

MEMORANDUM

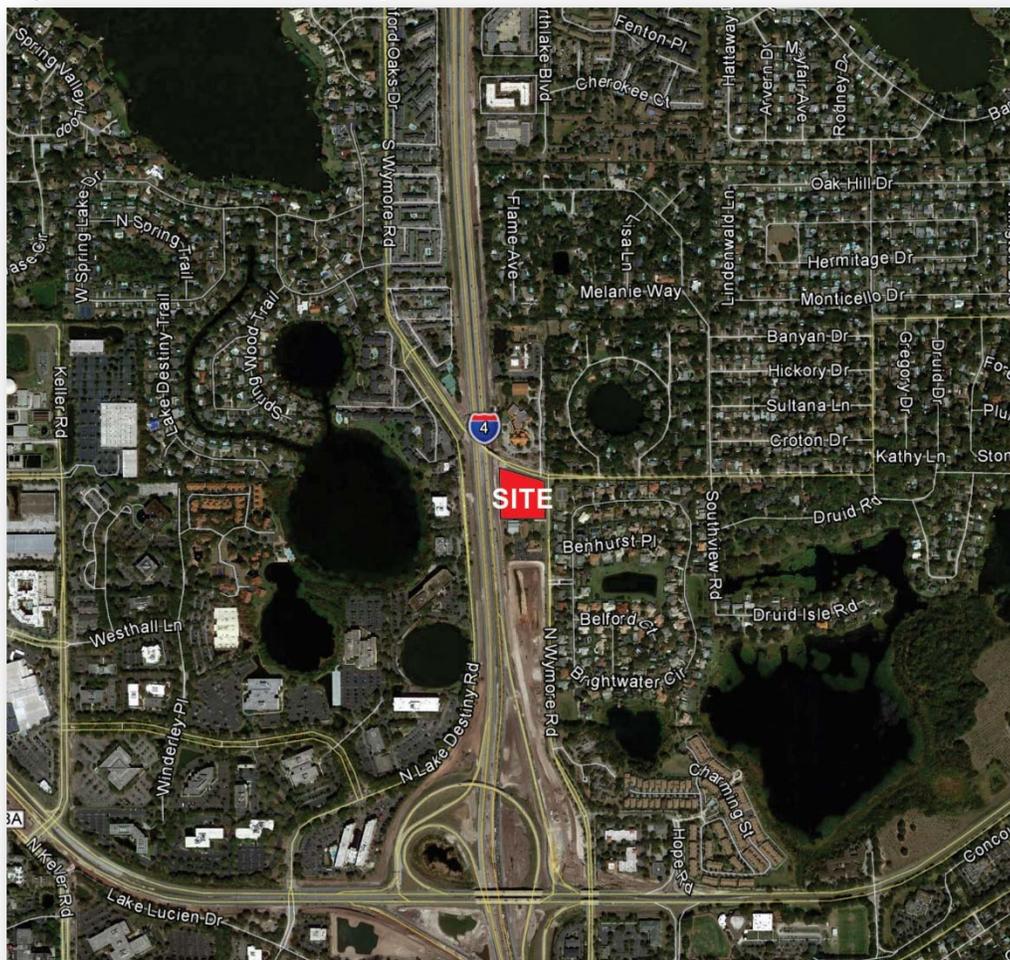
June 10, 2016

Re: Saint Anthony Coptic Orthodox Church
Parking Demand Review
Project № 16-055

Introduction

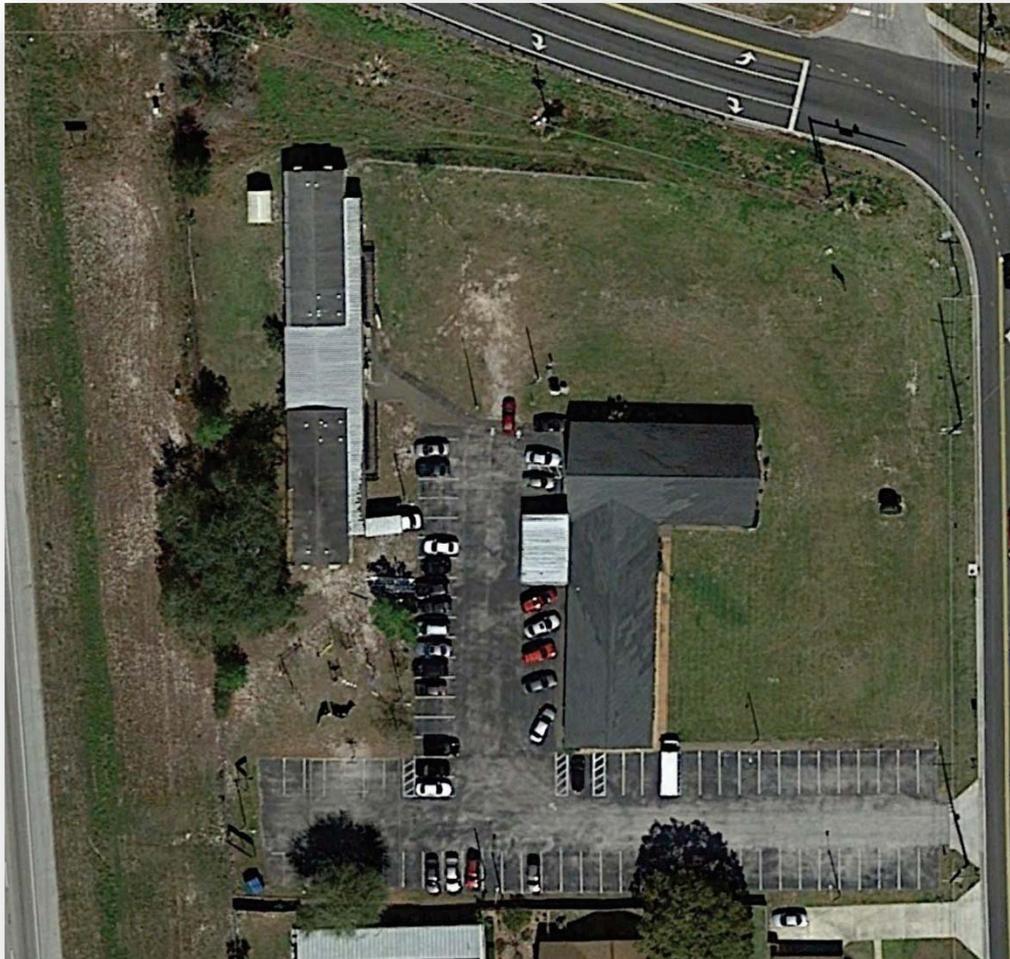
The following analysis was prepared to address the projected typical parking demand for Saint Anthony Coptic Orthodox Church in the City of Maitland. The site is located at the southwest corner of the intersection of Wymore Road and Oranole Road, as illustrated in **Figure 1**.

