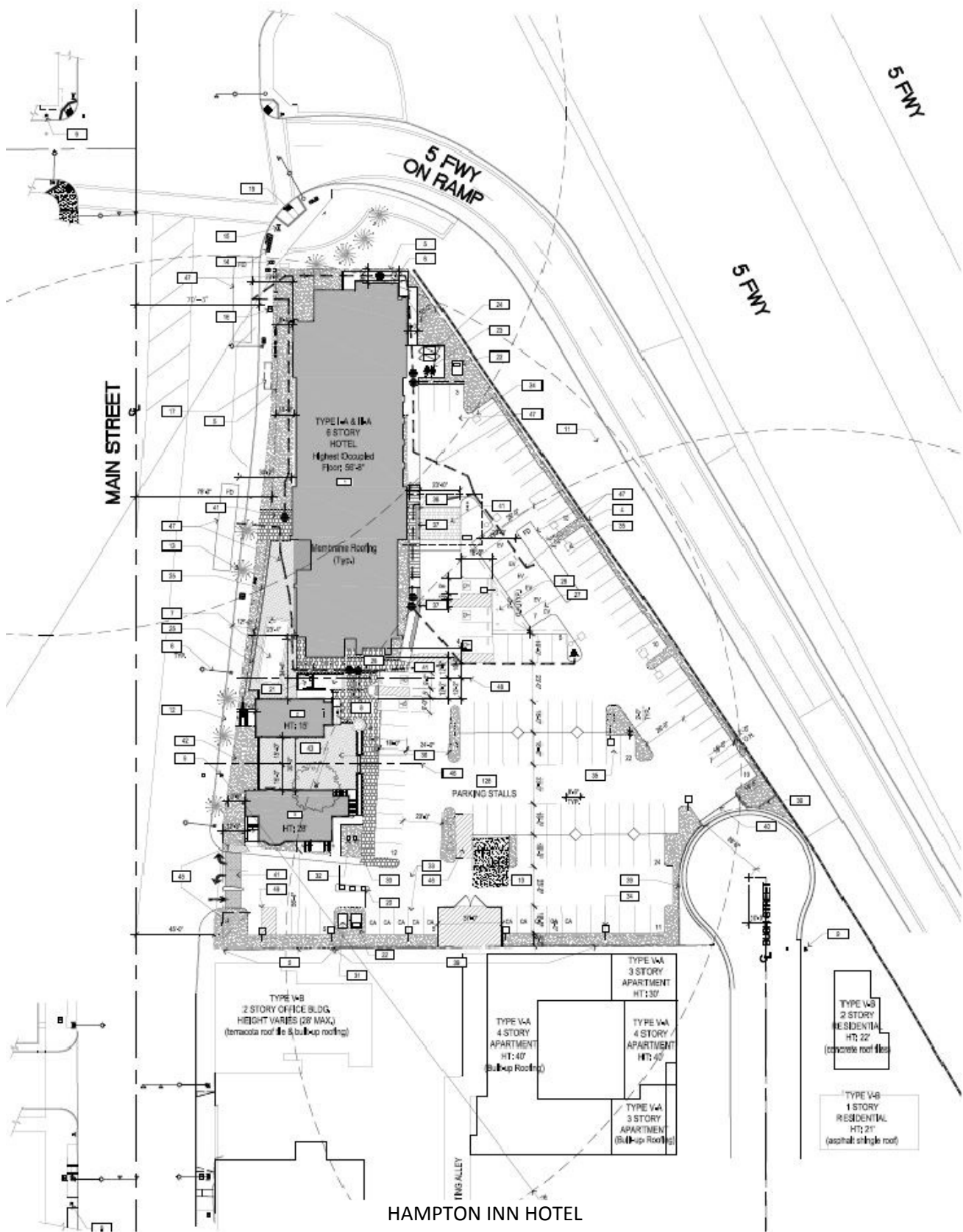


# 2129 NORTH MAIN STREET HOTEL PROJECT ULI Shared Parking Study (Updated 01.16.2018) City of Santa Ana, California



HAMPTON INN HOTEL  
2129 NORTH MAIN STREET  
UPDATED SHARED PARKING STUDY  
EXHIBIT 16

**2129 NORTH MAIN STREET HOTE PROJECT  
ULI SHARED PARKING STUDY  
City of Santa Ana, California**

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**January 16, 2018**

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# 1.0 Introduction

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RK ENGINEERING GROUP, INC. (RK) is pleased to provide this Shared Parking Analysis for the 2129 North Main Street Hotel Project. The project site is located on the southeast corner of Main Street and West Buffalo Avenue, in the City of Santa Ana, as shown in Exhibit A.

*This analysis is an update to the previously prepared October 2017 analysis. This updated analysis reflects the latest project description, site plan, and also the City's recently adopted parking requirements in October 2017 including requirements for historical buildings.*

The project consists of a 135 room hotel, including 1,027 square feet of restaurant, and 922 square feet of lounge/bar area. The proposed project is planned to displace four existing homes and an existing surface public parking lot. The proposed project is planned to provide a total of 128 parking spaces which will be shared globally by the project land uses. A site plan is included in Exhibit B.

Due to the mix of land uses, the proposed project lends itself to the shared parking concept where individual uses peak during different times of the day.

As a starting point, the Municipal Parking Code for the City of Santa Ana has been utilized to establish a base parking rate for all of the proposed uses. Utilizing the City of Santa Ana Municipal Parking Code to determine the required parking spaces for each individual use, the proposed project would need to provide a total of 161 parking spaces.

