Park On The Hill

Town of Chapel Hill

Parking Demand Report

Q3 FY22

Town of Chapel Hill
Parking Services
www.parkonthehill.com

Introduction

This report is about public parking supply and demand for Q3 FY2022 in the Town of Chapel Hill. It is the goal of the Town's Parking Services Division to publish available data on Town-operated lots, decks, and street spaces for the benefit of residents, visitors, and other Town offices. Whether your plans are for business, pleasure, or even policy, we hope you find the data in this report useful and helpful in making informed decisions about where to park in Chapel Hill.

Q3 FY2022 Summary

- Town-wide paid occupancy during peak hours Monday-Friday rose by from 35%-50% from January into February-March.
- Basketball Season saw peak occupancy on weekends double from January into February, dropping slightly in March.
- We remain in a pandemic, and it has current effects on our parking demand. However, daily parking volume returned to and partly exceeded Fall levels in February-March.
- Chapel Hill currently has a reasonable public parking supply (1075 paid spaces), able to accommodate the current suppressed demand. **However, demand for on-street spaces (187 spaces) often exceeds supply during peak hours, particularly on weekends.** This occurs daily on the East Side and on the weekends on West Franklin. Reduction in parking supply or continued increase in demand beyond February levels could cause weekend peak occupancy to exceed practical supply Town-wide.
- **Location and ease of access appear to remain the primary factor driving parking behavior:** e.g., utilization of the usually popular Wallace Deck dropped from February into March due to the recent Rosemary Street closure, with motorists preferring to seek parking at Parking Lot 2 or on-street – despite fewer available spaces from increased demand and the already **exceptionally high traffic at this location with paid occupancy levels regularly exceeding 100%**. Lot 2 volume increased steadily month to month with average weekday volume exceeding Fall levels slightly and weekend volume in March double that of October.

Data and Methods

To try and understand how their parking supply is utilized, cities have normally resorted either to parking studies "in the field," which are time-consuming, offer relatively little data, and usually require hiring an outside consultant; or more recently, cutting-edge technology such as plates and sensors to detect occupancy in real time, which are prohibitively expensive in smaller municipalities for the limited benefit they bring to taxpayers.

In this report, the Town is using a frequently overlooked alternative to these methods that is much more cost-effective while providing many of the same insights: estimating real-world utilization using parking meter and mobile app transaction data (Yang and Qian, 2017; Jordon et al., 2021).

The figures given in this report are based on "Naive Estimation" of real-world utilization, which means we present our data as if all motorists pay to park, do not leave early and do not overstay their sessions. This is because using transaction data to estimate real-world parking behavior to a high level of detail requires analytics not currently available to our division, though which we hope to employ in the future. But even if this method does not completely capture real-world utilization, it offers relative estimates that meet the main needs of the Town and should serve the public well, such as identifying under- and overutilized areas of the parking supply, or comparing demand between different areas across different times of the day, week, or month.

On the cutting edge of parking analytics, the latest research into this method suggests that actual use of a parking supply is always greater than paid use, with a study of San Francisco parking meters showing paid occupancy to fall most often between 70%-80% percent of real-world occupancy, and almost never above 90% (Jordon et al., 2021).[1] As a starting point, our report takes this difference as representative, adjusting our target ranges and interpretation of paid parking data without attempting to convert the actual figures reported into "ground-truth" estimates (Fig. 1).

Fig. 1.1: "Ground-Truth" Occupancy Ranges		
<75% Occupancy (<85% off-street) **Underutilized**	75-85% Occupancy (85-95% off-street) **Healthy**	>85% Occupancy (>95% off-street) Overutilized

Fig. 1.2: Paid Occupancy Ranges, adjusted for non-payment			
55% Paid Occupancy (<65% off-street) **Underutilized**	55-70% Paid Occupancy (65-80% off-street) **Healthy**	70-75% Paid Occupancy (80-85% off-street) **Overuse Likely**	>75% Paid Occupancy (>85% off-street) Overutilized

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[1] **The main limitation of this method is in crowded locations with such high volume and turnover that the number of vehicles leaving before their paid time elapses exceeds the number of spaces that remain vacant, leading to measured levels of paid occupancy greater than 100% (see p. 8, Parking Lot 2). In these situations, occupancy can be assumed to be roughly 100% with exceptionally high turnover.**

How to Read this Report

Key Terms

- **Supply:** the number of parking spaces.
- **Accumulation:** the number of vehicles parked at a given time.
- **Occupancy:** Accumulation divided by the supply, given as a percentage.
- **Practical Supply:** 85% of on-street spaces, 95% of off-street spaces. When occupancy exceeds these percentages, supply is said to exceed demand because motorists usually need to "cruise for parking" to find a space and may be unable to do so in the time available to them.
- **Volume:** the total number of vehicles parked in a given time interval (below, calculated hourly).

