312	353	6	73	72

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	359	0	-
Stage 1	-	-	356
Stage 2	-	-	324
Critical Hdwy	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1200	-	417 688
Stage 1	-	-	709
Stage 2	-	-	733
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1200	-	414 688
Mov Cap-2 Maneuver	-	-	414
Stage 1	-	-	705
Stage 2	-	-	733

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.7
HCM LOS		B	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1200	-	-	-	516
HCM Lane V/C Ratio	0.005	-	-	-	0.282
HCM Control Delay (s)	8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.1