As previously noted, the proposed project is planned to provide a total of 128 parking spaces. As a result, based on the City of Santa Ana Municipal Parking Code, without accounting for any shared parking on the site and the accumulation of total parking demand resulting from the interaction between the uses, the project would be deficient by 33 parking spaces. A summary of the required parking per the City's Parking Requirements is included in Table 1.

However, for sites which contain a number of land uses, such as the proposed project, the Municipal Parking Code allows for use of shared parking methodology to account for the total parking accumulation on the site based on the interaction between the uses to determine overall parking demand for the site. Hence, a ULI Shared Parking Analysis has been prepared to determine the shared parking demand dynamics of the proposed project and the resulting overall required parking demand for the site.

## **2.0 Parking Analysis**

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### **2.1 Parking Analysis**

As a starting point, the Municipal Parking Code for the City of Santa Ana has been utilized to establish a base parking rate for all of the proposed uses. A copy of the City of Santa Ana Municipal Parking Code is contained in Appendix A.

Utilizing the City of Santa Ana Municipal Parking Code to determine the required parking spaces for each individual use, the proposed project would need to provide a total of 161 parking spaces.

As previously noted, the proposed project is planned to provide a total of 128 parking spaces. As a result, based on the City of Santa Ana Municipal Parking Code, without accounting for any shared parking on the site and the accumulation of total parking demand resulting from the interaction between the uses, the project would be deficient by 33 parking spaces. A summary of the required parking per the City's Parking Requirements is included in Table 1.

The project land uses are compatible with one another and lend themselves to the use of shared parking because the uses are complimentary (i.e., hotel, restaurant and lounge/bar), and visitors could often go there for more than one (1) purpose while only parking once. For example, visitors staying in the hotel could also visit the restaurant, and lounge/bar, therefore reducing the typical parking demand required for the individual uses. The multi-use nature of the land uses within hotels allow for a reduction in overall parking generation.

For sites which contain a number of land uses, such as the proposed project, the Municipal Parking Code allows for use of shared parking methodology to account for the total parking accumulation on the site based on the interaction between the uses to determine overall parking demand for the site. Hence, a ULI Shared Parking Analysis has been prepared to determine the shared parking demand dynamics of the proposed project and the resulting overall required parking demand for the site.

The ULI shared parking utilizes the nationally-recognized methodology for evaluation of parking for mixed use projects of various size and scale.

The methodology is used and acknowledged by jurisdictions throughout the nation and California and is applied to these types of mixed use hotel projects sharing the site with restaurants, bars, spas, etc.

The methodology is based on studies of sites done by the Urban Land Institute and accounts for various factors such as:

- Reduction in parking demand based on data on utilization of other modes of transportation such as shuttles, public transportation, Uber, etc, which reduce parking demand;
- Reduction in parking demand based on data on the number of persons arriving in a single car;
- Data on time of day utilization of parking spaces for the land use for customers as well as employees;
- Data on seasonal and monthly occupancy and variation for the land use; and
- Interaction and parking overlap between various land uses on the site. For example, a visitor for the hotel would also use the restaurant on site, resulting in a single parked car on the site instead of two (one car parked for the restaurant and one car parked for the hotel.)

## **2.2 Shared Parking Analysis**

For this analysis, RK has used procedures developed by the Urban Land Institute (ULI) from their most recent publication, *Shared Parking, Second Edition*. This document contains the latest procedures and data with respect to parking demand and shared parking. The shared parking analysis utilizes the parking demand rates from the City of Santa Ana Municipal Parking Code in conjunction with the ULI shared parking methodology to determine the forecast hourly accumulation of parking demand for the project site.

The ULI shared parking analysis accounts for the types of land uses, the monthly variations of parking demand by land use, differences between weekday and weekend parking demand, the hourly distribution of peak parking demand for each

type of land use, and captive versus non-captive parking demand within the project site.

The parking demand for each proposed land use was estimated using the City of Santa Ana's Municipal Parking Code for that individual land use. Furthermore, each month of the year was evaluated and the peak parking demand for both weekdays and weekends was determined utilizing data contained in the ULI *Shared Parking, Second Edition*, publication and the operational characteristics of the proposed land uses within the site.

The ULI-developed computer model and spreadsheet was used to analyze overall forecast parking demand at the project site. The ULI computer model and spreadsheet is consistent with the procedures included in the ULI *Shared Parking, Second Edition* publication.

The ULI analysis model accounts for the following parameters:

1. City of Santa Ana Municipal Parking Code and Rates for each individual use.
2. Peak parking demand by land use for visitors and employees.
3. Hourly Variations of parking demand.
4. Weekday versus weekend adjustment factor.
5. Monthly adjustment factors to account for variations of parking demand over the year.

The shared parking demand for individual rates takes into account the peak parking characteristics of the hotel, restaurant, and lounge/bar uses. These land uses have different peaking characteristics with respect to the time of day and the month of the year. Adjustments have been made to take into consideration both weekday and weekend peak conditions, based upon the individual types of uses. The latest ULI procedures also separate visitor versus employee parking demand for each land use.

## 2.3 Shared Parking Calculations

As described in the above section, the ULI Shared Parking Model was used to evaluate the peak parking demand at the proposed 2129 North Main Street Hotel Project. The data provided in the model for monthly variations of parking demand by land use, different peaking characteristics between weekday and weekend parking demand, and hourly distribution of peak parking demand for each land use is accounted for in the analysis.