Charts

This report divides analysis of the on-street parking supply into zones based on major streets, and off-street into lots and decks. Every area is analyzed in terms of average Weekdays (M.-Th.), Fridays, and Saturdays over the previous quarter. The data for that area is displayed as follows:

Occupancy and volume by hour:
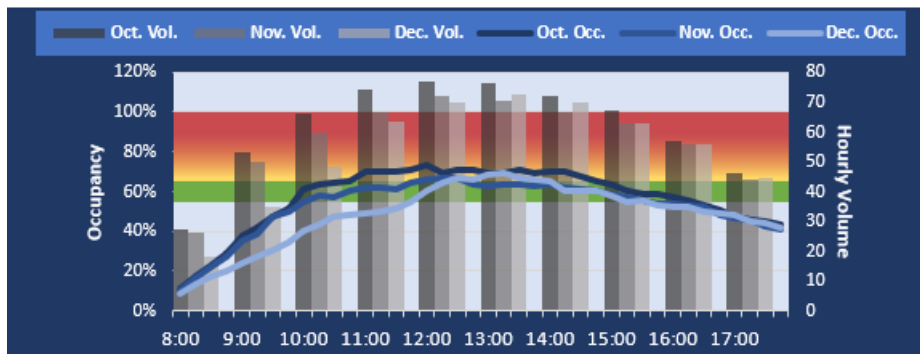
Lines show the occupancy over time, and bars show the parking volume or total vehicles parked per hour for each month of the quarter over an average day. The color bar shows the target paid occupancy range.

References

Daniel Jordon, Robert Hampshire, and Tayo Fabusuyi. "Estimating parking occupancy using smart meter transaction data," June 2021, arXiv:2106.02270. https://arxiv.org/abs/2106.02270

Shuguan Yang, Zhen (Sean) Qian. "Turning meter transactions data into occupancy and payment behavioral information for on-street parking," *Transportation Research Part C: Emerging Technologies*, *Volume 78*, 2017, 165-182. https://doi.org/10.1016/j.trc.2017.02.022

All Public Parking

Supply: **1075 Spaces**   Practical Supply (85%): **913 Spaces**   Optimal Accumulation: **806-913 Spaces**

Target Paid Accumulation, Adjusted (55-70% Pd. Occ.): **591-752 Spaces**

Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	9%	11%	10%
9:00 AM	15%	19%	18%
10:00 AM	22%	30%	28%
11:00 AM	26%	36%	34%
12:00 PM	29%	41%	39%
1:00 PM	32%	46%	44%
2:00 PM	31%	45%	43%
3:00 PM	28%	41%	39%
4:00 PM	26%	37%	36%
5:00 PM	24%	34%	33%
Occupancy by Hour			

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	8%	10%	10%
9:00 AM	13%	20%	17%
10:00 AM	20%	30%	26%
11:00 AM	24%	35%	34%
12:00 PM	30%	43%	42%
1:00 PM	35%	50%	50%
2:00 PM	33%	49%	50%
3:00 PM	29%	43%	44%
4:00 PM	25%	40%	39%
5:00 PM	24%	38%	38%
Occupancy by Hour			

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	6%	7%	8%
9:00 AM	8%	10%	17%
10:00 AM	11%	16%	22%
11:00 AM	17%	23%	26%
12:00 PM	28%	38%	33%
1:00 PM	34%	53%	43%
2:00 PM	35%	59%	47%
3:00 PM	33%	60%	42%
4:00 PM	34%	56%	39%
5:00 PM	34%	56%	39%
Occupancy by Hour			

Target range of 55-70% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

Town of Chapel Hill Parking Services
Parking Demand Report Q3 FY22
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1

On-Street

Supply: **187 Spaces**   Practical Supply (85%): **158 Spaces**   Optimal Accumulation: **140-158 Spaces**

