

Shropshire Associates LLC

Traffic Engineering, Transportation Planning & Design

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SBE Certified

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December 12, 2022

Besrick Plummer, PE
B & G Engineering, LLC
30 Bernard Drive
Ewing, NJ 08628

(via email: BGPlummer@verizon.net)

Re: **Traffic Analysis**
Galilee Adventist Church
3313 Corlies Avenue
Neptune Township, Monmouth County, NJ
SA Project No. 20035

Dear Besrick:

At your request, Shropshire Associates prepared this Traffic Analysis to evaluate the impact of the traffic to be generated by the proposed Galilee Adventist Church of approximately 5,000-square foot (SF). The site is located at 3313 Corlies Avenue, New Jersey State Highway Route 33, on Block 3301, Lot 4, in Neptune Township, Monmouth County. The 3.24-acre site is located in the Low Density Single Family Residential (R-2) zone and currently contains a single-family house with a paved driveway for access. The proposal is to convert the existing 1 ½ story, 1,000 square foot (sf) house and add a 4,000 sf sanctuary to establish the 5,000 sf church. The 4,000 sf sanctuary will have up to 250 seats for the congregation. Access for the proposed church will be located along westbound Route 33 via a single full-movement driveway. The driveway is under the jurisdiction of the New Jersey Department of Transportation (NJDOT) and application will be made for access to the church.

Existing Conditions

A field reconnaissance was conducted to determine the features of the adjacent roadway in the study area. A brief description of the roads and intersections within the study area are provided below.

Along the site's frontage, **Route 33 (Corlies Avenue)** is a four-lane undivided roadway that is under the jurisdiction of the NJDOT and is classified¹ as an Urban Principal Arterial, see attached NJDOT straight line diagram. Corlies Avenue, Route 33, has an approximate cartway width of 50 foot (ft), including two (2) 12 ft travel lanes and minimal shoulders in each direction. Route 33 has a posted speed limit of 45 MPH and for the purpose of this study Corlies Avenue is assumed to extend in a general east-west direction.

Traffic Count Data

Traffic counts conducted by the NJDOT were reviewed to determine if roadway volumes for Route 33 in the vicinity of the site were available. Attached summary tabulations of

¹ NJDOT Straight Line Diagrams



automatic traffic recorder (ATR) counts conducted by the New Jersey Department of Transportation (NJDOT) during October of 2018. The traffic counts were collected along Route 33 between West Bangs Avenue and Locust Street. The 2018 traffic volumes below represent Eastbound and Westbound Route 33 traffic count data in units of vehicles per day (vpd) and vehicles per hour (vph). The traffic resulting from the proposed development will not affect the adjacent roadway network until 2024, when the church is expected to be fully built-out and occupied. A 1.25% annual traffic growth is projected along Route 33 in the vicinity of the site based on the *Annual Background Growth Rate Table* prepared by the NJDOT. The NJDOT prescribed rate was used to calculate the 2024 adjusted volumes to provide a general magnitude of traffic volume using the two (2) lanes in each direction. These volumes are shown below as 2024 adjusted.

- Eastbound Route 33:

	<u>2018</u>	<u>2024 adjusted</u>
Daily Volume	9,915 vpd	10,682 vpd
AM Peak Hour	918 vpd	989 vph
PM Peak Hour	776 vph	836 vph

- Westbound Route 33:

	<u>2018</u>	<u>2024 adjusted</u>
Daily Volume	10,898 vpd	11,839 vpd
AM Peak Hour	842 vph	907 vph
PM Peak Hour	927 vph	999 vph

Trip Generation

The amount of traffic to be generated by the 5,000 SF church can best be estimated by a comparison with similar sites. Data published in the current NJDOT Highway Access Permit System (HAPS) was used to estimate the trip generating potential for the proposed development. Based upon the current HAPS land use categories, the proposed development is most similar to HAPS Land Use 560: Church. The total amount of traffic generated by the proposed development is summarized in the HAPS Trip Generation Table below.