The ULI Shared Parking model also proportions the parking rates between visitors and employees for weekday and weekend conditions, each with their own parking demand characteristics.

The City of Santa Ana Parking Code requires one (1) parking space per room plus 1 parking space per each ten (10) rooms for hotel use. It should be noted that the City of Santa Ana Parking Code for hotel use is considered conservative when compared to other similar jurisdictions which typically require one (1) parking space per room.

Typically, the ULI Shared Parking Model utilizes the ULI-established parking rates for each land use. However, to reflect the City of Santa Ana's more stringent parking rates, RK has modified the parking rates within the ULI model to reflect the City of Santa Ana's Parking Code for each individual land use. This approach yields a more conservative parking demand analysis when compared to the typical ULI-recommended model.

## 2.4 Shared Parking Results

Since the peak parking demand for each land use occurs at a different hour, and also varies by month and day of the week, the peak parking demand is not solely determined by adding the individual peak parking requirements for each land use. As with most hotels and restaurants, it is expected to have a small percentage of captive trips between users within the development, which further reduces the parking demand.

*This analysis utilized internal capture and modal adjustments that are conservative compared to the recommendations found in the ULI Second Edition Shared Parking Manual. The ULI recommended rates are provided in Appendix B.*



A non-captive parking ratio of 100% was utilized for hotel visitors and 70% for restaurant/lounge visitors. The parking demand is reduced due the fact that multiple land uses are visited while parking only once. It is customary and standard practice to assume a non-captive ratio for hotels and restaurants/lounges in mixed-use hotel complexes.

Furthermore, a modal adjustment of 85% was calculated for employees at all uses. Therefore, 15% of the employees are utilizing public transit, taxi, carpool, etc. and are not parking on site. The modal adjustment takes into account alternative transportation from a single occupancy vehicle to and from the site.

Table 2 shows the shared parking adjustment rates utilized.

This study finds that the time period on weekends in June resulted in the highest peak parking demand during the year for the overall site.

The ULI shared parking summary of results for the peak month and hour during weekday and weekend conditions is shown in Table 3.

**As shown in Table 3, based on the conservative analysis performed, the maximum parking demand on weekdays is forecast to be 101 parking spaces. The forecast peak parking demand on weekends is 110 parking spaces.**

As previously noted, the 2129 North Main Street Hotel Project is planned to provide a total of 128 on-site parking spaces. Therefore, more than adequate parking capacity is forecast to be provided to accommodate the forecast peak parking demand of 110 parking spaces for the project site.

Based upon this shared parking analysis, the land uses within the proposed mixed use 2129 North Main Street Hotel Project will have adequate parking spaces during all times of the year. During the peak month of June, the project site is not expected to exceed the parking supply. During the entire year, there is projected to be a surplus of parking spaces available throughout the day.

### **3.0 Findings & Conclusions**

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The following findings have been determined by this Shared Parking Analysis:

1. The proposed 2129 North Main Street Hotel Project is planned to consist of a 135-room hotel, 1,027 square feet of restaurant use, and 922 square feet of lounge/bar area. The proposed uses are compatible from a shared parking standpoint and forecast peak parking demand for mixed use sites might not occur simultaneously from all of the various uses.
2. The proposed project is planned to provide a total of 128 parking spaces onsite.
3. Based on the City of Santa Ana Parking Code requirements for individual uses, without accounting for shared parking on the project site, a total of 161 parking spaces are required to accommodate all land uses at the site.
4. The City of Santa Ana's Municipal Parking Code allows for a shared parking analysis to determine the overall adequacy of the proposed parking demand for the project.
5. The analysis utilized internal capture and modal adjustments that are conservative compared to the recommendations found in the *ULI Second Edition Shared Parking Manual*.
6. Typically, the ULI Shared Parking Model utilizes the ULI-established parking rates for each land use. However, to reflect the City of Santa Ana's more stringent parking rates, RK has modified the parking rates within the ULI model to reflect the City of Santa Ana's Parking Code for each individual land use. This approach yields a more conservative parking demand analysis when compared to the typical ULI-recommended model.
7. Utilizing the City of Santa Ana Parking Rates combined with the Urban Land Institute (ULI) shared parking methodology and adjustment factors, during the weekday conditions, the project is forecast to have a maximum parking demand of 101 parking spaces occurring 11:00 PM in the peak month (June). Hence, during weekday peak parking demand conditions, the project site is forecast to provide more than adequate parking capacity.