Target Paid Accumulation, Adjusted (55-70% Pd. Occ.): **102-130 Spaces**

Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	3%	6%	6%
9:00 AM	12%	18%	16%
10:00 AM	19%	30%	28%
11:00 AM	26%	36%	36%
12:00 PM	33%	47%	47%
1:00 PM	40%	55%	53%
2:00 PM	35%	49%	50%
3:00 PM	31%	42%	44%
4:00 PM	28%	38%	42%
5:00 PM	27%	39%	38%
Occupancy by Hour			

Legend: Jan. Vol. | Feb. Vol. | Mar. Vol. | Jan. Occ. | Feb. Occ. | Mar. Occ.

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	2%	4%	4%
9:00 AM	11%	22%	17%
10:00 AM	22%	36%	32%
11:00 AM	27%	40%	45%
12:00 PM	39%	51%	54%
1:00 PM	46%	61%	63%
2:00 PM	46%	61%	64%
3:00 PM	41%	56%	55%
4:00 PM	29%	50%	49%
5:00 PM	32%	50%	51%
Occupancy by Hour			

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	2%	4%	5%
9:00 AM	6%	14%	18%
10:00 AM	14%	26%	31%
11:00 AM	23%	40%	48%
12:00 PM	34%	59%	59%
1:00 PM	42%	71%	69%
2:00 PM	42%	73%	71%
3:00 PM	38%	69%	58%
4:00 PM	38%	62%	55%
5:00 PM	39%	61%	56%
Occupancy by Hour			

Target range of 55-70% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

East Side Meters

Avg. Weekday

Occupancy by Hour

	Jan.	Feb.	Mar.
8:00 AM	6%	15%	13%
9:00 AM	22%	40%	34%
10:00 AM	35%	63%	56%
11:00 AM	49%	71%	71%
12:00 PM	55%	78%	78%
1:00 PM	56%	76%	77%
2:00 PM	53%	75%	74%
3:00 PM	46%	66%	68%
4:00 PM	39%	59%	63%
5:00 PM	37%	56%	54%

Avg. Friday

Occupancy by Hour

	Jan.	Feb.	Mar.
8:00 AM	2%	9%	7%
9:00 AM	23%	44%	38%
10:00 AM	47%	72%	64%
11:00 AM	53%	77%	82%
12:00 PM	62%	78%	87%
1:00 PM	63%	80%	85%
2:00 PM	62%	84%	91%
3:00 PM	56%	77%	79%
4:00 PM	42%	68%	70%
5:00 PM	38%	68%	68%

