

# Parking Requirements for Medical Office Buildings

**RESEARCH WAS CONDUCTED WITH THE FOLLOWING KEY OBJECTIVES: COLLECT PRIMARY AND SECONDARY DATA DESCRIBING MEDICAL OFFICE BUILDING PARKING NEEDS; IDENTIFY MUNICIPAL CODE REQUIREMENTS FOR THOSE BUILDINGS SURVEYED; AND SUMMARIZE FINDINGS BY MEAN AND 85TH-PERCENTILE VALUES. PROVIDING 4.5 SPACES PER 1,000 GROSS SQUARE FEET OF BUILDING SPACE IS GENERALLY SUFFICIENT TO MEET MEDICAL OFFICE BUILDING PEAK-HOUR NEEDS.**

FIFTY MEDICAL OFFICE BUILDINGS (MOBs) located throughout the United States were studied to determine their parking requirements. Following is a summary of key findings and conclusions:

- A total of 4.5 parking spaces per 1,000 gross square feet (GSF) of building area should be provided for MOBs. This recommendation includes an effective supply cushion of spaces; this cushion is equal to about 10 percent of the supply and is necessary for a number of reasons, including but not limited to user convenience and to compensate for the temporary loss of spaces due to construction, maintenance and snow removal.
- The number of cars parked at MOBs during the 11 a.m. peak hour typically falls short of both the parking supplies and the number of parking spaces required by zoning ordinances.
  - This suggests that most zoning ordinances require more parking spaces than most MOBs need.
  - Ninety-two percent of this study's MOBs are legally required to provide more parking spaces than were occupied during the peak hour.
  - Sixty percent of this study's MOBs must comply with zoning ordinances that exceed this study's recommended parking capacity.
- The observed mean peak-hour parking accumulation rate for 50 MOBs is 3.23 spaces per 1,000 GSF of occupied building area. This is lower than the 3.53 spaces reported in the Institute of Transportation Engineers' (ITE) *Parking Generation, 3rd Edition* and the 4.11 spaces reported in ITE's *Parking Generation, 2nd Edition*.<sup>1,2</sup>
- The observed 85th-percentile peak-hour parking accumulation rate for 50 MOBs is 4.21 parked cars per 1,000 GSF of occupied building area.

## STUDY PURPOSE

The development of MOBs continues in response to the aging population and consequent increases in demands for health care. One particular challenge for planners is to properly determine the number of parking spaces needed for MOBs. In response to this challenge, a study was conducted to document the parking requirements of MOBs. A major component of this study included new primary research.

Most municipal zoning ordinances base MOB parking requirements on the amount of GSF rather than the number of physicians, employees, or patients/visitors. This study gathers data from various MOBs, calculates parking demand ratios per 1,000 GSF and provides a database that can be used for project planning purposes. This research project had the following objectives:

- To identify and reference historical MOB peak-hour parking demand ratios;
- To create a database of MOB peak-hour parking demand ratios that employ the number of parking spaces needed per 1,000 GSF, the variable most commonly referenced by municipal codes;
- To compile a comparative list of municipal code requirements for those MOBs surveyed; and
- To summarize findings by mean and 85th-percentile values.

Meeting these objectives provides information useful to planners who project MOB parking demand.

## METHODOLOGY

Prior to beginning primary research, secondary sources of data were researched. The second and third editions of *Parking Generation* contained a summary of several MOB parking demand studies. To complete the primary research, the following steps were performed:

BY JOHN W. DORSETT, AICP AND MARK J. LUKASICK

- A sample of 50 stand-alone MOB's located throughout the United States was selected.
- The following variables were researched for each MOB:
  - city and state;
  - number of floors;
  - building GSF;
  - building occupancy rate;
  - number of suites;
  - municipal code parking requirements (number of spaces per 1,000 GSF); and
  - parking space supply.
- The number of parking spaces required by zoning ordinance was calculated.
- The supply of parking spaces was inventoried and the number of spaces provided per 1,000 GSF was calculated.
- The number of parked vehicles during the peak time of the day was counted.
- The number of spaces per 1,000 GSF was determined based on the occupied building GSF and the numbers of vehicles counted at the peak accumulation or occupancy.
- The mean and 85th percentile, by spaces per 1,000 GSF of occupied building space, were summarized for the following:
  - code requirements;
  - parking space supply; and
  - observed peak-hour parking occupancy.

### ITE PARKING GENERATION RATES

ITE updated its *Parking Generation* publication in 2004. Table 1 provides a comparison between these published data and the primary data collected for this study.