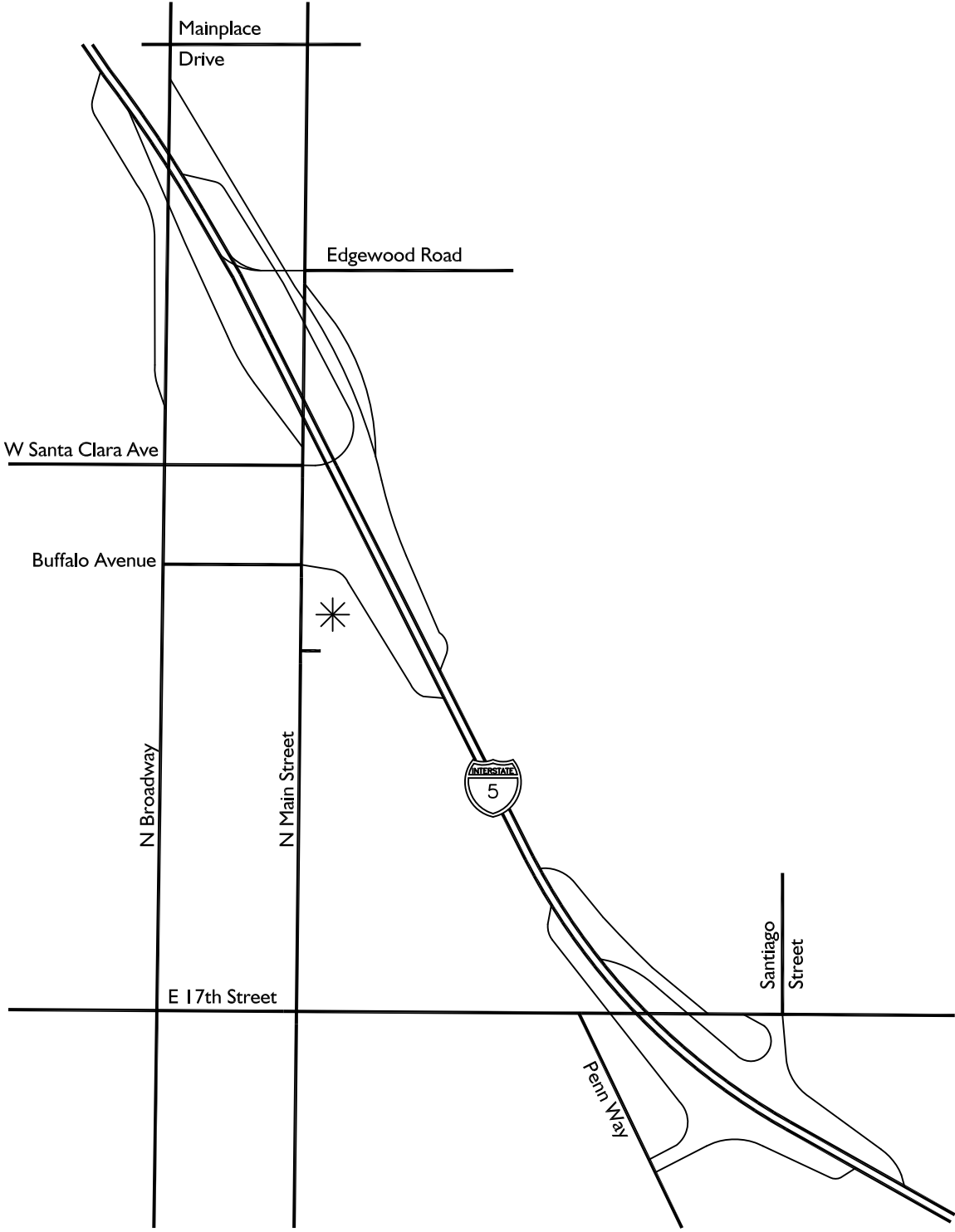
8. Utilizing the City of Santa Ana Parking Rates combined with the Urban Land Institute (ULI) shared parking methodology and adjustment factors, during the weekend conditions, the project is forecast to have a maximum parking demand of 110 parking spaces occurring 11:00 PM in the peak month (June). Hence, during weekend peak parking demand conditions, the project site is forecast to provide more than adequate parking capacity.