Avg. Saturday

Occupancy by Hour

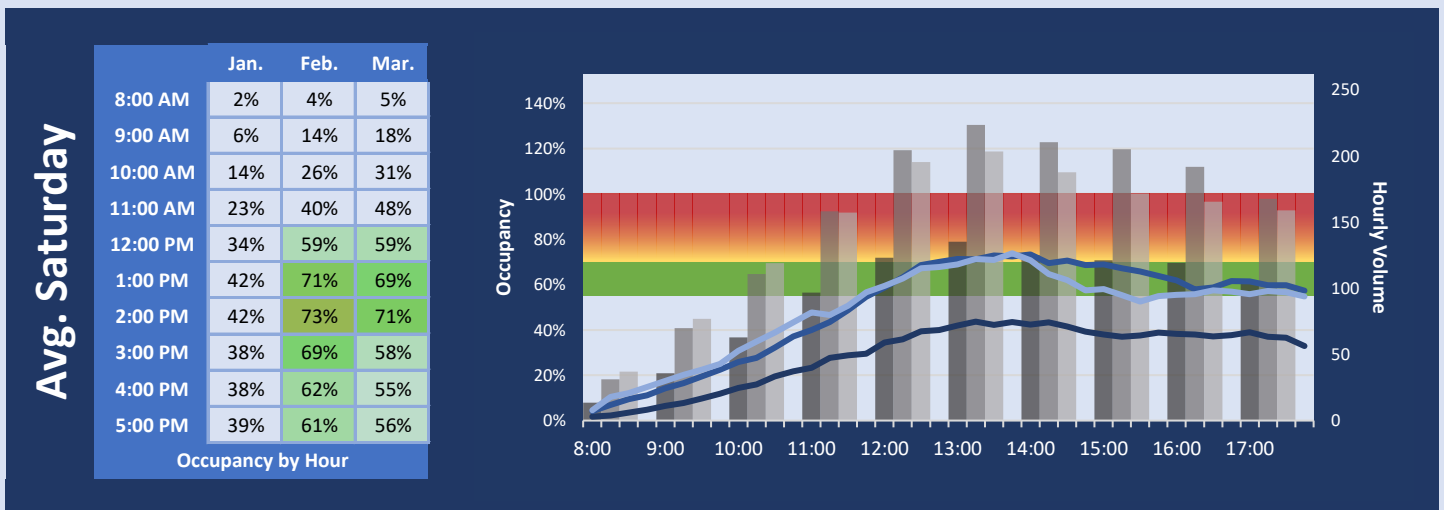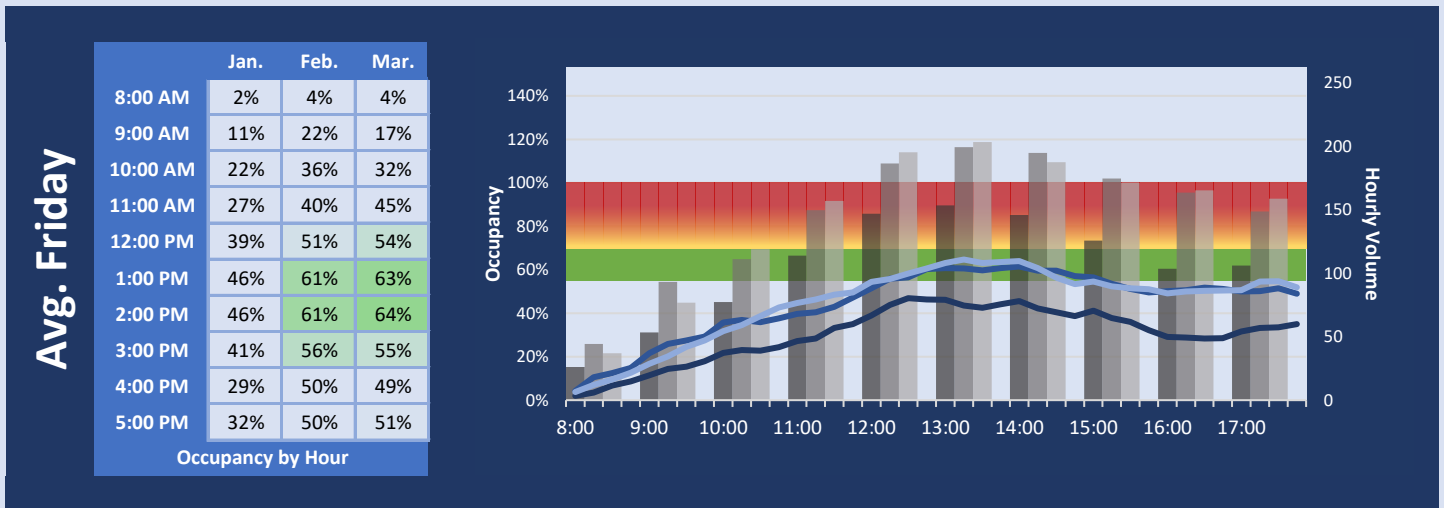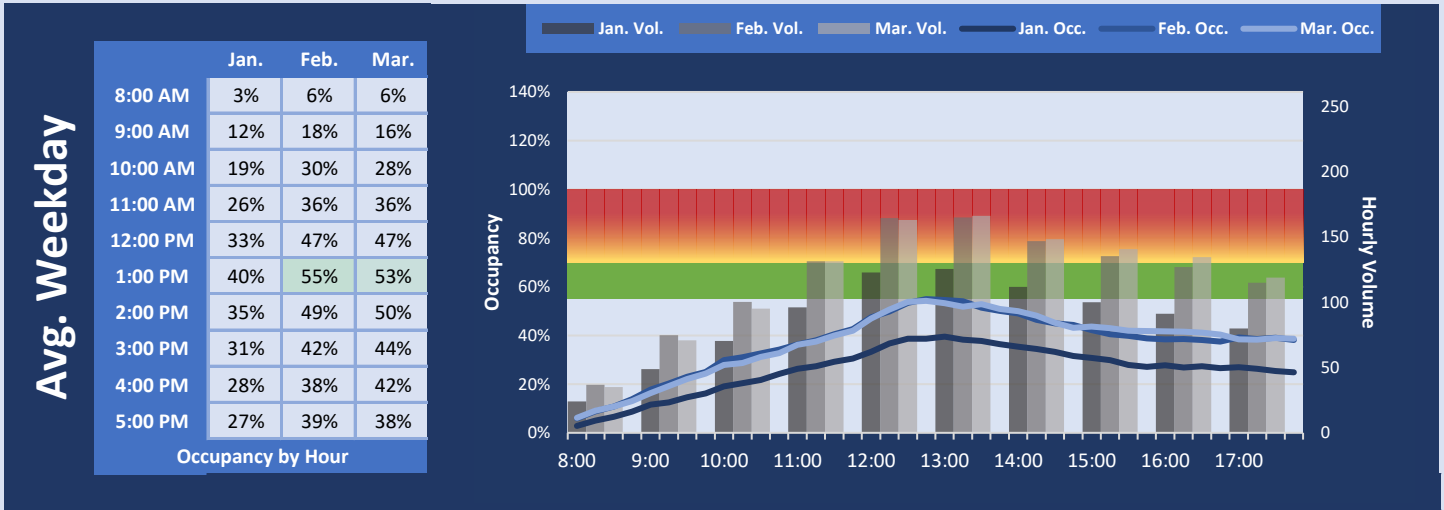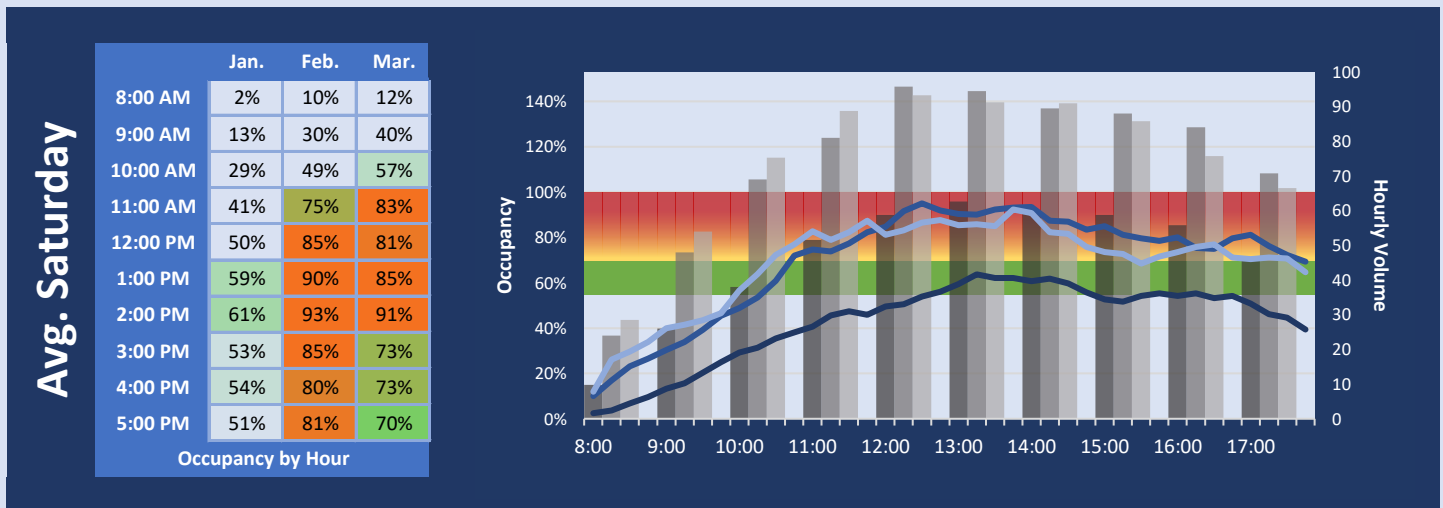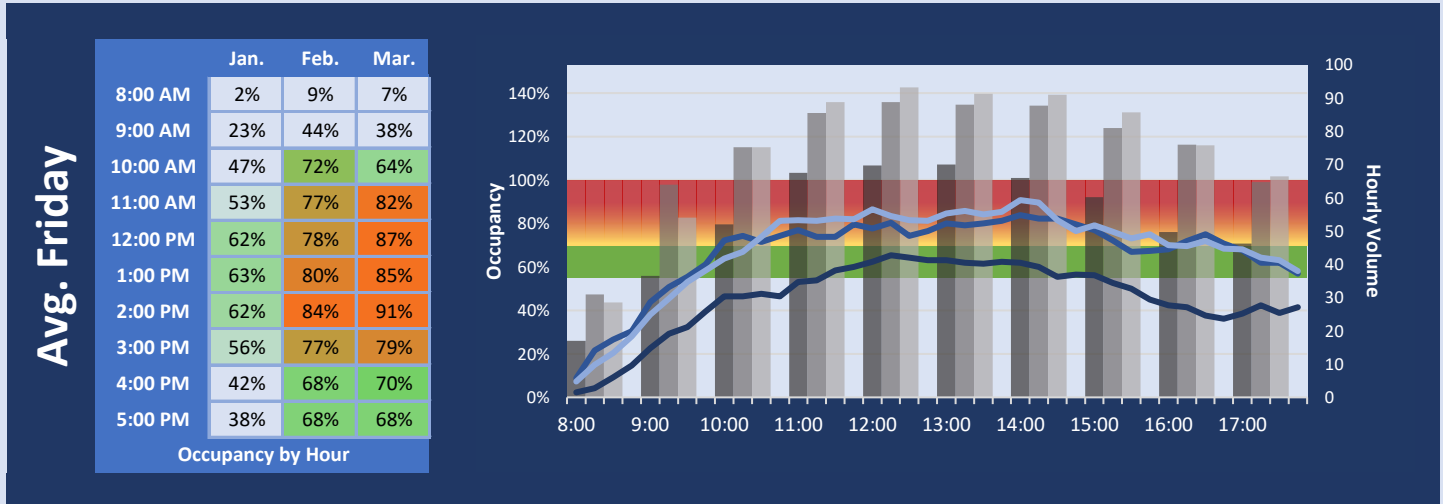|	Jan.	Feb.	Mar.
8:00 AM	2%	10%	12%
9:00 AM	13%	30%	40%
10:00 AM	29%	49%	57%
11:00 AM	41%	75%	83%
12:00 PM	50%	85%	81%
1:00 PM	59%	90%	85%
2:00 PM	61%	93%	91%
3:00 PM	53%	85%	73%
4:00 PM	54%	80%	73%
5:00 PM	51%	81%	70%

