

PALM BEACH SYNAGOGUE – FIFTH SUBMITTAL

Town of Palm Beach, FL

TRAFFIC IMPACT STATEMENT

PREPARED FOR:

Palm Beach Synagogue
120 North County Road
Palm Beach, Florida 33480

JOB No. 24-073

DATE: 09/05/2023
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1.0 SITE DATA

The subject parcel is located at 120 & 132 North County Road in the Town of Palm Beach, Florida and contains approximately ± 0.72 acres. The Property Control Numbers (PCN's) for the subject parcel are as follows:

50-43-43-22-31-000-1751

50-43-43-22-31-000-1730

The subject parcel historically included 11,007 SF of religious facilities, 2,575 SF of office, and 5,975 SF of a fine dining restaurant. The entire building (19,297 SF as shown in the Existing Site Plan) is now owned and utilized by the Synagogue. The proposed redevelopment is to consist of 32,398 (gross building) SF of religious facilities that includes 2,997 SF of ancillary Sunday School classrooms and 1,633 SF of ancillary administrative office. Note previously the Traffic Study utilized the gross building SF under air which has been reduced to 30,089 SF.

Site access is proposed via a left in, left out driveway connection to Sunset Avenue. For additional information concerning site location and layout, please refer to the Site Plan prepared by Bartholemew + Partners.

2.0 PURPOSE OF STUDY

The purpose of this traffic study is to provide a transportation concurrency analysis of the Town of Palm Beach impacted roadway segments and intersections within the project area

3.0 TRAFFIC GENERATION

The traffic generated by the historically vested development has been calculated in accordance with the traffic generation rates listed in the *ITE Trip Generation Manual, 11th Edition* and rates published by the Palm Beach County Engineering Traffic Division.

Table 1a shows the daily traffic generation associated with the vested development in trips per day (tpd). Tables 2a and 3a show the AM and PM peak hour traffic generation, respectively, in peak hour trips (pht). The Saturday peak hour generation for the existing 164 seat synagogue is also shown in Table 4a attached to this report. ITE Land Use Code #560 (Church) was utilized instead of ITE Land Use Code #561 (Synagogue) to be consistent with PBC Traffic rates and due to ITE Land Use Code #561 having only one data point. Additionally, the Saturday (worship) peak hour trip generation was derived from the number of seats and not the building square footage since seats is a more appropriate variable for a worship service. Nonetheless, the ITE trip generation rates for a Saturday peak hour generator can be considered conservative since many of the Synagogue members live nearby and walk to the facility and many families arrive together. The traffic to be generated by the vested development may be summarized as follows:

Previously Vested Development

Daily Traffic Generation	=	361 tpd
AM Peak Hour Traffic Generation (In/Out)	=	6 pht (3 In/3 Out)
PM Peak Hour Traffic Generation (In/Out)	=	31 pht (19 In/12 Out)
Saturday Peak Hour Traffic Generation (In/Out)	=	80 pht (39 In/41 Out)

It is acknowledged the restaurant use is no longer operational. Additionally, the Synagogue now utilizes the entire 19,297 SF (as shown on the Existing Site Plan) facility. Tables 1B-4B calculate the traffic generation of the existing synagogue.

Existing Development

Daily Traffic Generation	=	140 tpd
AM Peak Hour Traffic Generation (In/Out)	=	6 pht (4 In/2 Out)
PM Peak Hour Traffic Generation (In/Out)	=	9 pht (4 In/5 Out)
Saturday Peak Hour Traffic Generation (In/Out)	=	80 pht (39 In/41 Out)

Table 5 shows the daily traffic generation associated with the proposed redevelopment in trips per day (tpd). Tables 6 and 7 show the AM and PM peak hour traffic generation, respectively, in peak hour trips (pht). The Saturday peak hour generation for the proposed 230 seat synagogue is shown in Table 8. Note the gross 32,398 SF was utilized in the trip generation to be conservative. However, gross under air area is 30,089 SF and the net building under air is 25,644 SF. The traffic to be generated by the proposed redevelopment may be summarized as follows:

Proposed Redevelopment

Daily Traffic Generation	=	234 tpd
AM Peak Hour Traffic Generation (In/Out)	=	9 pht (6 In/3 Out)
PM Peak Hour Traffic Generation (In/Out)	=	15 pht (7 In/8 Out)
Saturday Peak Hour Traffic Generation (In/Out)	=	111 pht (54 In/57 Out)

Note the administrative office space is for Synagogue office use only and will not include any outside business operations. Therefore, the weekday peak trip generation for the overall Synagogue building is inclusive of the administrative office space and the proposed trip generation reflects the anticipated peak hour weekday traffic demand.

The net trip difference between the previously vested use and the proposed development is shown in Table 9 attached to this report and may be summarized as follows:

Net Trips (Proposed – Vested)

Daily Traffic Generation	=	-127 tpd
AM Peak Hour Traffic Generation (In/Out)	=	3 pht (3 In/0 Out)
PM Peak Hour Traffic Generation (In/Out)	=	-16 pht (-12 In/-4 Out)

The net trips shown above are provided for informational purposes. The trip generation comparison between the proposed and existing use is shown in Table 10 attached to this report and may be summarized as follows:

Net Trips (Proposed – Existing)

Daily Traffic Generation	=	151 tpd
AM Peak Hour Traffic Generation (In/Out)	=	5 pht (4 In/1 Out)
PM Peak Hour Traffic Generation (In/Out)	=	10 pht (5 In/5 Out)
Saturday Peak Hour Traffic Generation (In/Out)	=	31 pht (15 In/16 Out)

As stated previously, the Saturday peak hour trips can be considered conservative. Many of the families arrive together with a high vehicle occupancy load or walk to the Synagogue. The ITE rate assumes both arrival and dismissal of a worship service within a one-hour time frame. Saturday morning services last longer than one hour and therefore the directional peak hour trips are a better reflection of actual trips. Saturday morning services start at 9:30 AM when traffic is significantly less than weekday peak hour traffic conditions.

Since the project generates less than 20 peak hour trips, the project satisfies Palm Beach County Traffic Standards. However, this traffic study will evaluate traffic concurrency in comparison to the Town of Palm Beach Standards.

4.0 TRIP DISTRIBUTION

The project trips were distributed and assigned on the surrounding roadway network as shown in Figure 1 attached to this report. Note the trip distribution considers the one-way eastbound conversion of Sunset Avenue from Bradley Place to N. County Road.

5.0 SYNAGOGUE OPERATIONS

The primary Synagogue religious services are held on Saturday mornings at 9:30 AM which are followed by a Kiddush luncheon at 12:30 PM. Approximately 198 households which are members of the Palm Beach Synagogue live within one mile of the facility. Many members currently walk to the facility utilizing the existing sidewalk infrastructure within the Town including Sunset Avenue and County Road. The proximity and number of the members to the Synagogue greatly reduces the vehicle and parking demand of the site. There are also various High Holidays that occur on weekdays throughout the year that will have evening worship services. The Synagogue also has Sunday school for school age children from approximately 9:30 AM to 12:30 PM. The school is only on Sunday's and not during the weekdays. More details on the Sunday School are provided later in the traffic study. The Synagogue similar to many other religious institutes will have different events such as weddings on occasion. The Synagogue uses a valet company (Palm Beach Parking) for these types of events and utilizes offsite parking. During normal weekdays, administrative staff has business hours from 9:00 AM to 5:00 PM.