Figure 1 – Site Location Map



The church is proposing to redevelop and expand its existing campus in order to better serve the needs of its constituency in a modern, inviting environment, as well as to prepare for the continuing growth of the congregation. An aerial of the existing facilities is provided in **Figure 2**.

Figure 2 – Existing Church Campus

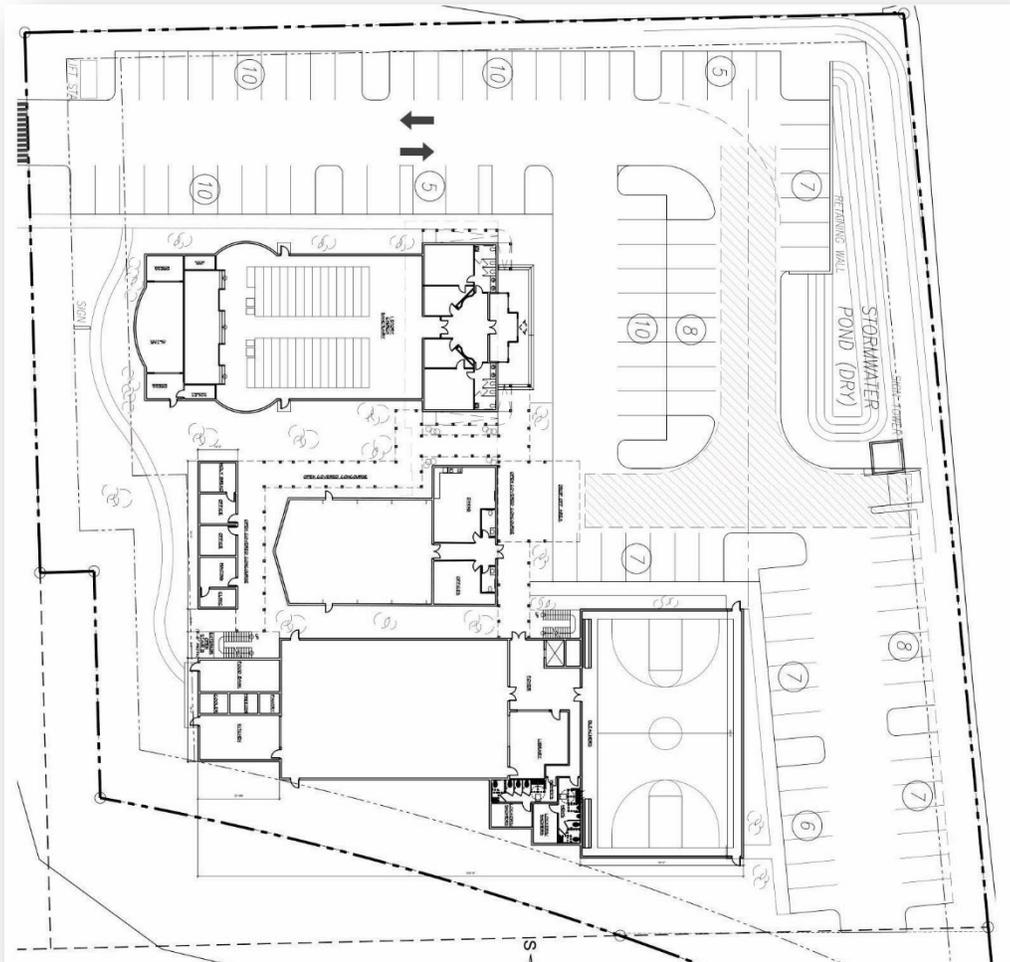


The proposed campus will have a total of 31,232 square feet of building space as outlined in the **Table 1**. The Sanctuary has a capacity of 300 seats, with all other uses supporting the congregation. A total of 100 parking spaces are proposed to serve the church. The layout is illustrated in **Figure 3**.

Table 1
Saint Anthony Space Allocation

Use	Size
Sanctuary	7,388 SF
Chapel	3,441 SF
Multipurpose Hall	19,601 SF
Administrative	802 SF
Total	31,232 SF

Figure 3 – Proposed Church Campus



Parking Requirements (City Code)

In accordance with Section 21-22 of the City of Maitland Code, Church parking requirements are calculated based on the number of seats in the Sanctuary or Chapel. The required off-street parking supply is 1 space / 3 seats in an auditorium or chapel. Using this ratio, the parking requirement for the site is 100 parking spaces. The proposed site plan provides a total of 100 parking spaces in accordance with City Code.