### DATA COLLECTION RESULTS

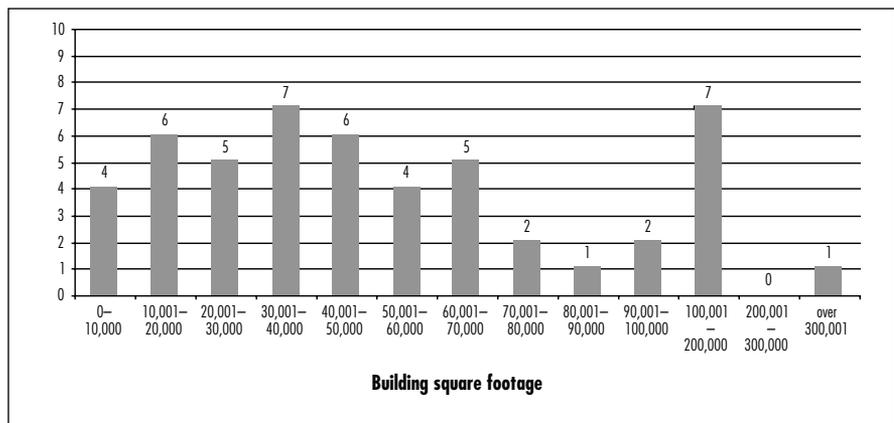
#### *Number of Buildings by State*

Fifty free-standing MBOs were surveyed on Mondays and Wednesdays from March through August, during what was believed to represent typical activity levels for MOB's. Suburban locations were selected to allow a clean computation of the parking demand ratio, without the influence of adjacent land uses present in an urban environment and without the influence of mass transit.

A convenience sample was drawn based

	<b>Walker data collection</b>	<b>ITE Parking Generation, 3rd Edition</b>
Peak period	10:00 a.m.–12:00 p.m.	10:00 a.m.–12:00 p.m. 2:00 p.m.–5:00 p.m.
Number of study sites	50	18
Average size of study sites (GFA)	62,427	43,000
Average peak-period parking demand	3.23 spaces per 1,000 sf	3.53 spaces per 1,000 sf
85th-percentile parking demand	4.21 spaces per 1,000 sf	4.30 spaces per 1,000 sf
Range of rates	1.38–8.90 spaces per 1,000 sf	2.34–5.35 spaces per 1,000 sf

Note: Peak occurred mid-week.



**Figure 1. Number of MOB's by size.**

on geographic proximity of individuals collecting the data to the MOB's. Twenty of the MOB's surveyed were located in Illinois. The remaining 30 properties surveyed were located in the following states: California (6), Florida (3), Georgia (3), Indiana (9), Massachusetts (3), Minnesota (3) and Pennsylvania (3).

The average number of parking spaces per 1,000 GSF ranged from 2.78 for the three Georgia MOB's studied to 5.60 for the three Pennsylvania MOB's surveyed. Following is the supply of parking spaces per 1,000 GSF, by state:

- Illinois: 4.47
- Florida: 5.24
- Indiana: 5.36
- Minnesota: 4.39
- California: 3.20
- Pennsylvania: 5.60
- Georgia: 2.78
- Massachusetts: 4.69

#### *Number of Buildings by Size*

The MOB's identified then were compared on the basis of occupied GSF. As

shown in Figure 1, about three-fourths of the buildings surveyed were 70,000 GSF or less.

#### *Municipal Code Requirements*

Thirty-one locations, or 62 percent of those MOB's surveyed were required by code to provide 4.01 or more parking spaces per 1,000 GSF. Table 2 illustrates the number of parking spaces required by municipal zoning ordinances.

#### *Parking Supply*

Each individual MOB's parking supply was inventoried. Out of the 50 MOB's surveyed, 27 facilities, or approximately 54 percent, supplied 4.01 or more parking spaces (rounded to nearest whole number) per 1,000 GSF.

Figure 2 illustrates the number of parking spaces supplied per 1,000 GSF. Most of the facilities surveyed provided or nearly provided the number of code-required spaces. In some cases, the parking space supply fell short of the code requirement.

### Parking Demand

Parking occupancy counts were taken for the MOB parking spaces to determine parking utilization during the 11 a.m.

peak hour. These counts were compared to the occupied GSF of the building. The peak hour was determined based on the consultants' experience with hundreds of

studies over the last 30 years. A majority of the facilities surveyed had peak-hour parking occupancies of 4.0 or fewer spaces per 1,000 GSF. This statistic fell significantly below both the legally required number of parking spaces and the observed parking supplies.