A breakdown of the typical week is provided below. Note these are existing conditions at the Synagogue and not expected to materially change as part of the application.

Monday through Friday

- Staff administrative hours are from 9:00 AM to 5:00 PM. There are 13 staff members but several are spouses so only a total of 8 households.

- Small morning services occur at 8:00 AM. These services only consist of approximately 15 men. Approximately 5 of the 15 men walk and 6 of the 15 men are part of staff and therefore are not separate trips.

Monday and Thursday

- Small evening services currently start at 6:30 PM but fluctuate throughout the year. Evening services consist of approximately 10 men and 6 of them are staff members and therefore not separate trips.

Friday

- Small evening services currently start at 7:00 PM but fluctuate throughout the year. Evening services consist of approximately 25 men with 15 walking.
- Dinner events happen at the facility approximately once or twice a month. Approximately 50-100 people would be in attendance with many walking and families. Approximately 20 vehicles for this type of event when it occurs.

Saturday

- Main service starts at 9:30 AM , followed by Kiddush luncheon at 12:30 PM. An average attendance is approximately 150 people with a minimum of 20-30 walking. Since the majority of the 150 people are families, an average of 40-50 vehicles.

Sunday

- Small morning services occur at 8:15 AM. These services only consist of approximately 15 men. Approximately 5 of the 15 men walk and 6 of the 15 men are part of staff and therefore are not separate trips.
- Hebrew School/Maimonides starts at 9:30 AM and ends at 12:30 PM. More details about traffic circulation are provided later in the report for this program. On average approximately 35-40 households pickup/drop off each Sunday.

The reason for the proposed redevelopment plan is the existing Synagogue facility is outdated, inadequate, and inefficient for the current use. No additional programming or use is proposed as part of this application. Instead, the new building will allow for sufficient space to operate the existing programs. For example, the Sunday School currently has utilize existing office space and other rooms to accommodate the existing students. A comparison of the existing and proposed interior uses is shown in Appendix A and summarized below.

Comparison of Uses

Use	Existing Site Plan	Proposed Site Plan
Sanctuary	3256 SF	4123 SF
Offices	2360 SF	1633 SF
Social Hall	1990 SF	3978 SF
Sunday School Classrooms	1302 SF	2997 SF

6.0 INTERSECTION ANALYSIS

At the request of the Town, an intersection analysis was performed at the following intersections:

1. Sunset Avenue at Bradley Place (TWSC and Signal Alternative)
2. Sunset Avenue at County Road (signalized)
3. Bradley Place at Royal Poinciana Way (signalized)
4. County Road at Royal Poinciana Way (signalized)

Sunset Avenue at Bradley Place was also analyzed as a signalized intersection in the background and total traffic conditions scenarios since a signal warrant has recently been satisfied for the intersection. The analysis was performed using Synchro 12 software with Highway Capacity Methodologies. HCM 6th Edition was used when available and HCM was used for intersections with shared lanes. The existing traffic counts were taken from the Town of Palm Beach Traffic Analyses completed by The Corradino Group. All traffic counts were collected in March 2024. The traffic counts were collected from 7:30 to 11:00 AM and from 3:00 to 5:30 PM. The highest one hour of traffic in the AM and PM was used in the analysis. The background traffic volumes were taken from the Paramount traffic study and included approved projects within the Town and also approved projects from the City of West Palm Beach. The background traffic used the highest of the historical growth rate of 2.33% or the committed trips plus 1%. The traffic analysis was performed for existing conditions, background conditions and total traffic conditions and is summarized as follows:

Table 11 – Existing Year (2024) Operational Analysis

Intersection	Intersection Control	Movement	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
Bradley Pl at Sunset Ave	TWSC	EB	12.2	B	14.5	B
Sunset Ave at County Rd	Signalized	EB	33.8	C	46.0	D
		WB	32.2	C	41.9	D
		NB	0.5	A	0.2	A
		SB	3.9	A	3.9	A
		Overall	4.8	A	8.3	A
Royal Poinciana Way at Bradley Pl	Signalized	EB	27.4	C	30.2	C
		WB	21.6	C	29.6	C
		NB	22.0	C	23.6	C
		SB	18.4	B	28.2	C
		Overall	24.4	C	28.3	C
Royal Poinciana Way at County Rd	Signalized	EB	32.3	C	34.0	C
		WB	41.3	D	51.1	D
		NB	15.8	B	23.2	C
		SB	8.7	A	29.4	C
		Overall	19.8	B	30.2	C

Table 12 - Background (2028) Operational Analysis

Intersection	Intersection Control	Movement	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
Bradley Pl at Sunset Ave	TWSC	EB	12.8	B	15.6	C
Bradley Pl at Sunset Ave	Signal Alternative	EB	45.7	D	46.1	D
		NB	2.4	A	2.3	A
		SB	1.9	A	3.6	A
		Overall	3.0	A	4.2	A
Sunset Ave at County Rd	Signalized	EB	33.9	C	46.8	D
		WB	32.2	C	41.9	D
		NB	0.5	A	0.2	A
		SB	4.1	A	4.1	A
		Overall	4.8	A	8.4	A
Royal Poinciana Way at Bradley Pl	Signalized	EB	30.7	C	30.4	C
		WB	21.8	C	34.7	C
		NB	22.3	C	24.6	C
		SB	18.4	B	31.7	C
		Overall	26.3	C	32.0	C
Royal Poinciana Way at County Rd	Signalized	EB	33.8	C	39.0	D
		WB	42.0	D	51.1	D
		NB	22.2	C	28.1	C
		SB	9.5	A	30.5	C
		Overall	23.6	C	33.4	C

Table 13 – Total Traffic Conditions (2028) Operational Analysis

Intersection	Intersection Control	Movement	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
Bradley Pl at Sunset Ave	TWSC	EB	12.8	B	15.6	C
Bradley Pl at Sunset Ave	Signal Alternative	EB	45.7	D	46.1	D
		NB	2.4	A	2.3	A
		SB	1.9	A	3.6	A
		Overall	3.0	A	4.1	A
Sunset Ave at County Rd	Signalized	EB	34.0	C	47.0	D
		WB	32.2	C	41.9	D
		NB	0.5	A	0.2	A
		SB	4.1	A	4.1	A
		Overall	4.8	A	8.5	A
Royal Poinciana Way at Bradley Pl	Signalized	EB	30.7	C	34.0	C
		WB	21.8	C	34.7	C
		NB	22.3	C	24.6	C
		SB	18.4	B	31.7	C
		Overall	26.3	C	32.0	C
Royal Poinciana Way at County Rd	Signalized	EB	33.8	C	39.0	D
		WB	42.0	D	51.1	D
		NB	22.2	C	28.3	C
		SB	9.5	A	30.5	C
		Overall	23.6	C	33.5	C

As shown in Tables 11-13, all study intersections will operate at Level of C or better for both peak hours and for existing and future traffic scenarios.