ITE Parking Information

The Institute of Transportation Engineers (ITE) publishes Parking Generation, 4th Edition, which provides guidance on the parking demand of various land uses. ITE defines a Church, designated as Land Use Code 560, as “a building in which public worship services are held. A church houses an assembly hall or sanctuary; it may also house meeting rooms, classrooms and, occasionally, dining, catering, or party facilities.” It is evident that the Saint Anthony Coptic Orthodox Church fits within the description of a church with supporting uses, as defined by ITE. According to the ITE Parking Generation, 4th Edition the 85th percentile peak parking demand occurs on Sundays with a ratio of 0.25 parking spaces per seat, or 1 space / 4 seats. Applying this ratio to the Church yields a peak parking demand of 75 parking spaces for the campus.

Additionally, ITE data indicates that the typical car ridership is 2.25 persons per vehicle. This data is extracted from the average parking demand of 0.45 parking spaces per attendee. Naturally, for holiday functions and special occasions, when the church would be more likely to operate at capacity, the ridership per vehicle would be greater than typical, given that families attend holiday functions and special occasions as a larger unit.

Church Activity and Weekly Parking Demand

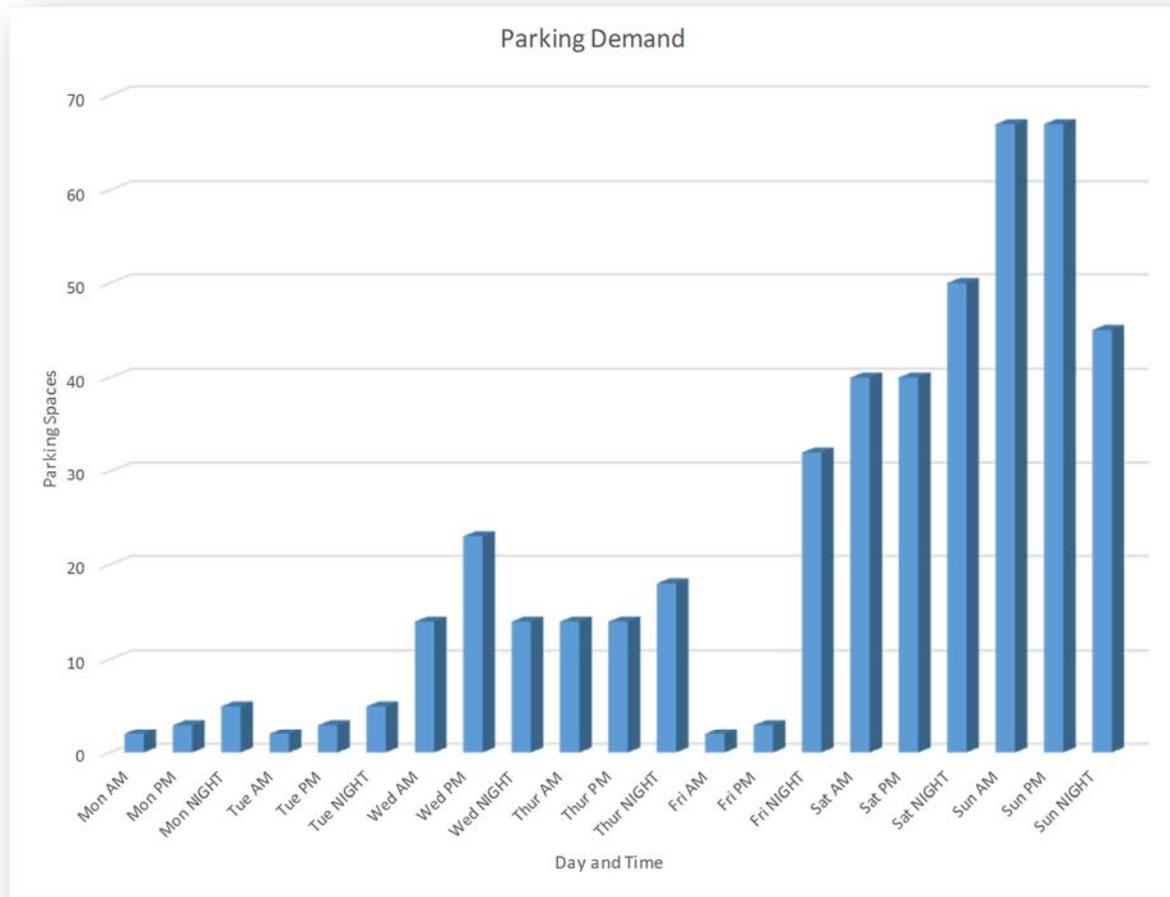
Based on discussions with and information provided by the Church, the multiple spaces within the Church will be used based on a typical staggered schedule throughout the week. The uses and schedule are typical and customary for churches offering worship and community services. **Table 2** outlines the Church’s typical activities, scheduling, space allocation, and projected attendance.