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# Exhibits

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# Exhibit A Location Map

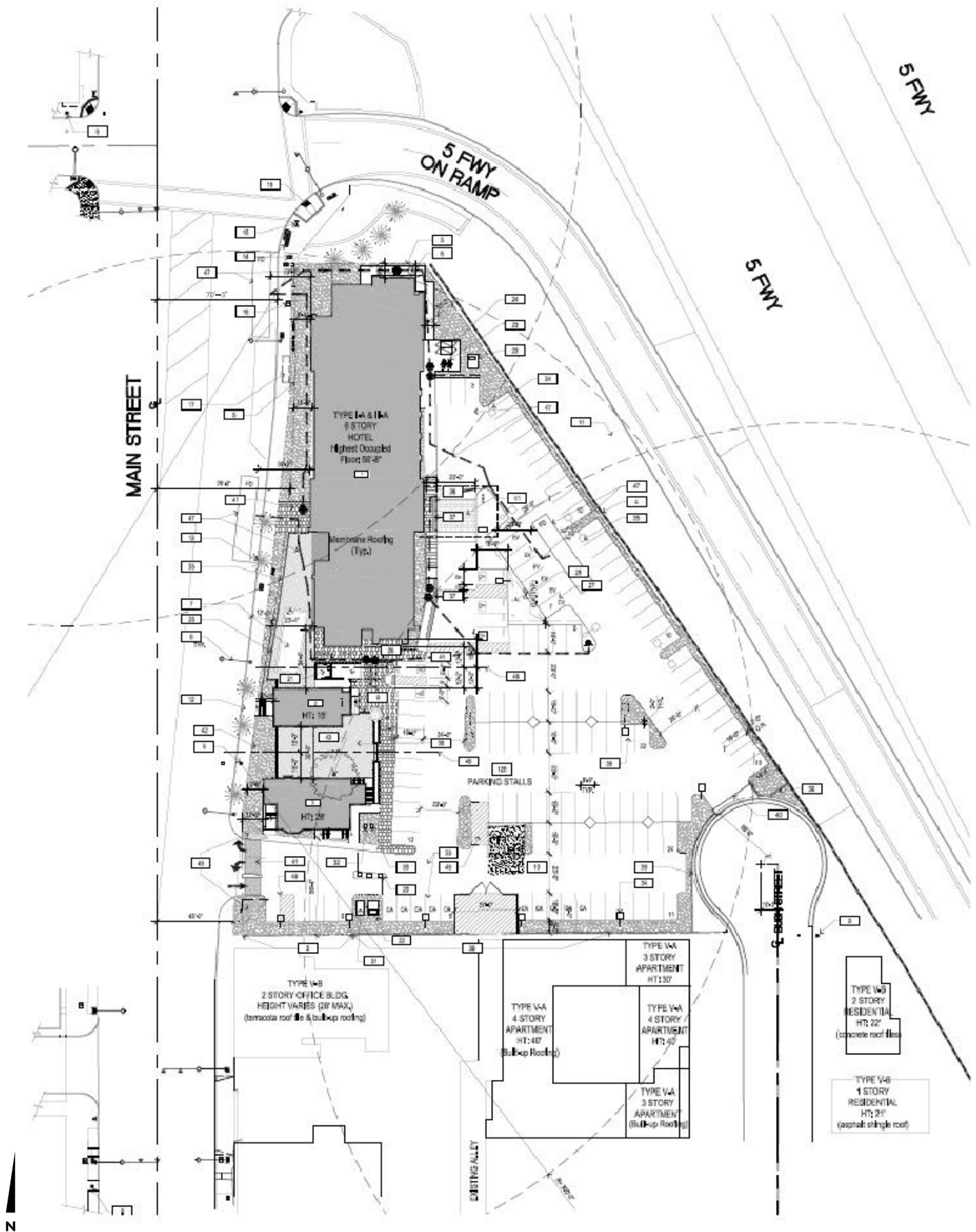


**Legend:**

\* = Project Site



# Exhibit B Site Plan



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# Tables

**Table 1**  
**2129 North Main Street Hotel Project**  
**Required Parking per City of Santa Ana Municipal Code<sup>2</sup>**

Land Use	Units <sup>1</sup>	Parking Code	Required Parking
Hotel	135 Rooms	The minimum off-street parking requirements for hotels and motels are as follows: one (1) space for each guest room, plus one (1) space for each ten (10) rooms, plus two (2) spaces for a manager's unit, if provided.	149
Restaurant	1,027 SF	Based on the City of Santa Ana Code, historic properties are not required to provide additional parking to that legally required prior to the change of use.	12
Lounge/Bar	922 SF		
Total Parking Required per Municipal Code			161
Total Parking Provided On-site			128
<b>Deficiency in Parking Per Municipal Code</b>			<b>-33</b>

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<sup>1</sup> SF = Square Feet

<sup>2</sup> City of Santa Ana Municipal Code Sec. 41-1341-79



**TABLE 2  
ULI Shared Parking Adjustments**

Land Use	Project Data Quantity      Unit		Weekday					Weekend					Weekday			Weekend		
			Base Rate	Mode Adj	Non- Captive Ratio	Project Rate	Unit	Base Rate	Mode Adj	Non- Captive Ratio	Project Rate	Unit	Peak Hr Adj	Peak Mo Adj	Estimated Parking Demand	Peak Hr Adj	Peak Mo Adj	Estimated Parking Demand
													8 AM	June		11 PM	June	
Hotel-Business	135	rooms	0.88	0.80	1.00	0.70	/rooms	0.91	0.80	1.00	0.73	/rooms	0.80	1.00	76	1.00	1.00	98
Restaurant/Lounge	1,949	sf GLA	6.15	0.75	0.90	4.15	/ksf GLA	6.15	0.75	0.70	3.23	/ksf GLA	0.30	0.95	2	0.40	0.95	2
Employee			0.22	0.85	1.00	0.19	/rooms	0.19	0.85	1.00	0.16	/rooms	0.90	1.00	23	0.45	1.00	10
												Customer	78	Customer	100			
												Employee	23	Employee	10			
												Reserved	0	Reserved	0			
												Total	101	Total	110			

**TABLE 3**  
**ULI Shared Parking Summary for Peak Month & Hour**

June																								
Weekday Estimated Peak-Hour Parking Demand																								
		6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
		Monthly Adj.																			8 AM	8 AM	5 PM	11 PM
Hotel-Business	100%	90	86	76	67	57	57	52	52	57	57	62	67	71	71	76	81	90	95	95	76	76	67	95
Restaurant/Lounge	95%	-	1	2	1	1	-	8	8	3	1	1	2	4	5	5	5	5	3	2	2	2	2	3
Employee	100%	1	8	23	23	26	26	26	26	26	23	18	10	5	5	5	5	5	3	1	23	23	18	3
TOTAL DEMAND	Customer	90	87	78	68	58	57	60	60	60	58	63	69	75	76	81	86	95	98	97	78	78	69	98
	Employee	1	8	23	23	26	26	26	26	26	23	18	10	5	5	5	5	5	3	1	23	23	18	3
	Reserved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		91	95	101	91	84	83	86	86	86	84	86	87	85	81	86	91	100	101	98	101	101	87	101
																					<b>101</b>	<b>101</b>	<b>87</b>	<b>101</b>