7.0 95TH QUEUE ANALYSIS

In addition to the operational analysis, a 95th percentile queue analysis was prepared for impacted turn lanes at the study intersections. The results showed the project will have minimal impact on the vehicle queues as shown in Tables 14-16. The eastbound right turn lane at the intersection of Sunset Avenue and County Road was shown to have a 95th percentile queue that exceeded the existing storage length. However, this is due to very short turn lanes at the intersection and the majority of volume turning right. The turn lanes and overall intersection were shown to operate sufficiently in the peak hour analysis. Additionally, the proposed project only caused an increase of 3 feet to the 95th percentile queue. Note the queue calculations were estimated based on a bumper to bumper distance of 25 feet.

Table 14 – Existing Conditions (2028) 95th Percentile Queue Analysis

Intersection	Turn Lane	Peak Hour	95 th Queue (ft)	Storage (ft)
Bradley Place at Sunset Ave (TWSC)	Southbound Left	AM	3	75
		PM	0	
	Northbound Right	AM	0	Drop Right
		PM	0	
Sunset Ave at County Rd	Eastbound Left	AM	15	75
		PM	65	
	Eastbound Through	AM	8	75
		PM	3	
	Eastbound Right	AM	83	75
		PM	158	
Royal Poinciana Way at Bradley Pl	Eastbound Left	AM	168	335
		PM	152	
	Westbound Right	AM	9	115
		PM	0	
Royal Poinciana Way at County Rd	Southbound Approach	AM	60	N/A
		PM	302	

Table 15 – Background Conditions (2028) 95th Percentile Queue Analysis

Intersection	Turn Lane	Peak Hour	95 th Queue (ft)	Storage (ft)
Bradley Place at Sunset Ave (TWSC)	Southbound Left	AM	3	75
		PM	0	
	Northbound Right	AM	0	Drop Right
		PM	0	
Bradley Place at Sunset Ave (Signalized Alternative)	Southbound Left	AM	0	75
		PM	3	
	Northbound Right	AM	15	Drop Right
		PM	20	
Sunset Ave at County Rd	Eastbound Left	AM	15	75
		PM	70	
	Eastbound Through	AM	10	75
		PM	3	
	Eastbound Right	AM	90	75
		PM	175	
Royal Poinciana Way at Bradley Pl	Eastbound Left	AM	200	335
		PM	169	
	Westbound Right	AM	11	115
		PM	0	
Royal Poinciana Way at County Rd	Southbound Approach	AM	65	N/A
		PM	349	

Table 16 – Total Traffic Conditions (2028) 95th Percentile Queue Analysis

Intersection	Turn Lane	Peak Hour	95 th Queue (ft)	Storage (ft)
Bradley Place at Sunset Ave (TWSC)	Southbound Left	AM	0	75
		PM	0	
	Northbound Right	AM	0	Drop Right
		PM	0	
Bradley Place at Sunset Ave (Signalized Alternative)	Southbound Left	AM	3	75
		PM	3	
	Northbound Right	AM	15	Drop Right
		PM	20	
Sunset Ave at County Rd	Eastbound Left	AM	15	75
		PM	70	
	Eastbound Through	AM	10	75
		PM	3	
	Eastbound Right	AM	93	75
		PM	178	
Royal Poinciana Way at Bradley Pl	Eastbound Left	AM	200	335
		PM	170	
	Westbound Right	AM	11	115
		PM	0	
Royal Poinciana Way at County Rd	Southbound Approach	AM	65	N/A
		PM	349	

8.0 TRAFFIC CONCURRENCY

A copy of the Palm Beach County TPS approval letter is provided in Appendix F attached to this report. Additionally, the project was reviewed to ensure consistency with Chapter 30 of the Town of Palm Beach Code of Ordinances and Policy 2.1 of the Town Transportation Element. The proposed redevelopment is a reduction of trips from the historically vested use inclusive of the restaurant. However, in order to be conservative, the restaurant was not considered in the roadway concurrency analysis since it no longer in operation. Tables 17 and 18 attached to this report in Appendix G show the significance calculations of the surrounding roadway network in comparison to the 2020 FDOT Q/LOS Tables. Tables 17 and 18 show the project will have an insignificant impact (less than 1% of the LOS D volume threshold) to each of the surrounding roadways and therefore the project meets traffic concurrency requirements.

A roadway segment analysis was also completed based on the Town Comprehensive Plan that includes evaluation of roadways utilizing two-way peak hour thresholds. The roadway analysis is provided in Tables 19–22 attached in Appendix G. Tables 19 and 20 show the AM and PM peak hour analysis, respectively, based on the net trips assuming no restaurant use. The analysis shows each of the roadway segments meet the required LOS thresholds with the exception of Bradley Place. Bradley Place is a background deficiency as LOS standards are not met based on existing traffic volumes and background/committed trips without the project. The proposed development does not cause any degradation of LOS standards. The proposed development is responsible for only 2 peak hour trips on Bradley Place which represents approximately 0.2% of LOS E service threshold volume. These new trips can be considered insignificant or de minimis. If the proposed project trips were added to the existing volumes and the background trips were not included, the LOS E threshold would be met for Bradley Place. It should be noted the trip generation is based on the ITE Trip Generation rates. However, the weekday peak hour operations are expected to be the same as the current development.

Tables 21 and 22 show the roadway analysis utilizing the previously vested restaurant use. The net new trips results in a decrease of 127 daily trips, an increase of 3 AM peak hour trips, and a decrease of 16 PM peak hour trips from the previously vested development.

Additional Traffic Data

Traffic counts were collected on N. County Road on Thursday, November 21, 2024 through Sunday, November 24, 2024 and on Thursday, December 5, 2024 through Sunday, December 8, 2024. The purpose of the traffic counts was to determine the difference in traffic volumes during peak times on a weekday and weekend. The parking data is shown below in Exhibits 1 and 2. The raw traffic count data is also provided in Appendix J attached to this report.