**Table 2
 Saint Anthony’s Scheduling and Space Allocation**

Activity	Day	Time	Area	Projected Attendance
Liturgy	Wednesday	10:00 am to 12:00 pm	Chapel	30
Food Bank	Wednesday	1:00 pm to 2:00 pm	Hall	50
Tutoring Classes	Wednesday	7:00 pm to 9:00 pm	Classrooms	30
Liturgy	Thursday	9:00 am to 1:00 pm	Chapel	30
Free Clinic	Thursday	6:30 pm to 9:00 pm	Hall	40
Food Bank	Friday	7:00 pm to 8:30 pm	Hall	70
Youth Meeting	Friday	8:30 pm to 10:30 pm	Classrooms	50
Youth Activities	Friday	10:30 pm to 12:00 am	Gym	50
Liturgy	Saturday	8:30 am to 11:00 am	Chapel	120
Agape	Saturday	11:00 am to 12:30 pm	Hall	120
Worship	Saturday	6:30 pm to 7:00 pm	Sanctuary	150
Sunday School	Saturday	7:00 pm to 8:30 pm	Classrooms	100
Bible Study	Saturday	7:00 pm to 8:30 pm	Sanctuary	50
Praises	Saturday	8:30 pm to 10:00 pm	Sanctuary	20
Liturgy	Sunday	8:00 am to 11:00 am	Sanctuary	200
Agape	Sunday	11:00 am to 12:30 pm	Hall	200
Youth Activities	Sunday	5:00 pm to 8:00 pm	Gym	100

Based on this schedule and an average vehicle ridership of 2.25 people per vehicle for community service events and 3 people per vehicle for worship services, a projected parking demand profile is developed and illustrated in **Chart 1**. It is evident that the peak parking demand will typically be less than 70 parking spaces.

Chart 1 – Weekly Parking Demand Profile



Overflow Parking Considerations

In addition to the ample parking provided on the property, the Church has a cooperative arrangement with the two neighboring churches that allows them to use each other's parking facilities to address overflow parking needs during extraordinary events or holidays. Saint Anthony's Coptic Orthodox Church, King of Kings Lutheran, and Holy Trinity Greek Orthodox Church each follow a holiday calendar that is slightly different from the other. The difference in denominational schedules significantly reduces the likelihood that all three church properties experience extraordinary peaks at the same time or on the same day. Therefore, the arrangement for overflow parking works well and reduces the chance that overflow parking demand from any of these churches affects the public right-of-way.

Conclusion and Findings

Based on a review of the activities and projected attendance at Saint Anthony's Coptic Orthodox Church, the typical peak parking demand is less than 70 parking spaces. Based on ITE Parking Generation information the sites peak parking demand is 75 parking spaces. The City of Maitland Code requires the site to provide 100 parking spaces.

The proposed site plan provides up to 100 parking spaces to serve the church, which is compliant with City Code and is adequate to meet the customary peak parking demand of the Church. If overflow parking is found to be necessary during extraordinary events, a cooperative arrangement is in place between the three adjacent churches to allow members of the congregations to use the adjacent parking facilities.

The proposed site plan provides adequate parking supply to be consistent with City Code and to accommodate the peak parking demand of the site.



Mohammed Abdallah, PE
FL PE № 56169
June 10, 2016

ATTACHMENTS

Sec. 21-22. - Off-street parking and loading.

It is the intent of this zoning code that the public interest, welfare, and safety requires that every building and use erected or instituted after the effective date of this zoning code shall be provided with adequate off-street parking facilities for the use of occupants, employees, visitors, customers, or patrons. It is also the intent of this zoning code that the public interest, welfare, and safety require that certain uses provide adequate off-street loading facilities. Such off-street parking and off-street loading facilities shall be maintained and continued so long as the main use continues.

- (1) *Generally.* Off-street parking facilities shall be provided as set out herein. Required off-street parking areas for three (3) or more automobiles shall have individual spaces marked, and shall be so designed, maintained and regulated that no parking or maneuvering incidental to parking shall be on any public street, walk or alley, and so that any automobile may be parked and unparked without moving another. Building existing as of the effective date of this zoning code may be modernized, altered, or repaired without providing additional off-street parking or off-street loading facilities, providing there is no increase in floor area, volume, capacity or space occupied. Where a building or use existed as of the effective date of this zoning code and such building or use is enlarged in floor area, volume, capacity, or space occupied, off-street parking and off-street loading as herein specified shall be provided for the additional floor area, volume, capacity, or space so created or used.

Change in use of a building or use existing as of the effective date of this zoning code shall require additional off-street parking and off-street loading facilities to the extent that requirements for such facilities exceed the off-street parking and off-street loading requirements which would have been required for the previous use had the regulations of this zoning code been applicable thereto.

The required off-street parking facilities shall be:

- (a) Identified as to purpose and location when not clearly evident.
- (b) Unless otherwise requested by the applicant and approved by the city manager, surfaced with asphalt, bituminous, or concrete material and maintained in a smooth, well-grade condition. Single-family and two-family residences are exempt from this requirement. Driveways, access aisles, and parking spaces for public and private schools offering academic courses and for churches may be surfaced with grass or lawn.
- (c) Drained so as not to cause any nuisance on adjacent property.
- (d) So lighted (if required or desired) as to prevent glare or excessive light on adjacent property.
- (e) Arranged for convenient access and to minimize hazard to the safety of pedestrians and vehicles. For this purpose, the parking shall conform to the minimum standards as noted in the Institute of Transportation Engineers (ITE) *Transportation and Traffic Engineering Handbook, Second Edition* or as may be amended from time to time. All parking shall be a standard size (nine (9) feet wide by eighteen (18) feet long with twenty-four (24) foot aisle widths, is acceptable if ninety (90) degree stalls are proposed). Up to fifteen (15) percent of the spaces required by city regulations may be designed for compact vehicles (minimum eight (8) feet wide by sixteen (16) feet long) if designated appropriately on site.
- (f) Off-street parking for individual uses shall either be consistent with the following off-street parking requirements or an applicant may prepare and submit an alternative parking study using professionally accepted methods for review and approval by the development review committee:

RS-1 and RS-1A	3 spaces per dwelling unit
RS-2, RS-3, UU, RS-4, RS-5, RS-D, RG-1, RG-2, RG-3	2 spaces per dwelling unit
Garage apartment in connection with a single-family residence	2 spaces per dwelling unit
Guest house	1 space
Church and other places of worship	1 space per 3 seats in an auditorium or chapel (excluding classrooms)
Elementary and junior high school	2 spaces per class room or office, plus 1 space school per every 3 seats, whether temporary or permanent in any auditorium, gymnasium or cafeteria
Senior high school	0.2 spaces per student, plus 1 space per employee
Business school (trade/vocational)	1 space per every 2 seats, plus 1 per employee or staff person
Business/professional office	1 space per 250 square feet of gross floor area
Medical/dental (clinic) office	1 space per 200 square feet of gross floor area
Child care center and kindergarten	1 space per employee, plus 1 per every 10 children
Hospital	3 spaces per bed
Nursing home	1 space per every 2 beds, plus 1 per employee (based on the shift with the greatest employment)
Restaurants/taverns/bars/lounge	1 space per 3 seats, plus 1 per 2 employees
Art gallery, library, museum, community center	1 space per 200 square feet floor area or 1 per 3 seats (fixed or temporary, whichever is greater)
Theater	1 space per 2 seats
Prescription drugstore	1 space per 200 square feet of nonstorage area
Arts, crafts, dance, music photographic studio	1 space per 300 square, feet gross floor area
Arts and crafts shops	1 space per 200 square feet nonstorage area

Mortuary/crematory	1 space per 3 seats in chapel, plus 1 per every 250 square feet of gross floor area, and 1 per vehicle operated by the establishment
Cemetery	1 space per 5,000 square feet of lot area, plus 1 per 3 seats in a chapel
Travel agency, employment and newspaper office	1 space per 100 square feet nonstorage first floor, plus 1 per 200 square feet nonstorage above the first floor
Banks, financial institutions including credit unions	1 space per 200 square feet nonstorage first floor, plus 1 per 250 square feet gross area above the first floor
Hotel/motel	1½ spaces per room, and 1 space per every 3 seats in a restaurant or lounge offered for public use. (No additional parking spaces are required if the restaurant or lounge is determined to be an ancillary use.)
Business, commercial, and personal services (not specifically listed)	1 space per 100 square feet nonstorage first floor, plus 1 per 200 square feet nonstorage above first floor
Shopping centers	1 space per 200 square feet gross floor area
Bowling alley	6 spaces per lane
Private/club/lodges	1 space per 100 square feet gross floor area
Warehousing, storage use	1 space for every 2 employees, plus 1 per 1,000 square feet gross floor area
Government use	1 space per 100 square feet of nonstorage area
Tenant dwelling	2 spaces per dwelling unit
Group dwelling or lodging house	1½ spaces per rental unit, and 1 space per owner/operator; a rental unit is equal to 3 beds
Drive-in, drive-through restaurant	9.90 spaces per 1,000 square feet of gross floor area or 0.40 spaces per seat, whichever is greater
Dwelling unit within an office building	2 spaces per dwelling unit
Leasing office in connection with apartment rental	1 space per 250 square feet of gross floor area
Gymnasium/sports/health club	5 spaces per 1,000 square feet of gross floor area
Automobile service station	3 spaces per service bay, 2 per gas pump, plus 1 per 100 square feet of nonstorage space for convenience store function
Convenience store	1 space per 100 square feet of nonstorage area
Light manufacturing	3 spaces per 1,000 square feet of gross floor area
*Accessible parking and access ramps will be in accordance with federal and state regulations.	

The required off-street parking facilities shall be located on the same lot or parcel of land they are intended to serve; provided, however, that the development review committee may allow the establishment of such off-street parking facilities within six hundred (600) feet of the lot or parcel they are intended to serve when practical difficulties prevent the placing of the facilities on the same lot as the premises they are designed to serve.

- (2) *Off-site shared parking.* The owner(s) or operator(s) of parcels requiring off-street parking facilities which are within six hundred (600) feet of each other may make collective provision for such facilities. The development review committee may approve shared parking facilities for developments or uses with differing or non-overlapping operating hours or different peak business periods, or excess parking spaces if the shared parking complies with items (a) through (g) below.
- (a) Required parking spaces reserved for accessible parking may not be located off-site.
 - (b) Shared parking spaces must be located within 600 feet of the lot or parcel which they are intended to serve.
 - (c) Required parking spaces reserved for persons who require accessibility shall meet all requirements of the American's With Disabilities Act Accessibility Guidelines (ADAAG) and Chapter 11 of the Florida Building Code.
 - (d) Those wishing to use shared parking as a means of satisfying off-street parking requirements must submit a shared parking study/analysis to the community development department that clearly demonstrates the feasibility of shared parking. The studies must be provided in a form established by the community development department. The analysis must address, at a minimum, the size and type of the proposed development, the composition of tenants, the anticipated rate of parking turnover and the anticipated peak parking and traffic loads for all uses that will be sharing off-street parking spaces.
 - (e) A shared parking plan shall be enforced through written agreement among all owners of record and shall be subject to approval by the city. The owner(s) shall agree to bear the expense of recording the agreement, and such agreement shall bind owners and their heirs, successors, and assigns. An attested copy of the agreement between the owners of record shall be submitted to the community development department. Recordation of the agreement must take place before issuance of a building permit or certificate of occupancy for any use to be served by the shared parking area.