The following shows the total number of parking facilities surveyed (at the peak hour) by range of occupied parking spaces per 1,000 GSF:

Spaces per 1,000 GSF	Number of Facilities
1.00 to 2.00	7
2.01 to 3.00	18
3.01 to 4.00	14
4.01 to 5.00	9
5.01 to 6.00	0
6.01 to 7.00	1
7.01 to 8.00	0
8.01 to 9.00	1

Number of parking spaces required by code	Number of facilities	
1.00 to 2.00 / 1,000 sf	1	2 percent
2.01 to 3.00 / 1,000 sf	6	12 percent
3.01 to 4.00 / 1,000 sf	12	24 percent
4.01 to 5.00 / 1,000 sf	20	40 percent
5.01 to 6.00 / 1,000 sf	6	12 percent
6.01 to 7.00 / 1,000 sf	1	2 percent
7.01 to 8.00 / 1,000 sf	2	4 percent
8.01 to 9.00 / 1,000 sf	1	2 percent
9.01 to 10.00 / 1,000 sf	1	2 percent
	50	100 percent

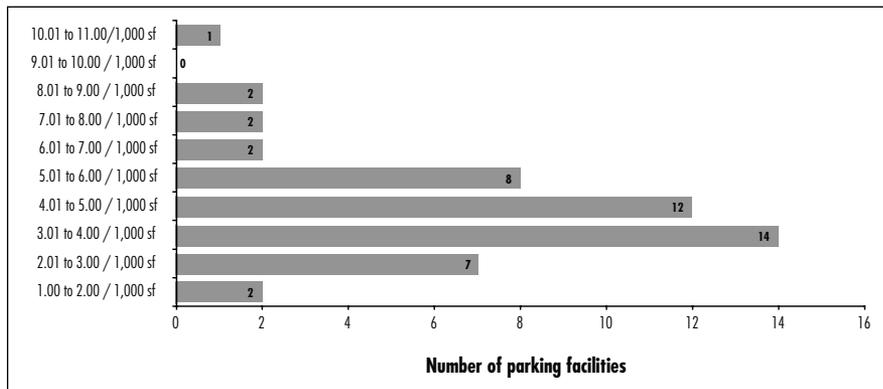


Figure 2. Parking supply provided by MOBs.

Figure 3 shows each parking facility's parking demand in descending order. Observed peak-hour parking demand for the sample ranged from 1.38 to 8.90 spaces per 1,000 GSF. The observed mean and median peak-hour parking demand rates were 3.23 and 3.03, respectively. The 85th-percentile rate was 4.21 spaces per 1,000 GSF.

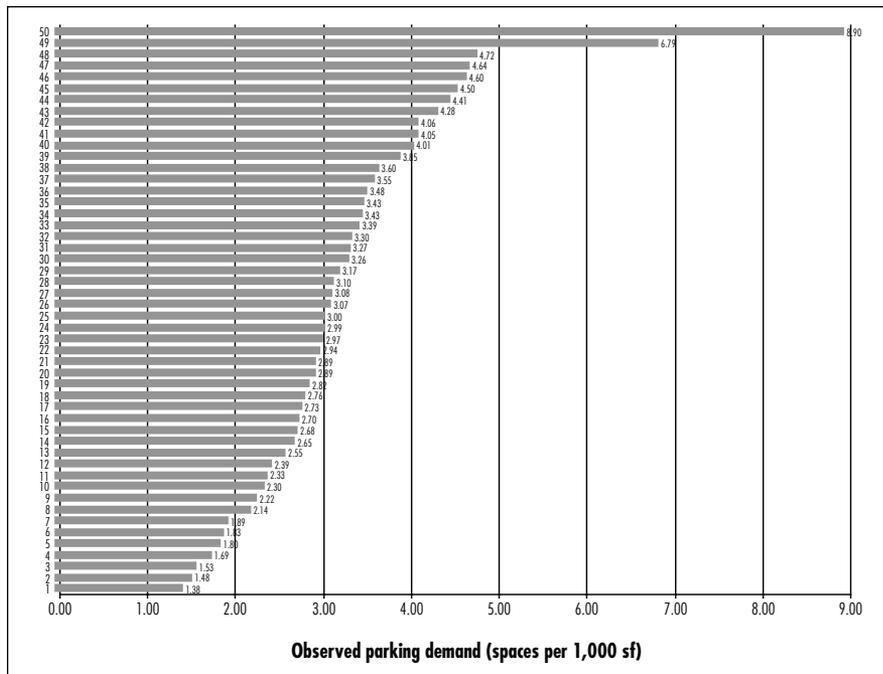


Figure 3. Observed peak-hour parking demand by MOB.