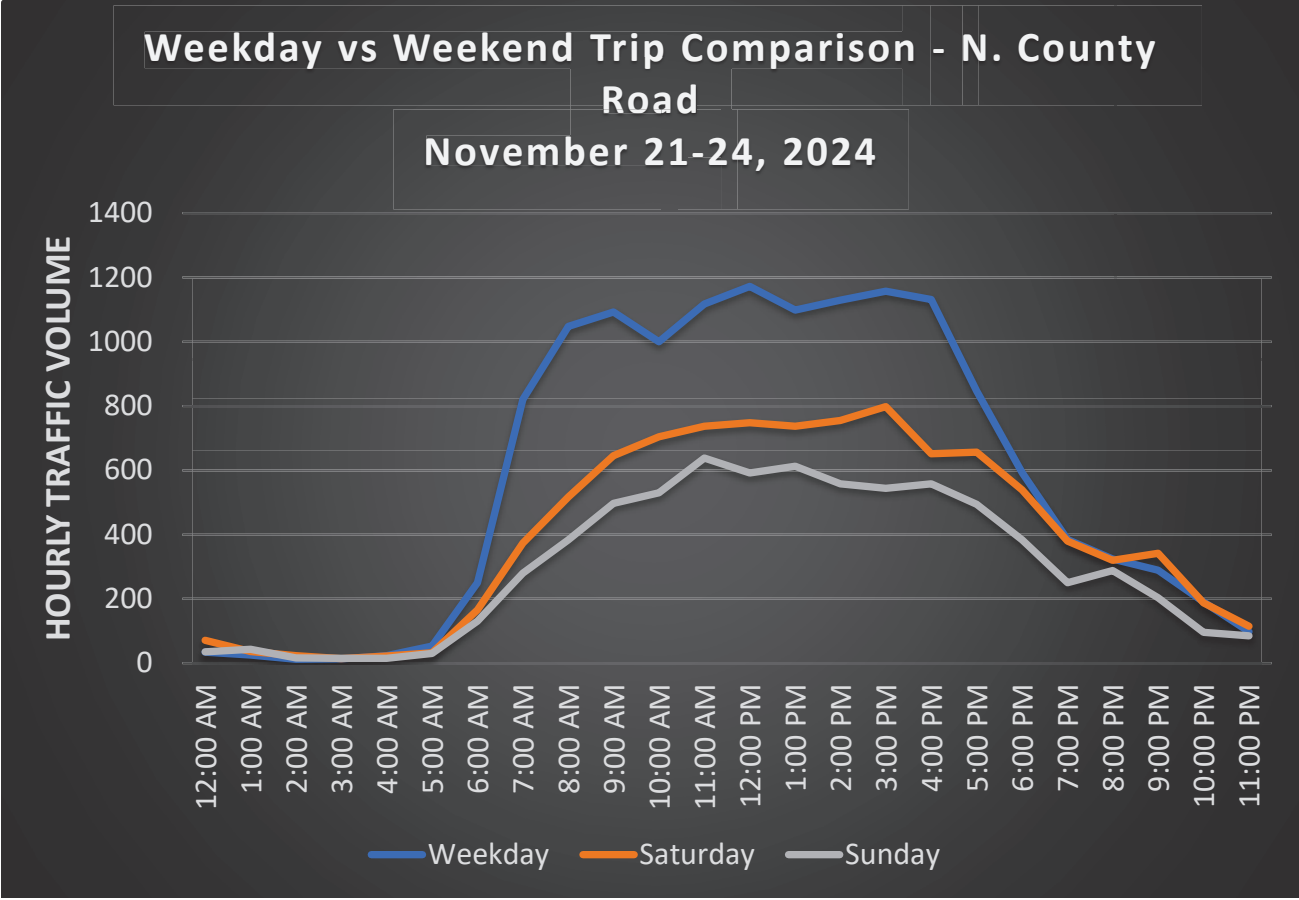


Exhibit 1 – November 21-24, 2024 Traffic Counts

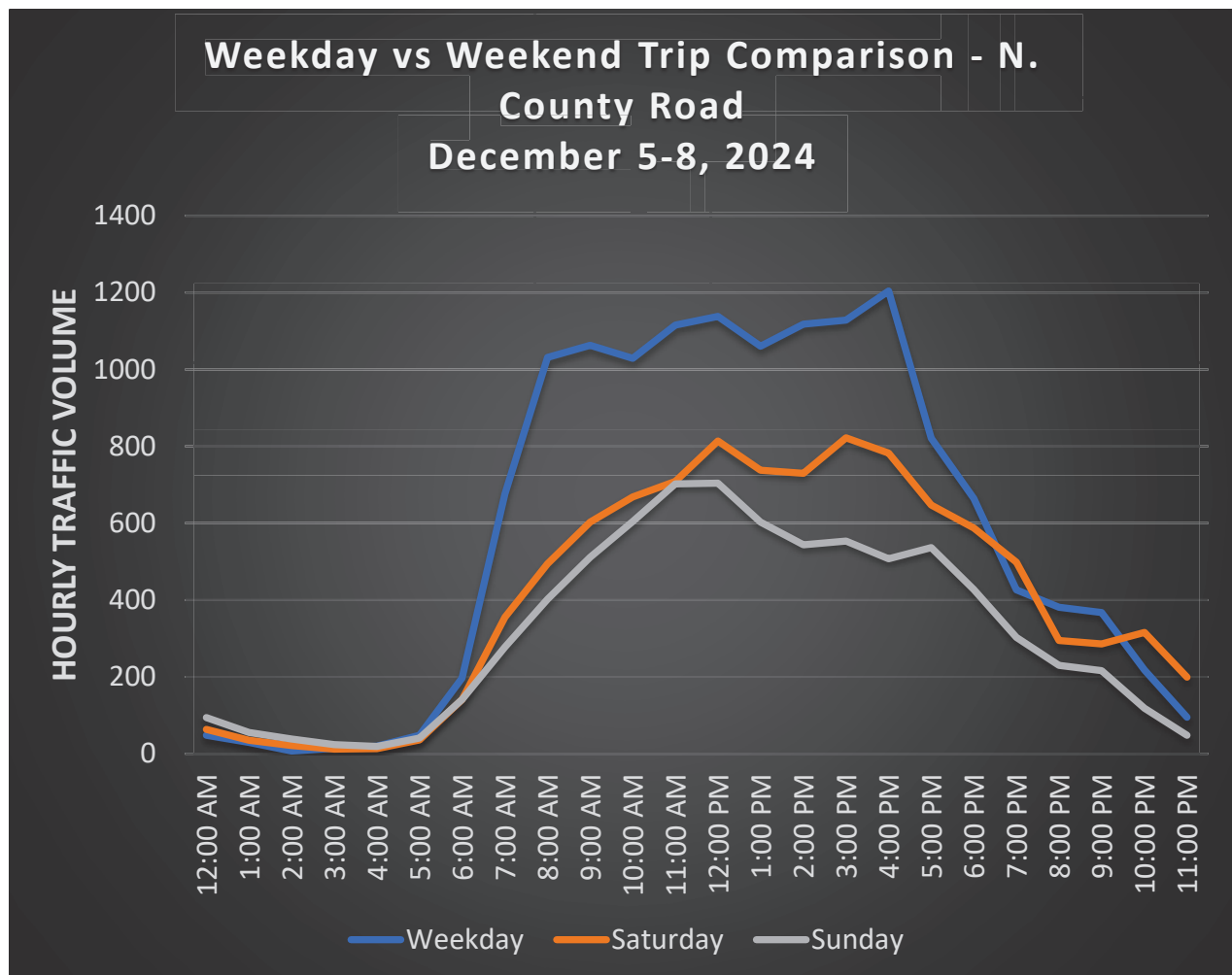


Exhibit 2 – December 5-8, 2024 Traffic Counts

As shown above in Exhibit 1 and 2, the Saturday and Sunday traffic during the 9:00 to 10:00 AM hour is approximately 40-55% less than weekday peak hour traffic during the same time. This is the time frame in which the Synagogue has the highest traffic demand for worship services on Saturday morning and Sunday school. An hourly trip generation analysis was also prepared based on a programmatic methodology for the existing and proposed Synagogue uses. This hourly trip generation is separate from the ITE Trip Generation.