- (f) When the uses or property subject to a shared parking agreement are proposed to change, the community development director or designee shall have the authority to require a revised shared parking study and shall, with the approval of the development review committee, either revoke the shared parking agreement when it is determined that it is no longer necessary to meet the parking requirements of the uses or shall require a new shared parking agreement, when the revised parking study indicates additional parking is required.
- (g) The community development director or designee may re-evaluate a parking agreement previously approved by the city under the following circumstances:
 1. Expiration of the agreement;
 2. When there is proposed revision to the use or property that would require additional parking under the Maitland City Code regulating parking such as, an increase in square footage of structures/buildings affected by the agreement, or increased seating, or employee counts for restaurants; or
 3. When there is a proposed revision to the use or property that would require less parking under the Maitland City Code regulating parking such as modifications to reduce seating area for restaurants or changes in use.

Combined on-site parking. On-site, parking for the owner(s) or operator(s) of adjacent buildings or uses, or uses within the same building requiring off-street parking facilities may make collective provision for such facilities. Combined on-site parking provisions for a site or parcel may be re-evaluated by the community development director or designee when there is proposed revision to the use or property that would require additional parking under the Maitland City Code regulating parking such as, an increase in square footage of structures/buildings affected by the agreement, or increased seating, or employee counts for restaurants.

Such allocation for collective use must be supported by an analysis of expected parking patterns which must completely meet the expected demands consistent with the process outlined in Article V. Off-site and Shared Parking and Combined On-Site Parking of the Maitland City Code.

- (3) *Plans for off-street parking required.* A plan shall be submitted with every application for a building permit for any building or use that is required to provide off-street parking. The plan shall accurately designate the required parking spaces, access aisles and driveways, and the relation of the off-street parking facilities to the uses or structures such facilities are designed to serve.
- (4) *Employee parking.* Where off-street parking facilities are specified on the basis of number of employees, such parking shall be clearly marked and reserved for use of such employees. Where a use is required to provide and reserve a certain number of spaces for employees and the number of employees increases after the building is occupied, then the amount of off-street parking provided shall be increased in ratio to the increase to the number of employees.
- (5) *Nonconforming use.* Where major repairs, alterations, or extensions of a use are to be made in a building occupied by a nonconforming use, no such repairs, alterations or extensions shall be permitted unless and until full provisions for off-street parking for a new use of the type involved, are made for the new use as applicable to code requirements.
- (6) *Off-street loading; specifications, amounts.* Off-street loading facilities are required by this zoning code so that vehicles engaged in unloading will not encroach on or interfere with the public use of streets and alleys by pedestrians and so that adequate space is available for the unloading and loading of goods, materials, or items for delivery and shipping.

When the use of a structure or land or any part thereof is changed to a use requiring off-street loading facilities, the full amount of off-street loading space required shall be supplied and maintained. When any structure is enlarged or any use extended so that the size of the resulting occupancy requires off-street loading space, the full amount of such space shall be supplied and maintained for the structure or use in its enlarged or extended size. Each off-street loading space shall be directly accessible from a street or alley without crossing or entering any other required off-street loading space. There shall be no loading or unloading of commercial vehicles on the public street. Such loading space shall be accessible from the interior of the building it serves and shall be arranged for convenient and safe ingress and egress by motor truck and/or trailer combination.

- (7) *Plans for off-street loading required.* A plan shall be submitted with every application for a building permit for any use or structure required to provide off-street loading facilities. The plan shall accurately designate the required off-street loading spaces, access thereto, dimensions and clearance.
- (8) *Combined off-street loading.* Collective, joint or combined provisions for off-street loading facilities for two (2) or more buildings or uses may be made, provided that such off-street loading facilities are equal in size and capacity to the combined requirements of the several buildings or uses and are designed, located and arranged to be usable thereby.
- (9) *Off-street loading requirements.* Off-street loading spaces shall be provided and maintained as follows:
 - (a) *Personal service establishment, repair/service establishment:* One (1) space for the first ten thousand (10,000) square feet of floor area, plus one (1) space for each additional thirty thousand (30,000) square feet or major fraction thereof.
 - (b) *Retail or wholesale facility or restaurant:* For each additional two hundred thousand (200,000) square feet of floor area or major fraction thereof over two hundred fifty thousand (250,000) square feet of floor area, one (1) additional loading space shall be provided.

Square feet	Number of Spaces
0 to 10,000	1
10,000 to 25,000	2
25,000 to 40,000	3
40,000 to 100,000	4
100,000 to 250,000	5

- (c) *Hotel, motel, commercial recreation facility, exhibition hall, stadium, auditorium, convention hall, theater:* One (1) space for the first ten thousand (10,000) square feet of floor area, plus one (1) space for each additional fifty thousand (50,000) square feet or major fraction thereof.
- (d) *Business and professional office:* One (1) space for the first ten thousand (10,000) square feet of floor area, plus one (1) space for each additional fifty thousand (50,000) square feet or major fraction thereof.
- (e) *Hospital, school, college or other similar institutional building:* One (1) space for the first ten thousand (10,000) square feet and one (1) space for each additional fifty thousand (50,000) square feet or major fraction thereof.
- (f) *Multiple family dwelling:* One (1) to fifty (50) dwelling units, one (1) loading space; one (1) space for each additional fifty (50) dwelling units or major fraction thereof.
- (g) *Warehousing, storage:* One (1) space for the first five thousand (5,000) square feet of floor area, plus one (1) space for additional thirty thousand (30,000) square feet or major fraction thereof.

For any use not specifically mentioned, the requirements for off-street loading facilities for a use which is so mentioned to which the use is similar shall apply.

Land Use: 560 Church

Description

A church is a building in which public worship services are held. A church houses an assembly hall or sanctuary; it may also house meeting rooms, classrooms and, occasionally, dining, catering, or party facilities. Synagogue (Land Use 561) and mosque (Land Use 562) are related uses.