Table									
HAPS Trip Generation – Church (5,000 SF)									
Trip Type	AM Peak Hour			PM Peak Hour			Sunday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Total	2	2	4	2	2	4	24	26	50

Based upon the current HAPS trip generation rates summarized above, the proposed development will generate a total of 4 trips during the AM weekday peak hour, 4 trips during the PM weekday peak hour, and 50 trips during the Sunday peak hour. The NJDOT provides a definition for a significant increase in traffic for a site as follows:

A “significant increase in traffic” is defined in N.J.A.C. 16:47-1.1 as vehicular use exceeding the previous anticipated two-way traffic generated by a lot by 100 movements during the peak hour of the highway or the development and 10 percent of the previously anticipated daily movements.

Conservatively assuming that the existing site has no trips using the driveway, the proposed development still does not generate a significant increase in traffic during any of the



peak hours. The proposed site, however, does require NJDOT approval for a new driveway to serve two-way traffic for the proposed church. Based on the peak hour generation in the Table above the NJDOT will require a minor access permit application. The site driveway configuration will be subject to NJDOT review and approval.

Site Plan

The proposal is for a 5,000 sf church to be located at 3313 Corlies Avenue on Block 3301, Lot 4, where a single-family house currently exists. The existing house will be reconfigured and a 4,000 sf sanctuary added for congregation to worship. The church will have up to 250 seats for worshippers. The Neptune Township Land Development Ordinance includes a parking requirement for a "Place of Worship" of 1 space for every 4 seats. Based on the parking requirement the proposed 250 seats for worshippers requires 63 parking spaces where 64 parking spaces are proposed including 3 handicap parking spaces to satisfy the Americans with Disabilities Act (ADA) requirements. Sidewalk is provided for access to the church from the parking area. Circulation aisles for access to parking is 24 ft wide for two-way travel through the parking area. A full movement access driveway will be located along the westbound side of Route 33. The access location and configuration are subject to NJDOT review and approval.

Conclusion

The proposed 5,000 sf church and corresponding site improvements will not have a significant impact on Corlies Avenue, Route 33 based on NJDOT criteria. The proposed church will have minimal impact on the adjacent roadway network based on the following:

- The NJDOT HAPS trip generation rates for the 5,000 sf church are 4 trips during the weekday AM peak hour, 4 trips during the weekday PM peak hour, and 50 trips during the Sunday peak hour.
- NJDOT access code considers any site generating less than 100 additional peak hour trips directly to the state highway would not have a "significant" impact on the adjacent roadway network.
- The onsite vehicular and pedestrian circulation and parking were designed in accordance with generally accepted traffic design standards.
- A total of 64 parking spaces are proposed on site to satisfy Neptune parking requirements for a Place of Worship. Additionally, three (3) handicap parking spaces are proposed to satisfy ADA requirements.
- A NJDOT Minor Access permit application is required for the proposed driveway with access along Corlies Avenue, Route 33.
 - Access to the proposed development will be provided via a single full movement driveway along westbound Route 33. The proposed driveway will be stop-controlled at its intersection with Route 33 and consist of single inbound and outbound lanes providing for all permitted movements. The final configuration and location of the driveway are subject to NJDOT approval.