Programmatic Trip Generation Estimate

Start Time	Weekday	Sat	Sun
6:00 AM	0	2	0
7:00 AM	5	5	2
8:00 AM	10	5	10
9:00 AM	10	50	40
10:00 AM	2	0	0
11:00 AM	2	0	0
12:00 PM	5	25	40
1:00 PM	5	30	12
2:00 PM	2	5	2
3:00 PM	2	2	12
4:00 PM	5	2	0
5:00 PM	16	0	0
6:00 PM	10	0	0
7:00 PM	10	0	0
8:00 PM	2	0	0

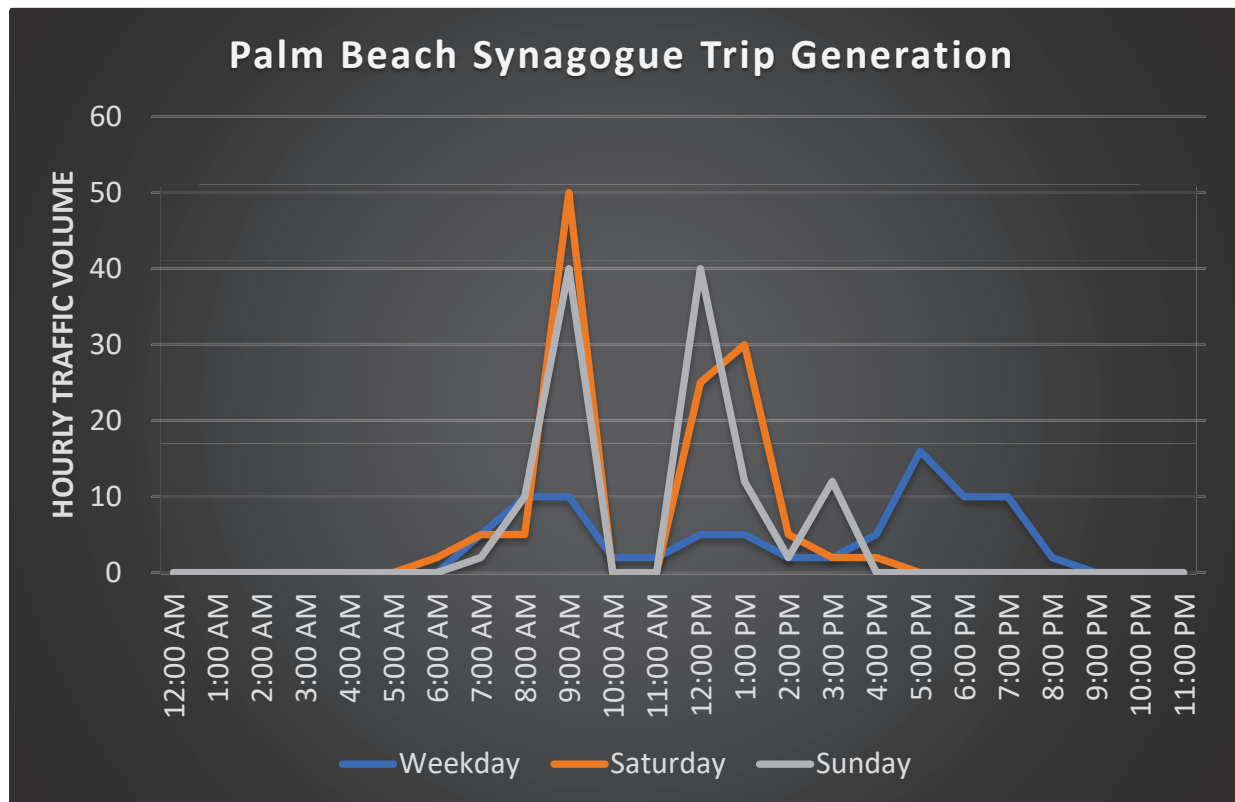


Exhibit 3 – Programmatic Trip Generation

As shown above, the weekday trip generation for the Palm Beach Synagogue is minimal. It should be noted the weekday trip generation is existing and not anticipated to change as part of this application despite the ITE trip generation calculations for the increased building size. A comparison of N. County Road traffic counts and Palm Beach Synagogue is shown below. Note the two increases in Palm Beach Synagogue traffic is on the weekend and not the weekday. Additionally, this traffic is existing and not an increase in intensity from the current conditions.

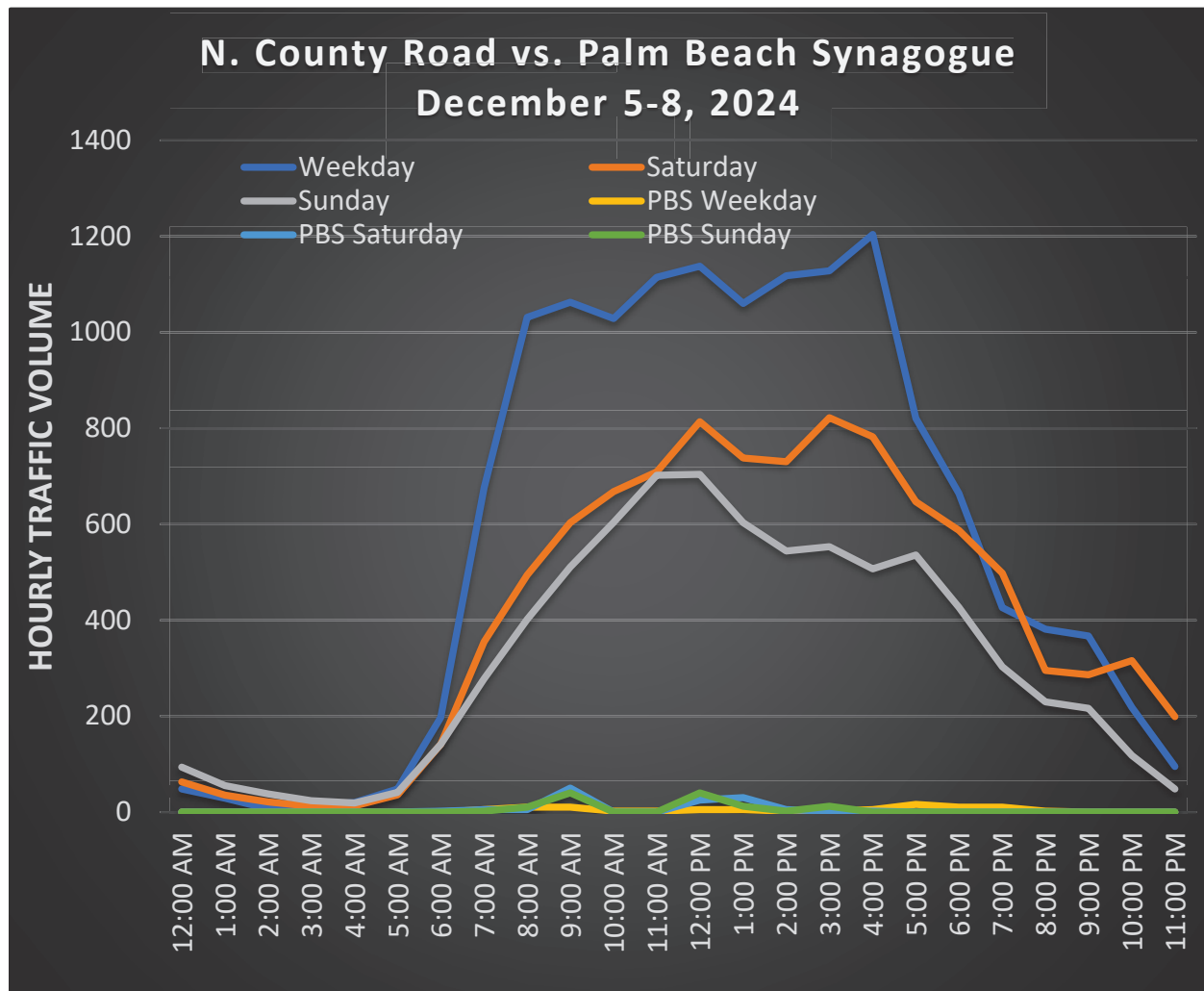


Exhibit 4 – Trip Generation Comparison

9.0 SUNDAY SCHOOL OPERATIONS

As previously stated, the Synagogue operates a Sunday school for school aged students on Sunday mornings from 9:30 AM to 12:30 PM. No schooling occurs during the weekday. There are approximately 63 families (150 students) that attend the Sunday school program but not all 63 families are ever there at one time or on any given Sunday. Typically, about 35-40 households participate in Hebrew School/Maimonides on a Sunday. Additionally, some families and students walk reducing the vehicle demand. For those attending via vehicle, parents drop their students off similar to a traditional school car line and then pick them back up in the afternoon.