June																								
Weekend Estimated Peak-Hour Parking Demand																								
		6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
		Monthly Adj.																			11 PM	8 AM	5 PM	11 PM
Hotel-Business	100%	93	89	79	69	59	59	54	54	59	59	64	69	74	74	79	84	93	98	98	98	79	69	98
Restaurant/Lounge	95%	-	1	2	1	1	-	6	6	2	1	1	2	3	4	4	4	4	2	2	2	2	2	2
Employee	100%	1	7	20	20	22	22	22	22	22	22	20	17	13	12	12	12	10	10	7	10	20	17	10
TOTAL DEMAND	Customer	93	90	81	70	60	59	60	60	61	60	65	71	77	78	83	88	97	100	100	100	81	71	100
	Employee	1	7	20	20	22	22	22	22	22	22	20	17	13	12	12	12	10	10	7	10	20	17	10
	Reserved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		94	97	101	90	82	81	82	82	83	82	85	88	90	90	95	100	107	110	107	110	101	88	110
																					<b>110</b>	<b>101</b>	<b>88</b>	<b>110</b>

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# Appendices

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## **Appendix A**

City of Santa Ana Parking Requirements

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- b. Except as provided in sections 41-1390 and 41-1391, ancillary activities or uses within a single tenant space not exceeding fifteen (15) percent of the gross floor area shall be calculated at the parking ratio of the primary use.
- (3) Wherever a particular use of property can be classified under more than one (1) section of this article which sets minimum parking space requirements, the section which contains the more specific use description shall apply. If two (2) or more equally specific sections apply, the section imposing the higher standard shall apply.
  - (4) Wherever required parking is based upon the number of seats in an area, eighteen (18) inches of bench space shall be deemed the equivalent of one (1) seat.
  - (5) Reduction in parking due to disabilities upgrade may be granted. When required solely as a need to upgrade existing parking facilities to comply with Americans with Disabilities Act (ADA), Title III and California Code of Regulations (CCR), California Access Code, Title 24, may be reduced at the discretion of the Planning Manager.
  - (6) Additions of floor area up to twenty-five (25) percent of a designated historic resource on the Santa Ana Register of Historic Properties shall be exempt from the requirements of this subsection. Additional parking shall be provided only for the floor area being added which exceeds a twenty-five (25) percent increase.

**Sec. 41-1309.1 Change of Use, Exceptions.** Upon the change of use of an existing building, lot, or a portion of a building or lot, additional parking and loading spaces shall be provided for the new use as required by this chapter over and above the number of parking and loading spaces required by this chapter for the prior use only, with the following exceptions:

- (1) Change of use in a historic district or registered historic property. Any change of use permitted in a historic resource shall not be required to provide additional parking to that legally required prior to the change of use.
- (2) Change of use in a space under two thousand five hundred (2,500) square feet. The occupancy of any tenant space of less than two thousand five hundred (2,500) square feet in all zones, may be interchanged among the below land uses without the need to provide additional parking beyond that currently provided on-site or in covenanted off-site spaces. The prior use must have been established with a valid business license and certificate of occupancy. Required parking shall be determined by the last occupancy that did not use this subsection in a space under two thousand five hundred (2,500) square feet in all zones. Parking will be determined by subsection 41-1300.
  - Professional and administrative offices
  - Service uses
  - Medical and dental offices
  - Restaurants/eating establishments
  - Retail and service activities

- Live/work spaces
- Banks and financial institutions
- Gymnasiums and studios operated for commercial or public purposes

**Sec. 41-1310. In-lieu parking fee districts.**

- (a) The city council may, by resolution, establish one (1) or more in-lieu parking fee districts whereby property owners within any such district may receive a credit toward the number of off-street parking spaces otherwise required by this article by the payment of an in-lieu parking fee to be used by the city for the future provision of public parking facilities serving the district.
- (b) Eligibility for the reception of an off-street parking credit shall be limited to: (1) the use and occupancy of existing buildings which lack sufficient parking spaces on site to satisfy the requirements of this article and which no longer have such status as a nonconforming use or nonconforming building which would allow them to be used and occupied without the provision of such parking; and (2) the intensification of use in an existing building. Such eligibility shall not extend to new building construction, or to additions to existing buildings or the reconstruction of existing buildings even if such reconstruction does not increase existing or previous occupant load.
- (c) Any resolution of the city council establishing an in-lieu parking fee district shall set forth the fee to be charged for each parking space for which an off-street parking credit shall be granted to an owner of eligible property within the district. Such resolution may also set forth such provisions as the council may determine appropriate for payment of the fee in installments over a period of years. The responsibility for such installment payments shall run with the ownership of the property.
- (d) All revenues received by the city from the payment of in-lieu parking fees from owners of property within an in-lieu parking district shall be maintained in an account separate and apart from other city funds. Moneys in such account may be expended solely for the purpose of providing additional public parking in the district.
- (e) No owner of property within an in-lieu parking fee district may receive any off-street parking credit pursuant to this section except pursuant to a parking plan approved for that property by the executive director of the community development agency of the city or his or her designated representative. The parking plan shall specify the number of parking spaces required to be provided on the property and the number of parking spaces for which off-street parking credits are granted.
- (f) A parking plan may be revoked by the executive director of the community development agency of the city or his or her designated representative for failure by the owner of that property to pay installment payments on the in-lieu parking fee due for that property, and shall be reinstated upon the payment of all installments due. During such time as a parking plan is revoked: (1) the property shall not be credited with off-street parking credits for purposes of determining its compliance with the off-street parking requirements of this chapter; and (2) no further certificates of occupancy shall be issued for the property under the building code of the city.