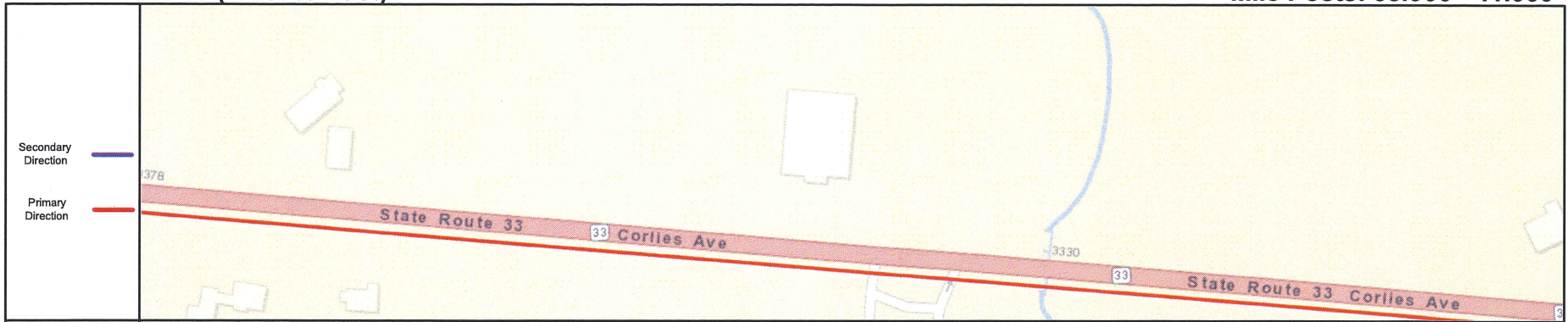


Please call if you have any questions or require additional information.

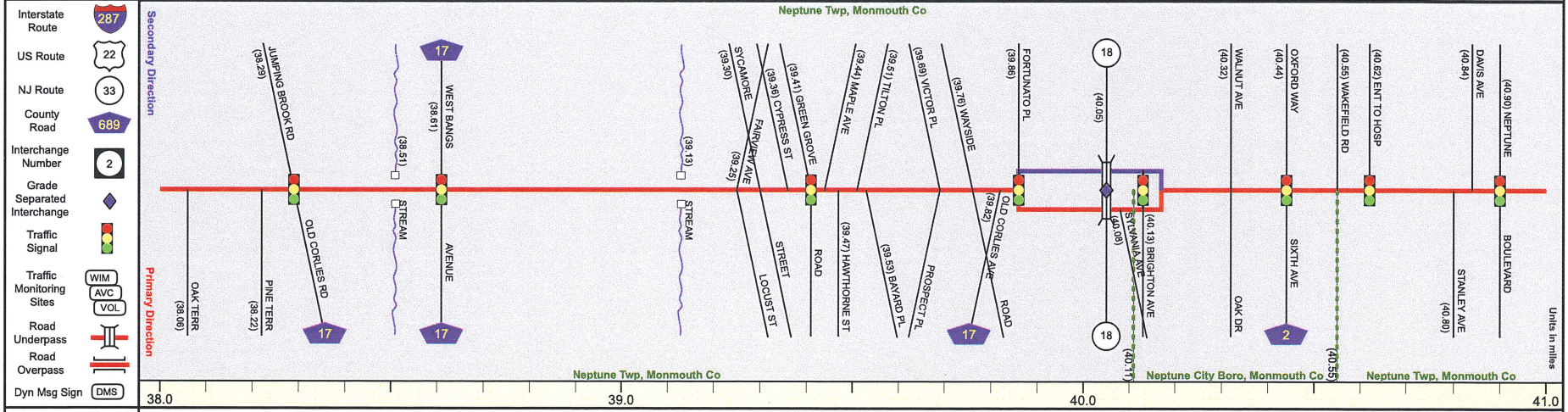
Sincerely,
Shropshire Associates LLC

A handwritten signature in black ink that reads 'A Andrew Feranda'. The signature is written in a cursive, flowing style.

A Andrew Feranda, PE, PTOE, CME
Professional Engineer
N.J. License No. #42893
AAF/jab
Attachments



Pavement	36
Shoulder	
Number of Lanes	3
Speed Limit	40
Street Name	Corlies Avenue



Street Name	Corlies Avenue			
Jurisdiction	N.J.D.O.T.			
Functional Class	Urban Principal Arterial			
Federal Aid - NHS Sy	NHS			
Control Section	1306			
Speed Limit	40	45	40	
Number of Lanes	4	3	2	4
Med. Type	None	Positive		None
Med. Width		6		
Pavement	48	36		48
Shoulder				
Traffic Volume	21,872,(2017)	19,734,(2018)		
Traffic Sta. ID	6-4,362	p18606		
Structure No.		1306152	1328151 1328150	
Enlarged Views	See Enlarged View #56			