Staff members will be present to assist students with vehicle circulation and pick up/drop off. Staff will park using the parking spaces towards Sunset Avenue so that parents can make a U-turn in the courtyard parking to drop students off. An autoturn exhibit has been prepared for this maneuver which shows a P-vehicle (medium size SUV) can make this U-turn (See Appendix A). If necessary, larger vehicles can make a 3-point turn. A Traffic Operational Plan is provided and included in Appendix H showing the circulation pattern. Drivers will come in on the left side of the driveway with guidance from cones, staff, and temporary signage and then leave on the right side of the drive aisle. This is done since Sunset Avenue is one-way only eastbound and this circulation pattern will minimize vehicle conflict points and improve efficiency.

The queue line can accommodate approximately 9 vehicles assuming 1 vehicle per every 22 feet for internal stacking assumptions. A queuing calculation has been prepared assuming a conservative 63 arriving vehicles with a 1 minute processing time and 2 vehicles loading/unloading at a time.

The queuing analysis was based on the following ratio:

Coefficient of utilization (ρ) = Average Demand Rate / Average Service Rate

The required queue storage (M) is determined based on the following equation:

$$M = \left\lceil \frac{\ln P(x > M) - \ln Q_M}{\ln \rho} \right\rceil - 1$$

A 95% confidence rate was used for this analysis. Therefore, the $P(x > M)$ was set to 5%.

Q = Processing rate = 60 (min/hr) / 1.0 (min/process) = 60 processes per hour

q = Demand rate = 63 vehicles/ per hour

N = Valet attendants = 2 vehicles loading/unloading at a time

ρ = Utilization factor = $q/(NQ) = 63/(2*60) = 0.525$

Q_m = Table value = 0.363

$M = (\ln(.05) - \ln(0.363)) / \ln(0.525) - 1 = 2.07$, or 3 vehicles.

As shown above, the queueing calculations show a 95th percentile queue of 3 vehicles. The ingress stacking can accommodate 9 vehicles so no vehicle spillover to Sunset Avenue is anticipated. The queue calculations are also provided in Appendix I.

A field observation was performed for the existing Sunday School on Sunday, December 15, 2024 to observe existing operations. Currently, the drop off is located right at the entrance off Sunset Avenue and parents drop off their students just inside the site or on Sunset Avenue. Very minimal queue was observed with the queue generally just one vehicle and a maximum of 2 vehicles. There were also some parents that parked on Sunset Avenue as there were numerous on-street parking spaces available. Very little traffic or impact to Sunset Avenue was observed as traffic volumes were very low at that time of day. The proposed Site Plan is better suited for drop off/pick up than the current site due to the location of the entrance of the existing facility

being so close to Sunset Avenue. Two police officers were present during drop off and pick up to ensure safety and efficient movement. Photos from the site visit are included in Appendix K.

10.0 VALET OPERATIONS

As previously stated, the Synagogue will have weddings or other types of events on occasion. These events typically occur during the evening and outside of weekday peak hours. If a large event occurs such as a wedding, valet service will be provided by Palm Beach Parking. The same onsite circulation pattern will be used as the Sunday School and valet attendants will park vehicles offsite. Note valet services are not used for worship services. Palm Beach Parking utilizes public and metered on-street parking on N. County Road, Sunrise Avenue, and Sunset Avenue to park vehicles. To return to the Synagogue, the valet attendants will utilize the existing sidewalk infrastructure on N. County Road, Sunrise Avenue, Sunset Avenue, and Bradley Place. A total of 103 on-street public parking spaces are available on N. County Road, Sunrise Avenue, and Bradley Place and an additional 139 on-street parking spaces are available on Royal Poinciana Way. As an additional parking mitigation measure, the Synagogue will coordinate with at least one of the off-site parking lot owners prior to a large event to ensure additional off-street parking is secured if it were to be needed. A traffic circulation exhibit for the valet operations and offsite parking is included in Appendix H.

The valet will be staffed appropriately to ensure vehicle queuing is maintained onsite and does not spillover onto Sunset Avenue. A sample calculation is provided below using the same queueing methodology as the Sunday School for both a 150 person and 250 person event.

For a 150 person wedding or event, it is assumed approximately 20% or 30 people will walk. Therefore, 120 people will arrive by vehicle. Per the Federal Highway Administration (FHWA) *Managing Travel for Planned Special Events* publication, a vehicle occupancy of 2.5 persons per vehicle is a typical assumption for an event which is different from general everyday commuter travel. A higher vehicle occupancy rate would also be expected at an Orthodox Synagogue. In order to be conservative, a vehicle occupancy of 2.0 persons per vehicle has been used in the analysis. Therefore, the vehicle demand can be conservatively estimated at 60 vehicles for a 150-person event. It was estimated the total valet turnover time to pick up vehicle, drive offsite, and arrive back would be 3 minutes. A total of 5 valet attendants was assumed in this scenario.

150 Person Event

$Q = \text{Processing rate} = 60 \text{ (min/hr)} / 3.0 \text{ (min/process)} = 20 \text{ processes per hour}$

$q = \text{Demand rate} = 60 \text{ vehicles/ per hour}$

$N = \text{Valet attendants} = 5$

$\rho = \text{Utilization factor} = q/(NQ) = 60/(5*20) = 0.600$

$Q_m = \text{Table value} = 0.242$

$M = (\ln(.05) - \ln(0.242)) / \ln(0.600) - 1 = 2.08, \text{ or } 3 \text{ vehicles.}$

As shown above, the queueing calculations show a 95th percentile queue of 3 vehicles. The ingress stacking can accommodate 9 vehicles so no vehicle spillover to Sunset Avenue is anticipated.

For a 250 person event, similar assumptions were made. Approximately 20% walk and therefore 200 people would arrive via vehicle. The vehicle demand is very conservatively estimated at 100 vehicles but the vehicle occupancy is expected to be higher. A total of 7 valet attendants was assumed in this scenario.

250 Person Event

Q = Processing rate = 60 (min/hr) / 3.0 (min/process) = 20 processes per hour

q = Demand rate = 100 vehicles/ per hour

N = Valet attendants = 7

ρ = Utilization factor = $q/(NQ) = 100/(7*20) = 0.714$

Q_m = Table value = 0.330

$M = (\ln(.05) - \ln(0.330)) / \ln(0.714) - 1 = 4.60$, or 5 vehicles.

As shown above, the queueing calculations show a 95th percentile queue of 5 vehicles. The ingress stacking can accommodate 9 vehicles so no vehicle spillover to Sunset Avenue is anticipated.