### CONCLUSIONS

Fifty MOBs were surveyed as part of this research. Following is a summary of findings:

- The most common code requirement for the MOBs surveyed was 5.0 parking spaces per 1,000 GSF. Nineteen MOBs, or 38 percent of the sample, were required to provide 5.0 parking spaces per 1,000 GSF.
- The mean and median number of parking spaces provided per 1,000 GSF was 4.50 and 4.39, respectively.
- ITE calculated a mean demand of 3.53 parking spaces per 1,000 GSF (*Parking Generation, 3rd Edition*) compared to 3.23 parking spaces per 1,000 GSF found in this study.
- ITE's 85th-percentile demand of 4.30 parking spaces per 1,000 GSF (*Parking Generation, 3rd Edition*) is comparable to the 85th-percentile peak-hour

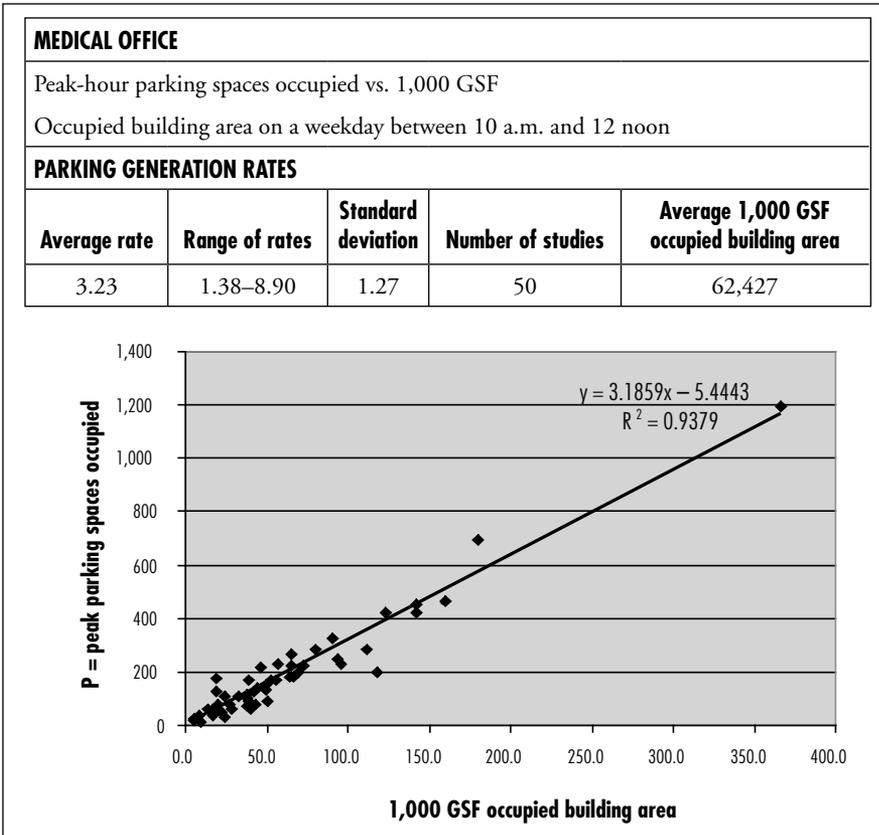


Figure 4. Data plot and statistical summary.

observation of 4.21 parking spaces per 1,000 GSF found in this study.

- Based on these findings, designing parking facilities to accommodate 4.5 spaces per 1,000 GSF of building space should be sufficient to meet the peak-hour parking demands of most medical office buildings. This recommendation is an 85th-percentile recommendation, which is consistent with other recognized and published industry standards, including the landmark November 2005 *Shared Parking* publication issued by the Urban Land Institute and the International Council of Shopping Centers. Sixty percent, or 30 of the 50 MOB, are located in municipalities that now require more parking than the recommended 4.5 spaces per 1,000 GSF. ■

#### References

- Parking Generation, 3rd Edition*. Washington, DC, USA: Institute of Transportation Engineers (ITE), 2004.
- Parking Generation, 2nd Edition*. Washington, DC: ITE, 1987.



**JOHN W. DORSETT,**  
*AICP, is a senior vice president and shareholder of Walker Parking Consultants. He directs the firm's Consulting Resources Group, which specializes in parking-related engagements including access and revenue control systems, airport landside planning, financial, functional design planning, operations and traffic engineering.*



**MARK J. LUKASICK**  
*is a parking consultant with Walker Parking Consultants. He has more than 20 years of experience in hands-on parking operations and parking consulting. He may be contacted at mark.lukasick@walkerparking.com with any questions pertaining to this article.*

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