SRI = 0000033__

Date last inventoried: April 2020

New Jersey Department of Transportation

Short-term Hourly Traffic Volume for 10/22/2018 to 10/25/2018

Site names: 6-4-363, Corlies Avenue-39,00000033__
 County: MONMOUTH
 Funct Class: Urban Principal Arterial - Other
 Location: Between CO 17 West Bangs Avenue and Locust Street

Seasonal Factor Grp: rg4_3U
 Daily Factor Grp: rg4_3U
 Axle Factor Grp: rg4_3U
 Growth Factor Grp: rg4_3U

	Sun, Oct 21, 2018			Mon, Oct 22, 2018			Tue, Oct 23, 2018			Wed, Oct 24, 2018			Thu, Oct 25, 2018			Fri, Oct 26, 2018			Sat, Oct 27, 2018		
	Road	E	W	Road	E	W	Road	E	W	Road	E	W	Road	E	W	Road	E	W	Road	E	W
00:00							125	73	52	117	53	64	120	65	55						
01:00							79	39	40	52	21	31	66	25	41						
02:00							48	16	32	50	26	24	56	27	29						
03:00							70	25	45	54	21	33	57	25	32						
04:00							124	45	79	135	41	94	144	45	99						
05:00							379	128	251	371	144	227	378	132	246						
06:00							1,066	497	569	1,014	449	565	1,005	456	549						
07:00							1,652	844	808	1,453	687	766	1,424	644	780						
08:00							1,599	877	722	1,415	714	701	1,447	721	726						
09:00							1,149	551	598	1,215	629	586									
10:00							1,078	517	561	1,097	564	533									
11:00							1,044	479	565	1,116	543	573									
12:00				1,077	509	568	1,090	514	576	1,227	591	636									
13:00				1,085	521	564	1,193	559	634	1,181	528	653									
14:00				1,245	565	680	1,348	665	683	1,267	605	662									
15:00				1,460	662	798	1,606	724	882	1,570	687	883									
16:00				1,520	695	825	1,621	735	886	1,606	738	868									
17:00				1,513	729	784	1,599	754	845	1,583	694	889									
18:00				1,184	632	552	1,235	603	632	1,195	639	556									
19:00				840	388	452	924	441	483	884	380	504									
20:00				603	283	320	686	323	363	695	344	351									
21:00				457	186	271	539	234	305	527	237	290									
22:00				330	152	178	369	183	186	321	152	169									
23:00				237	100	137	190	89	101	217	104	113									
Total				11,551	5,422	6,129	20,813	9,915	10,898	20,362	9,591	10,771	4,697	2,140	2,557						
AM Peak Vol							1,760	918	842	1,528	726	802									
AM Peak Fct							.889	.948	.832	.897	.833	.818									
AM Peak Hr							7: 30	7: 30	7: 30	7: 30	7: 30	7: 30									
PM Peak Vol				1,598	760	856	1,683	776	927	1,656	767	914									
PM Peak Fct				.949	.927	.934	.95	.836	.938	.941	.896	.936									
PM Peak Hr				16: 30	16: 45	16: 30	15: 15	16: 30	15: 15	15: 15	15: 30	16: 30									
Seasonal Fct				1.005	1.005	1.005	1.005	1.005	1.005	1.005	1.005	1.005	1.005	1.005	1.005						
Daily Fct				1.015	1.015	1.015	.980	.980	.980	.953	.953	.953	.940	.940	.940						
Axle Fct				.486	.486	.486	.486	.486	.486	.486	.486	.486	.486	.486	.486						
Pulse Fct				2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000						

These rates should be used in determining what type of NJDOT Access Permit is needed and any Traffic Analysis.

These are the rates and equations that were being used by the HAPS program as of February 08, 2019 and they will be updated as new information is available.