The Synagogue will work closely with their private valet operator to ensure any event that occurs is staffed appropriately. The queue calculations are provided in Appendix I. Additionally, the Declaration of Use Agreement provides restrictions on the frequency and size of events.

11.0 PARKING ANALYSIS

A parking analysis has been prepared and is provided in a separate document titled “Parking Study”.

12.0 SITE RELATED IMPROVEMENTS

The AM and PM peak hour volumes at the project entrances for the overall development with no reduction for pass by credits are shown in Tables 6 and 7 and may be summarized as follows:

Directional Distribution (Trips IN/OUT)

AM = 6 / 4

PM = 7 / 9

As previously mentioned, site access is proposed via a left in, left out only driveway connection to Sunset Avenue. Figure 2 attached to this report depicts the driveway volumes. No additional turn lanes are warranted or proposed.

13.0 MULTIMODAL TRANSPORTATION OPTIONS

An existing sidewalk is present along both sides of Sunset Avenue and County Road. The existing sidewalk fronting the side on Sunset Avenue is approximately 6.5 feet wide and the sidewalk fronting County Road is approximately 8 feet wide. Striped crosswalks and pedestrian signals are present at the intersection of Sunset Avenue and County Road. No bicycle lanes are currently present on either Sunset Avenue or County Road. However, the large sidewalks along Sunset Avenue and County Road and the slower speeds of the roadways allow bicyclists to use either the sidewalk or roadway if desired.

Palm Tran Route #41 currently services the area and County Road. The most proximal bus stop is approximately 350 feet to the north of the synagogue and provides service connections to the north end of Palm Beach and the West Palm Beach Tri-Rail station.

14.0 CONCLUSION

The proposed development will result in less than 20 weekday peak hour trips and therefore meets the requirements of the Palm Beach County Traffic Performance Standards. An intersection operational analysis was prepared at four intersections demonstrated the proposed site will have a minimal impact to the surrounding roadway network and result in no degradation to the Level of Service on the Town roadway network and therefore meets the requirements of the Comprehensive Plan.

PALM BEACH SYNAGOGUE

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PREVIOUSLY VESTED DEVELOPMENT

TABLE 1A - Daily Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips	Internalization		External Trips	Pass-by		Net Trips
				In	Out		%	Total		%	Trips	
Church/Synagogue ^b	560	11,007	7.6			84		0	84	5%	4	80
Fine Dining Restaurant	931	5,979	83.84			501		0	501	44%	220	281
Grand Totals:						585		0	585	38%	224	361

TABLE 2A - AM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips		
				In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total
Church/Synagogue ^b	560	11,007	0.32	0.62	0.38	2	2	4	0.0%	0	0	0	2	2	4	5%	0	2	4
Fine Dining Restaurant	931	5,979	0.73	0.50	0.50	2	2	4	0.0%	0	0	0	2	2	4	44%	2	1	2
Grand Totals:						4	4	8	0.0%	0	0	0	4	4	8	25%	2	3	6

TABLE 3A - PM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips			
				In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	
Church/Synagogue ^b	560	11,007	S.F.	0.44	0.56	2	3	5	0.0%	0	0	0	2	3	5	5%	0	2	3	5
Fine Dining Restaurant	931	5,979	S.F.	0.67	0.33	31	16	47	0.0%	0	0	0	31	16	47	44%	21	17	9	26
Grand Totals:						33	19	52	0.0%	0	0	0	33	19	52	40%	21	19	12	31

TABLE 4A - Saturday Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips			
				In	Out	In	Out	Total	%	In	Out	Total	In	Out	Total	%	In	Out	Total	
Church/Synagogue ^b	560	164	0.51	0.49	0.51	41	43	84	0.0%	0	0	0	41	43	84	5%	4	39	41	80
		Grand Totals:			41	43	84	0.0%	0	0	0	41	43	84	5%	4	39	41	80	

Note: Number of seats used for Saturday peak hour generator as the number of seats is a better reflection of traffic impact potential for a worship service than building size
2527 SF of office not included in calculation
SF based on Property Appraiser

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10/05/2024
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EXISTING DEVELOPMENT

TABLE 1B - Daily Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	
Church/Synagogue ^b	560	19,297	7.6					147						147	5%	7	140
Grand Totals:								147	0.0%					147	5%	7	140

TABLE 2B - AM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	
Church/Synagogue ^b	560	19,297	0.32		0.62	4	2	6	0.0%			4	2	6	5%	0	6
Grand Totals:						4	2	6	0.0%			4	2	6	0%	0	6

TABLE 3B - PM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	
Church/Synagogue ^b	560	19,297	0.49		0.44	4	5	9	0.0%			4	5	9	5%	0	9
Grand Totals:						4	5	9	0.0%			4	5	9	0%	0	9

TABLE 4B - Saturday Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	
Church/Synagogue ^b	560	164	0.51		0.49	41	43	84	0.0%			41	43	84	5%	4	80
Grand Totals:						41	43	84	0.0%			41	43	84	5%	4	80

Note: Number of seats used for Saturday peak hour generator as the number of seats is a better reflection of traffic impact potential for a worship service than building size
Existing Synagogue utilizes all 19,297 SF of existing facility. Square footage from Existing Site Plan

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PROPOSED DEVELOPMENT

TABLE 5 - Daily Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips	
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	In	Out
Church/Synagogue ^b	560	32,398	7.6					246						246	5%	12		234
Grand Totals:								246	0.0%					246	5%	12		234

TABLE 6 - AM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips	
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	In	Out
Church/Synagogue ^b	560	32,398	0.32		0.62	6	4	10	0.0%			6	4	10	5%	1	6	3
Grand Totals:						6	4	10	0.0%			6	4	10	10%	1	6	3

TABLE 7 - PM Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips	
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	In	Out
Church/Synagogue ^b	560	32,398	0.49		0.44	7	9	16	0.0%			7	9	16	5%	1	7	8
Grand Totals:						7	9	16	0.0%			7	9	16	6%	1	7	8

TABLE 8 - Saturday Peak Hour Traffic Generation

Landuse	ITE Code	Intensity	Rate/Equation	Dir Split		Gross Trips			Internalization			External Trips			Pass-by		Net Trips	
						In	Out	Total	%	In	Out	In	Out	Total	%	Trips	In	Out
Church/Synagogue ^b	560	230	0.51		0.49	57	60	117	0.0%			57	60	117	5%	6	54	57
Grand Totals:						57	60	117	0.0%			57	60	117	5%	6	54	57

Note: Number of seats used for Saturday peak hour generator as the number of seats is a better reflection of traffic impact potential for a worship service than building size Enclosed Building Under Air = 30,089 SF. The total building enclosed SF was used in the analysis to be conservative.