**Sec. 41-1341. Restaurants, cafes, etc.**

- (a) The minimum off-street parking requirements for restaurants, cafes and other eating establishments are as follows: eight (8) spaces for each one thousand (1,000) square feet of gross floor area and open-air dining area except that an open-air dining area no greater than twenty-five (25) percent of the gross floor area of the restaurant, or one thousand (1,000) square feet, whichever is smaller, is exempt from a parking requirement.
- (b) Each drive-through eating establishment shall have vehicular stacking lanes of at least eighty (80) feet from the pick-up window to the order point, and eighty (80) feet from the order point to the end of the drive-through lane. Such stacking lanes shall be located so that they do not serve as entries to parking spaces.

**Sec. 41-1342. Offices, business and professional.** The minimum off-street parking requirements for business and professional offices, including psychologists, are as follows: three (3) spaces for each one thousand (1,000) square feet of gross floor area.

**Sec. 41-1343. Open retail.** The minimum off-street parking requirements for plant nurseries (except for those in conjunction with a home improvement store), vehicle sales and other primarily open-air retail uses are as follows: two (2) spaces for each one thousand (1,000) square feet of display and storage area, plus four (4) spaces for each one thousand (1,000) square feet of office area.

**Sec. 41-1344. Hotels and motels.**

- (a) The minimum off-street parking requirements for hotels and motels are as follows: one (1) space for each guest room, plus one (1) space for each ten (10) rooms, plus two (2) spaces for a manager's unit, if provided.
- (b) Except for facilities limited to the exclusive use of guests, parking shall be provided for restaurants, banquet facilities and other retail services or recreational uses included in a hotel or motel building or grounds in accordance with the requirements of this article for such uses.

**Sec. 41-1346. Medical, dental, psychiatric and chiropractic offices and clinics.** The minimum off-street parking requirements for medical, dental, psychiatric, and chiropractic offices and clinics are as follows: five (5) spaces for each one thousand (1,000) square feet of gross floor area.

**Sec. 41-1347. Automobile repair and automobile servicing.**

- (a) The minimum off-street parking requirements for automobile repair and automobile servicing facilities are as follows: Five (5) spaces for each one thousand (1,000) square feet of gross floor area.
- (b) Vehicle repair bays in automobile repair and automobile servicing facilities shall not be counted as parking spaces.

**Sec. 41-1348. Banks and financial institutions.**

- (a) The minimum off-street parking requirements for banks and other financial institutions are as follows: four (4) spaces for each one thousand (1,000) square feet of gross floor area, plus two (2) spaces for each walk-up automatic teller machine.

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## **Appendix B**

Urban Land Institute (ULI)  
Shared Parking Methodology

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**Table 4-16** Mode and Noncaptive Adjustments for Office Park and Airport Hotels

	Office Park		Airport	
	Weekdays	Weekends	Weekdays	Weekends
<b>Guest Rooms</b>				
Percent Occupancy	100%	90%	100%	90%
Number of Guests per Occupied Room	1.2	1.7	1.2	1.3
Percent Drivers	55%	45%	45%	45%
<i>Equivalent Mode Adjustment per Room</i>	66%	77%	54%	59%
<b>Employees</b>				
Peak Number Present per Occupied Room	0.33	0.25	0.33	0.25
Percent Drivers	75%	70%	75%	70%
<i>Equivalent Parking Accumulation, Spaces per Room</i>	0.25	0.18	0.25	0.18
<b>Restaurant Patrons</b>				
Number per Guest Room	1.15	1.20	1.15	1.20
Percent Dining at Peak Hour	11.5%	9.0%	11.5%	9.0%
<i>Diners per Guest Room at Peak Hour of Restaurant</i>	0.16	0.17	0.16	0.13
<i>Approximate Peak Diners per Sq. Ft. of Restaurant</i>	4.13	4.30	4.13	3.29
Percent Nonguest (Noncaptive Ratio)	90%	30%	90%	70%
Percent Nonguest Drivers	70%	60%	80%	80%
<i>If 100% Modal Split to Auto, Equivalent Persons per Car</i>	1.43	1.67	1.25	1.25
<i>Spaces/ksf<sup>1</sup> before Application of Noncaptive Ratio</i>	2.9	2.6	3.3	2.6
<i>Spaces/ksf after Application of Noncaptive Ratio</i>	2.6	0.8	3.0	1.8
<i>Equivalent Noncaptive Ratio for Ten Spaces/ksf</i>	26%	8%	30%	18%
<b>Meeting Attendees</b>				
Number per ksf of Meeting Space	40	40	20	29
Percent Nonguest (Noncaptive Ratio)	60%	70%	90%	90%
Percent Nonguest Drivers	75%	75%	90%	40%
<i>If 100% Modal Split to Auto, Equivalent Persons per Car</i>	1.3	1.3	1.1	2.5
<i>Spaces/ksf before Application of Noncaptive Ratio</i>	30.8	30.8	18.2	11.6
<i>Spaces/ksf after Application of Noncaptive Ratio</i>	18.5	21.6	20.2	12.9

**Notes**

Default values are based on 90th percentile design values.

<sup>1</sup>ksf = thousand sq. ft.

**Source:** Barton-Aschman Associates, Inc.

The following discussion highlights issues for each component use that should be considered in evaluating parking demand at hotels.