Database Description

The database consisted of all suburban sites with the exception of one urban site. Parking demand at the urban site was similar to that of the suburban sites and, therefore, the data were combined and analyzed together.

- Average site density: 28 square feet (sq. ft.) gross floor area GFA per seat (seven sites).
- Average parking supply ratios: 0.3 spaces per seat (12 study sites), 0.7 spaces per attendee (nine study sites) and 11.3 spaces per 1,000 sq. ft. GFA (11 study sites).

Parking demand data were collected from study sites primarily during the months of October and November.

The wide variation in parking demand rates based on building GFA may be due to variations in the congregation size per development unit, provision of meeting rooms, classrooms and residence space in addition to worship space in some facilities.

Limited data were available for parking demand on weekdays at houses of worship with primary services on Sunday. At one site, a weekday parking demand rate of 0.01 vehicles per seat was reported for the hour beginning at 6:00 p.m. At another site, a weekday parking demand rate of 1.17 vehicles per 1,000 sq. ft. GFA was reported for the hour beginning at 10:00 a.m. A third site reported a weekday parking demand rate of 6.41 vehicles per 1,000 sq. ft. GFA for the hour beginning at 7:00 p.m. These variations in weekday and weekday evening parking demand can result from variations in facility use during the week from basic administration functions to preschool activities to evening committee meetings/study groups.

Limited data were available for parking demand at houses of worship with primary services on days other than Sunday.

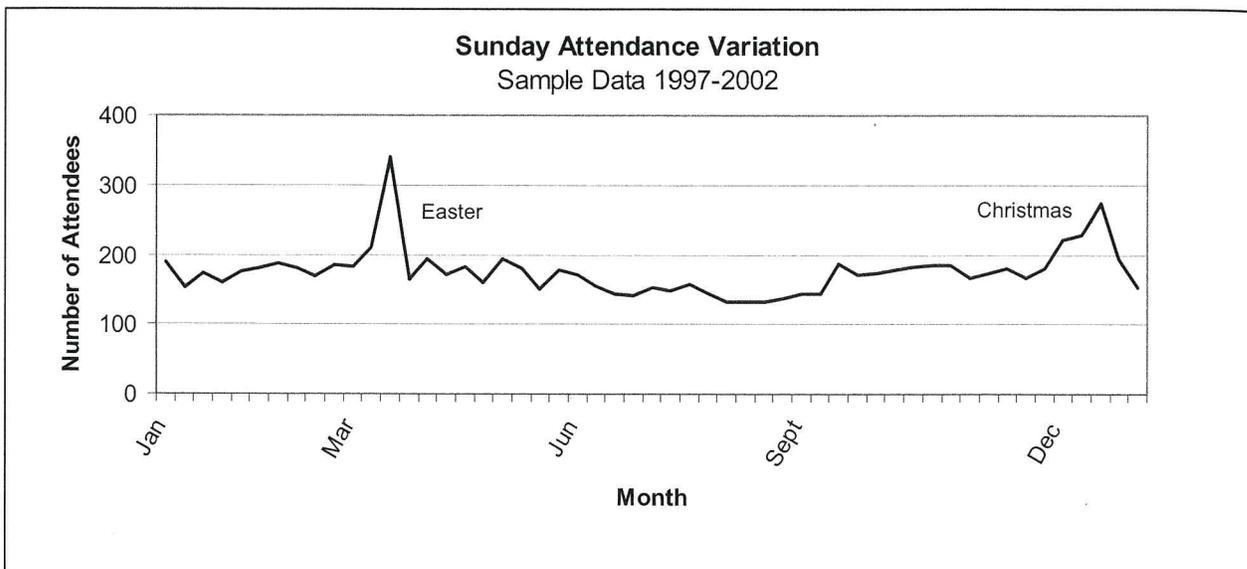
- Two Seventh-Day Adventist churches were observed to have parking demand rates of 0.32 and 0.40 vehicles per attendee between 10:00 and 11:00 a.m. on a Saturday during services with 78 and 105 attendees, respectively.

Future studies should include weekday data that encompass group activities (such as, youth groups, study groups, retreats) as well as base employee data. It is also important to collect attendance data for the survey days.

Land Use: 560 Church

Additional Data

The graph below provides a sample of the weekly variation in church attendance for Sundays during the course of the year, based on a church with 230 members in Oregon, USA. Peak attendance points were associated with the Easter and Christmas seasons. Summer months have the lowest Sunday attendance. Variations in church activities and functions may affect the Sunday attendance characteristics shown in the graphic. The Easter and Christmas peaks indicate opportunities for parking management strategies as compared to parking supply solutions.



SOURCE: DKS Associates, 2002.

Study Sites/Years

Newport Beach, CA (1981); Anaheim, CA (1983); Bollingbrook, IL (1983); Burr Ridge, IL (1983); Anaheim, CA (1984); Syracuse, NY (1984); Oklahoma City, OK (1986); Anaheim, CA (1988); Rochester, NY (1989); Clearwater, FL (1996); Goleta, CA (1999); West Chester, PA (2001); Philadelphia, PA (2002); Newbury Park, CA (2009)