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TABLE 9
TRAFFIC GENERATION DIFFERENCE - NET TRIPS (PROPOSED - PREVIOUSLY VESTED)

	DAILY	AM PEAK HOUR			PM PEAK HOUR		
		TOTAL	IN	OUT	TOTAL	IN	OUT
PREVIOUSLY VESTED DEVELOPMENT =	361	6	3	3	31	19	12
PROPOSED DEVELOPMENT =	234	9	6	3	15	7	8
DIFFERENCE =	-127	3	3	0	-16	-12	-4

TABLE 10
TRAFFIC GENERATION DIFFERENCE - NET TRIPS (PROPOSED - EXISTING)

	DAILY	AM PEAK HOUR			PM PEAK HOUR			SATURDAY PEAK HOUR		
		TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT
EXISTING DEVELOPMENT =	140	6	4	2	9	4	5	80	39	41
PROPOSED DEVELOPMENT =	234	9	6	3	15	7	8	111	54	57
DIFFERENCE =	94	3	2	1	6	3	3	31	15	16

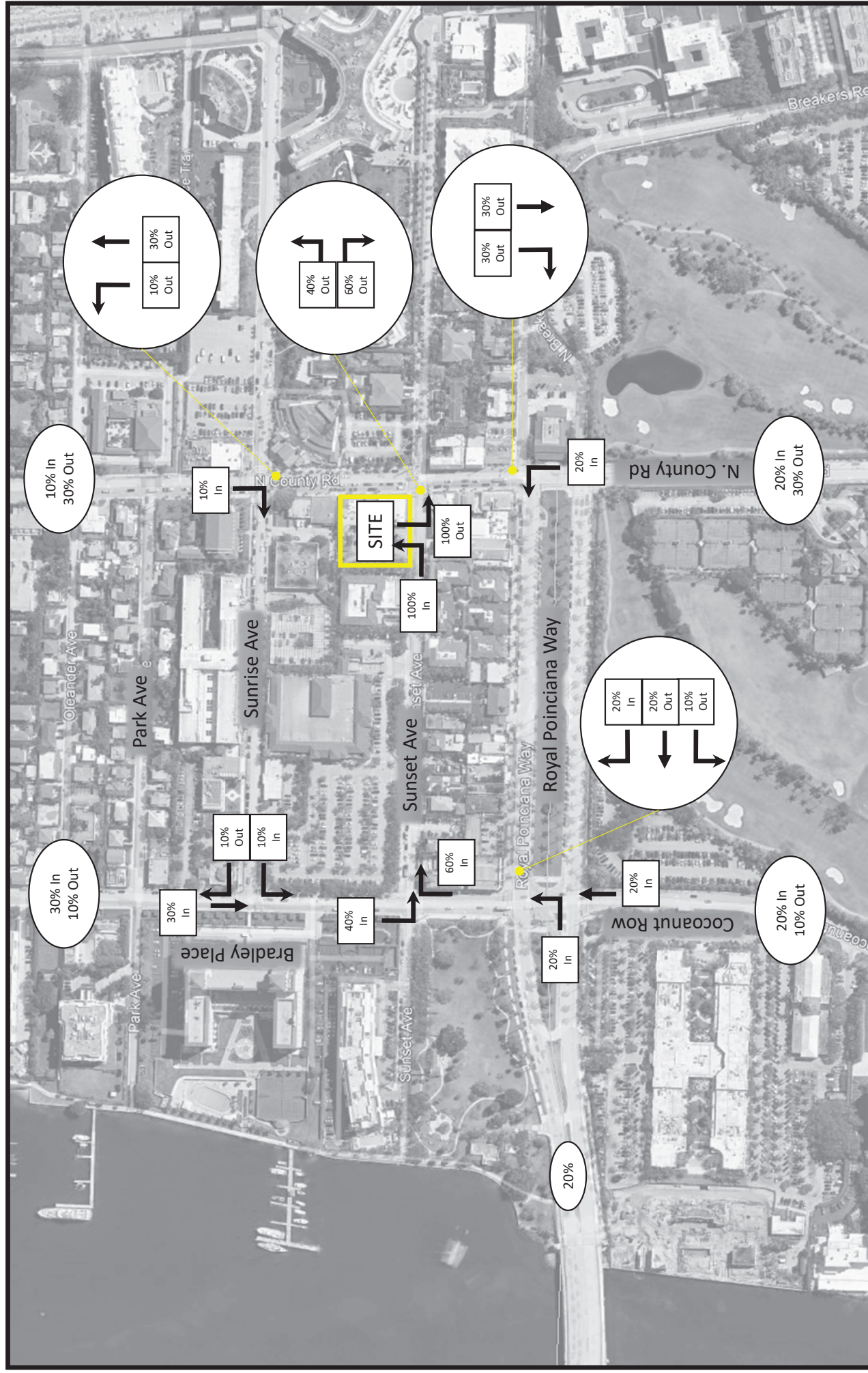


Figure 1 - Trip Distribution
Palm Beach Synagogue
Project # 24-073



Legend			
XX	AM	Peak Hour	
(XX)	PM	Peak Hour	
xxx	ADT		

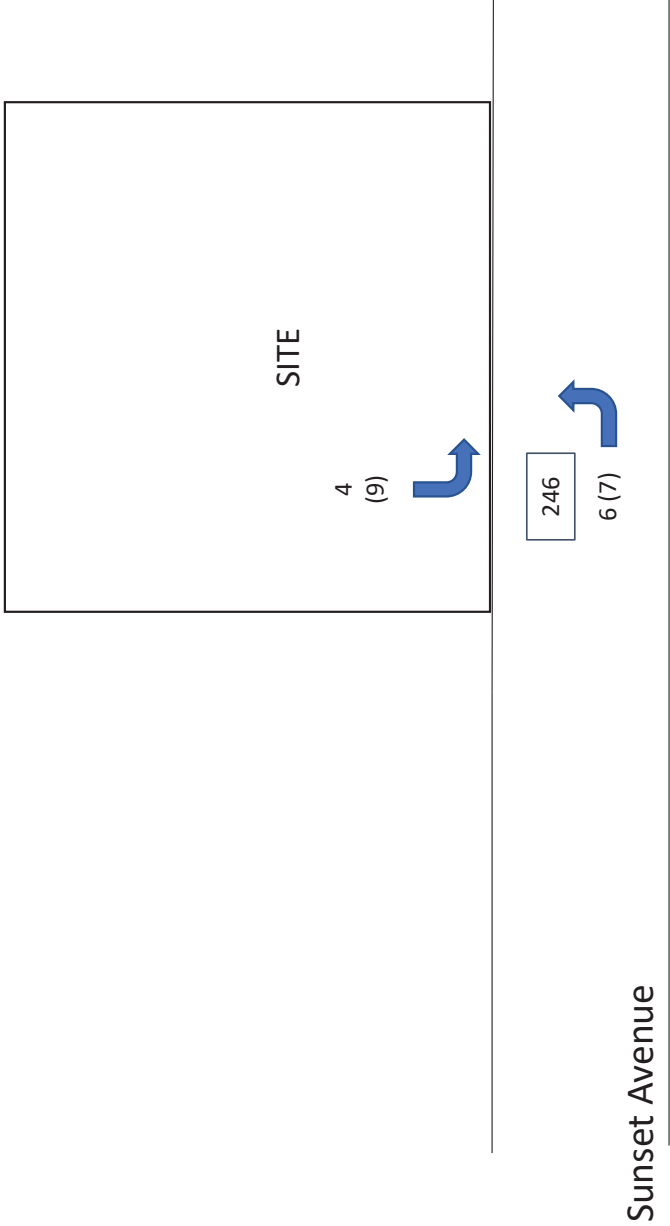


Figure 2 – Driveway Volumes
Palm Beach Synagogue
Project # 24-073