### **Guest Rooms**

While a business-oriented hotel typically has a higher parking ratio per guest room on weekdays than weekends, a resort hotel has just the opposite pattern. Monthly and time-of-day factors for resort hotels will be distinctly different than for business and airport hotels, as previously discussed. Therefore, separate ratios and monthly and time-of-day factors are provided in this edition of *Shared Parking* for leisure hotels and business hotels. The ratios assume that 100 percent of the parties that occupy guest rooms will arrive by car, or one space/guest room. Per the 1988 study, the parking ratio reflects 100 percent of rooms occupied on the design day for weekdays at business hotels and on weekends at leisure hotels, with 90 percent occupancy of rooms on weekends at business hotels and on weekdays at leisure hotels. The 1988 study's values for the percentage of drivers among hotel guests provide guidance for mode adjustment for at least the two subtypes of airport and office park hotels; however, they must be converted to mode adjustments that can be applied to the parking ratio, which is stated on a per room basis. Not surprisingly, the mode adjustment appropriate for an airport-based hotel is lower than that for a business park location. The weekend mode adjustment found in the 1988 study was lower than the weekday ratio for business hotels and the same as the weekend ratio for airport hotels.

### **Restaurants**

The 1988 study tied parking ratios for restaurants/lounges to guest rooms rather than square feet of restaurant space (as in *Shared Parking*). The four hotels studied had a wide range of 0.47 to 0.98 seats per guest room, with an average of 0.74. The 90th percentile peak-hour occupancy of the

restaurant/lounge (by guests and nonguests) was significantly lower: 0.13 to 0.17 diners per guest room. Thus, it would appear that these hotels had a significant overcapacity of restaurant space. Presenting the data as spaces per guest room minimized the impact of the excess restaurant/lounge seats or square feet at all four hotels. The hotels in this study had as much as 90 percent patronage by nonguests, but overall very low use per square foot.

Rather than creating more categories of hotels with an assumption of typical ratios of restaurant capacity per guest room, and providing separate time-of-day factors appropriate to each subtype based on assumptions related to its restaurant use, the study team has recommended a separate parking ratio for hotel restaurant/lounge areas. Ratios of 0.75 seats per guest room and 35 square feet per seat have been used to convert the 1988 study's recommended restaurant peak patrons per guest room to a peak presence of diners/ksf. (According to a special sort of the *Parking Generation* database, the ratio of building area per seat at restaurants appears to be about 33 square feet per seat for fine dining restaurants, with 35 square feet per seat at high turnover restaurants.) The square-feet-per-seat figures include the kitchen area; thus, it would be important to make sure that the square feet of restaurant/lounge space at a hotel used with the default factors recommended in this book include the kitchen space. The calculated parking ratio before application of the recommended noncaptive and mode adjustments ranges from 2.6 to 3.3 spaces/ksf.

It is difficult to justify recommending a ratio of under 4.0 parking spaces per square foot of restaurant/lounge space in hotels based on a single study, albeit highly detailed, of four hotels. Given the limited scope of that study, the parking ratio from the first edition of *Shared Parking* is still recommended for restaurants that are integral to the hotel (rather than being an attached branded restaurant). The ratio, ten spaces/ksf, is roughly half those for casual and fine dining

should be modified for resort hotels, which have distinct tourist seasons. Suggested factors for hotels in climates that attract winter tourists are provided for resort hotels, but these may not be suitable for resorts in northern climates that only have summer seasons. Monthly factors for restaurants are the same as those for non-hotel-based restaurants, because the parking need is based on nonguest patronage. The monthly factors for hotel convention centers are the same as those for freestanding convention centers.

The time-of-day factors developed in the 1988 study have been used for each component, with an additional set of factors for guest rooms at resort hotels to reflect the greater presence of vehicles there during the daytime. The time-of-day figures in *Parking Generation* reflect overall parking occupancy. To check the reasonableness of these factors, projections of parking accumulation for the average size of each component in each ITE subtype are shown in Table 4-17. Meeting and convention space where reported by seats rather than square feet were converted using 40 seats/ksf.

**Table 4-17** Hotel Parking Needs Projections Using Recommended Default Values

	Office Park		Full-Service		Airport		Business		Resort	
	WD	WE	WD	WE	WD	WE	WD	WE	WD	WE
	Salzman	Salzman	ITE Avg.	ITE Avg.	Salzman	Salzman	Suburban	Suburban	Resort	Resort
Rooms	300	300	350	350	300	300	130	130	450	450
Guest Room Mode Adjustment	66%	77%	66%	77%	54%	59%	66%	77%	66%	77%
Restaurant ksf <sup>1</sup>	7,350	7,350	8,575	8,575	7,350	7,350	1,050	1,050	13,125	13,125
Percent Noncaptive	90%	30%	90%	30%	90%	30%	90%	30%	30%	30%
Mode Adjustment	70%	60%	70%	60%	70%	60%	70%	60%	60%	60%
Meeting Room ksf	7,000	7,000	—	—	7,000	7,000	1,310	1,310	—	—
Percent Noncaptive	60%	70%	60%	70%	60%	70%	60%	70%	60%	70%
Mode Adjustment	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Convention ksf	—	—	20,400	20,400	—	—	—	—	31,175	31,175
Percent Noncaptive	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Mode Adjustment	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Estimated Peak-Hour Demand	304	252	322	289	264	210	105	97	470	393
Peak Hour	9 p.m.	9 p.m.	Noon	9 a.m.	5 p.m.	9 p.m.	8 a.m.	8 a.m.	Noon	8 a.m.
Overall Ratio: Spaces per Room	1.0	0.8	0.9	0.8	0.9	0.7	0.8	0.7	1.0	0.9
ITE 85th Percentile	1.1	0.9	1.1	—	—	—	0.7	0.7	1.86	—

**Notes**

<sup>1</sup> ksf = thousand sq. ft.  
 WD = Weekdays  
 WE = Weekends