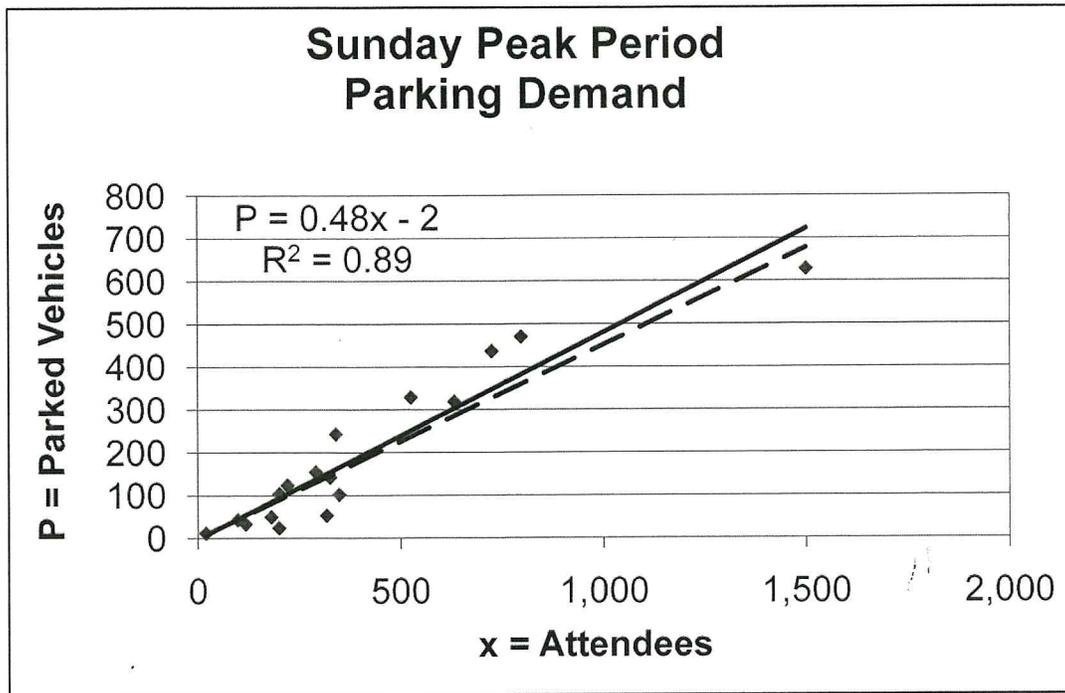
4th Edition Source Number

1015

Land Use: 560 Church

Average Peak Period Parking Demand vs. Attendees On a Sunday

Statistic	Peak Period Demand
Peak Period	9:00 a.m.–1:00 p.m.; 7:00–8:00 p.m.
Number of Study Sites	17
Average Size of Study Sites	356 attendees
Average Peak Period Parking Demand	0.45 vehicles per attendee
Standard Deviation	0.17
Coefficient of Variation	38%
Range	0.12–0.71 vehicles per attendee
85th Percentile	0.60 vehicles per attendee
33rd Percentile	0.42 vehicles per attendee

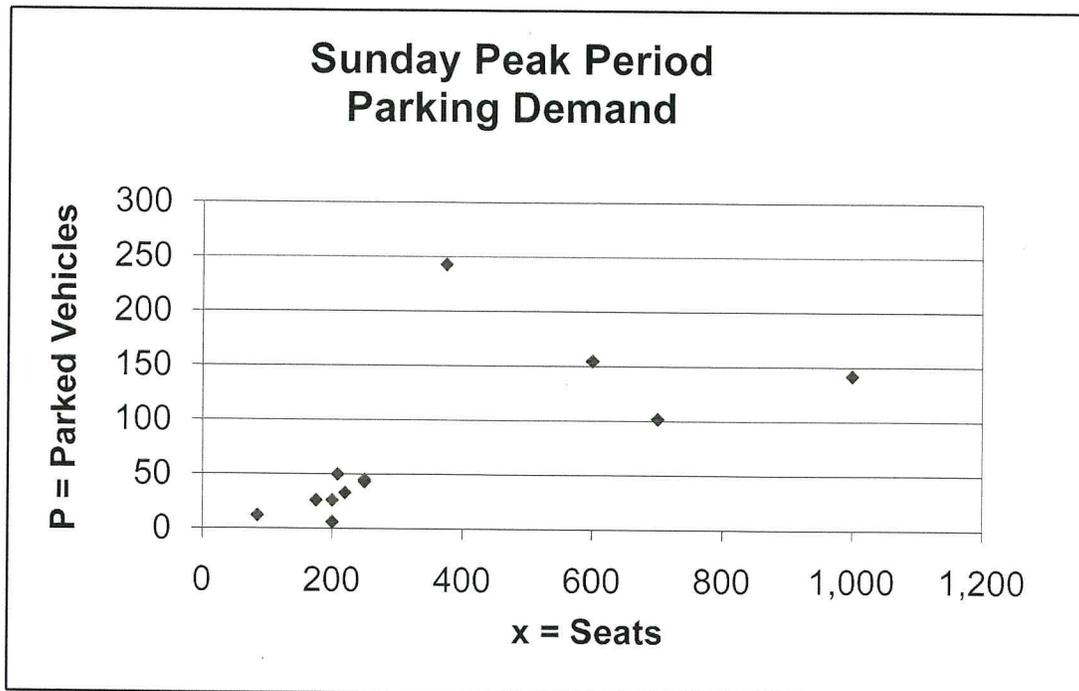


◆ Actual Data Points — Fitted Curve - - - Average Rate

Land Use: 560 Church

Average Peak Period Parking Demand vs. Seats On a: Sunday

Statistic	Peak Period Demand
Peak Period	9:00 a.m.–1:00 p.m.; 7:00–8:00 p.m.
Number of Study Sites	12
Average Size of Study Sites	388 seats
Average Peak Period Parking Demand	0.20 vehicles per seat
Standard Deviation	0.15
Coefficient of Variation	77%
Range	0.03–0.65 vehicles per seat
85th Percentile	0.25 vehicles per seat
33rd Percentile	0.14 vehicles per seat



◆ Actual Data Points