LAND USE	UNITS OF						
CODE	LAND USE DESCRIPTION	MEASURE (X)	AM PEAK HOUR *	PM PEAK HOUR *	WEEKDAY DAILY TRIPS *	WEEKEND PEAK HOUR *	WEEKEND DAILY TRIPS *
0	Vacant Lot	LOT	X*0	X*0	X*0	X*0	X*0
30	Intermodal Truck Terminal	SQ. FEET	X/1000*2.14	X/1000*2.02	X/1000*21.4	X/1000*2.02	X/1000*20.2
90	Park-and-Ride Lot with Bus or Light Rail Service	PRKNG SPACES	0.71*(X)	0.44*(X)	X*2.81	0.71*(X)	X*2.81
110	General Light Industrial	SQ. FEET	X/1000*0.92	X/1000*0.83	X/1000*4.96	X/1000*0.69	X/1000*5.00
130	Industrial Park	SQ. FEET	X/1000*0.41	X/1000*0.40	X/1000*3.37	X/1000*0.44	X/1000*2.54
140	Manufacturing	SQ. FEET	0.61*(X/1000)+34.25	0.62*(X/1000)+29.00	3.16*(X/1000)+160.04	(X/1000)*0.94	(X/1000)*6.42
150	Warehousing	SQ. FEET	0.11*(X/1000)+30.07	0.15*(X/1000)+22.52	1.58*(X/1000)+45.54	(X/1000)*0.05	(X/1000)*0.15
151	Mini Warehouse	SQ. FEET	X/1000*0.20	X/1000*0.20	X/1000*1.51	X/1000*0.31	(X/1000)*1.95
154	High-Cube Transload and Short-Term Storage Warehouse	SQ. FEET	X/1000*0.12	X/1000*0.16	X/1000*1.40	X/1000*0.12	(X/1000)*0.94
155	High-Cube Fulfillment Center Warehouse	SQ. FEET	X/1000*0.59	X/1000*1.37	X/1000*8.18	X/1000*0.20	X/1000*8.18
156	High-Cube Parcel Hub Warehouse	SQ. FEET	X/1000*0.88	X/1000*.71	X/1000*7.75	X/1000*0.88	X/1000*7.75
157	High-Cube Cold Storage Warehouse	SQ. FEET	0.11*(X/1000)	0.12*(X/1000)	2.12*(X/1000)	0.12*(X/1000)	2.12*(X/1000)
210	Single Family Detached Housing	UNITS	EXP(0.91*LN(X))+0.20	EXP(0.94*LN(X))+0.34	EXP(0.92*LN(X))+2.71	0.84*X+17.99	EXP(0.94*LN(X))+2.56
220	Multifamily Housing (Low-Rise)	UNITS	EXP(0.94*LN(X)-0.29)	0.66*X+1.41	(7.56*X-40.86)	0.70*X	8.14*X
221	Multifamily Housing (Mid-Rise)	UNITS	X*0.36	X*0.44	5.45(X)-1.75	X*0.44	X*4.91
222	Multifamily Housing (High-Rise >10 Floor)	UNITS	0.31(X)+12.91	0.35*X+15.40	3.94(X)+211.81	0.31(X)+24.03	4.08(X)+185.69
225	Off-Campus Student Apartment	BEDROOMS	X*0.20	0.33(X)-7.94	4.09(X)-78.98	0.33(X)-7.94	4.09(X)-78.98
240	Mobile Home Park	UNITS	X*0.28	X*0.49	X*5.00	X*0.43	X*4.61
251	Senior Adult Housing -- Detached	UNITS	0.26*X+36.52	0.26*X+56.53	EXP(0.88*LN(X))+2.28	0.23*X	2.73*X
252	Senior Adult Housing -- Attached	UNITS	0.20*X-0.18	0.36*X-4.59	4.02*X-25.37	0.35*X-1.67	3.97*X-60.09
253	Congregate Care Facility	UNITS	0.17*X-1.10	0.22*X-2.85	X*2.02	0.22*X-2.85	X*2.02
254	Assisted Living	BEDS	X*0.19	X*0.34	X*2.60	X*0.28	X*3.15
310	Hotel	ROOMS	0.50(X)-5.34	0.75(X)-26.02	11.29(X)-426.97	0.69(X)+4.32	9.62(X)-294.56
311	All Suites Hotel	ROOMS	0.34(X)	0.45(X)-14.07	5.20(X)-119.26	0.45(X)-14.07	5.20(X)-119.26
320	Motel	ROOMS	X*0.43	X*0.44	3.62(X)-29.43	X*0.44	3.62(X)-29.43
330	Resort Hotel	ROOMS	0.50*(X)-47.88	0.48*(X)+8.67	10*(0.48*(X)+8.67)	0.48*(X)+8.67	10*(0.48*(X)+8.67)
411	Public Park	ACRES	X*0.15	0.08(X)+15.36	0.64(X)+88.46	0.18(X)+36.85	X*2.19
416	Campground/Recreational Vehicle Park	ACRES	X*0.52	X*1.06	X*10.6	X*1.06	X*10.6
420	Marina	BERTHS	X*0.12	X*0.21	X*2.41	X*0.31	X*3.49
430	Golf Course	HOLES	X*2.96	X*3.68	X*30.38	X*3.03	X*19.89
432	Golf Driving Range	TEES/DRIVING POSITIONS	X*1.02	X*1.65	X*13.65	X*1.32	X*17.68
437	Bowling Alley	SQ. FEET	X/1000*0.81	X/1000*1.16	X/1000*11.60	X/1000*1.16	X/1000*11.60
444	Movie Theater (# of Screens <=9)	SCREENS	X*9.5	X*37.83	X*220.00	X*102.87	X*546.86
445	Multiplex Movie Theater (# of Screens >=10)	SCREENS	X*9.5	X*25.84	X*292.50	X*65.07	X*292.50
465	Ice Skating Rink	SQ. FEET	(X/1000)*0.49	(X/1000)*1.33	(X/1000)*13.30	(X/1000)*2.63	(X/1000)*26.30
480	Amusement Park	ACRES	X*3.16	X*4.99	X*53.41	X*19.55	X*198.97
488	Soccer Complex	FIELDS	X*1.77	X*16.90	X*71.33	X*40.10	X*404.86
492	Health/Fitness Club	SQ. FEET	X/1000*1.40	X/1000*3.92	X/1000*39.20	X/1000*3.19	X/1000*31.90
493	Athletic Club	SQ. FEET	X/1000*3.40	X/1000*6.36	X/1000*63.60	X/1000*8.60	X/1000*86.00
495	Recreational Community Center	SQ. FEET	1.76*X/1000	2.31*X/1000	28.82*X/1000	1.49*X/1000	13.60*X/1000
520	Elementary School	STUDENTS	X*0.67	X*0.34	X*1.89	X*0.10	X*0.58
522	Middle School/Junior High School	STUDENTS	X*0.70	X*0.35	X*2.12	X*0.10	X*0.58
530	High School	STUDENTS	X*0.55	X*0.33	X*2.03	X*0.10	X*0.58
534	Private School (K-8)	STUDENTS	0.88(X)+14.85	0.63(X)-1.93	X*4.11	X*0.10	X*0.58
536	Private School (K-12)	STUDENTS	X*0.81	X*0.58	X*2.48	X*0.10	X*0.58
540	Junior/Community College	STUDENTS	X*0.12	X*0.13	X*1.15	X*0.05	X*0.42
550	University/College	STUDENTS	EXP(0.95*LN(X))-1.63	EXP(0.97*LN(X))-1.69	1.38*(X)+2108.83	EXP(0.97*LN(X))-1.69	1.38*(X)+2108.83
560	Church	SQ. FEET	(X/1000)*0.65	(X/1000)*0.80	(X/1000)*6.95	(X/1000)*9.99	(X/1000)*27.63
561	Synagogue	SQ. FEET	(X/1000)*2.41	(X/1000)*2.92	(X/1000)*29.20	(X/1000)*7.63	(X/1000)*76.30
565	Day Care Center	SQ. FEET	(X/1000)*11.73	(X/1000)*11.82	(X/1000)*47.62	(X/1000)*1.75	(X/1000)*6.22