Target range of 55-70% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

West Franklin Meters

Supply: **66 Spaces** Practical Supply (85%): **56 Spaces** Optimal Accumulation: **49-56 Spaces**

Target Paid Accumulation, Adjusted (55-70% Pd. Occ.): **36-46 Spaces**

Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	2%	1%	3%
9:00 AM	7%	7%	7%
10:00 AM	10%	11%	13%
11:00 AM	16%	18%	19%
12:00 PM	25%	38%	37%
1:00 PM	37%	53%	52%
2:00 PM	31%	42%	47%
3:00 PM	26%	35%	37%
4:00 PM	23%	32%	36%
5:00 PM	25%	37%	37%
Occupancy by Hour			

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	3%	3%	0%
9:00 AM	7%	9%	5%
10:00 AM	9%	16%	16%
11:00 AM	15%	19%	27%
12:00 PM	32%	44%	49%
1:00 PM	48%	63%	68%
2:00 PM	47%	67%	64%
3:00 PM	43%	56%	54%
4:00 PM	28%	44%	47%
5:00 PM	34%	50%	52%
Occupancy by Hour			

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	2%	1%	1%
9:00 AM	4%	6%	7%
10:00 AM	9%	15%	22%
11:00 AM	17%	27%	37%
12:00 PM	35%	59%	64%
1:00 PM	42%	82%	79%
2:00 PM	42%	78%	76%
3:00 PM	38%	73%	65%
4:00 PM	35%	66%	56%
5:00 PM	42%	66%	59%
Occupancy by Hour			

Target range of 55-70% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

Park On The Hill

Off-Street Spaces

Supply: **888 Spaces**   Practical Supply (95%): **843 Spaces**   Optimal Accumulation: **754-843 Spaces**

Target Paid Accumulation, Adjusted (65-80% Pd. Occ.):   **577-710 Spaces**
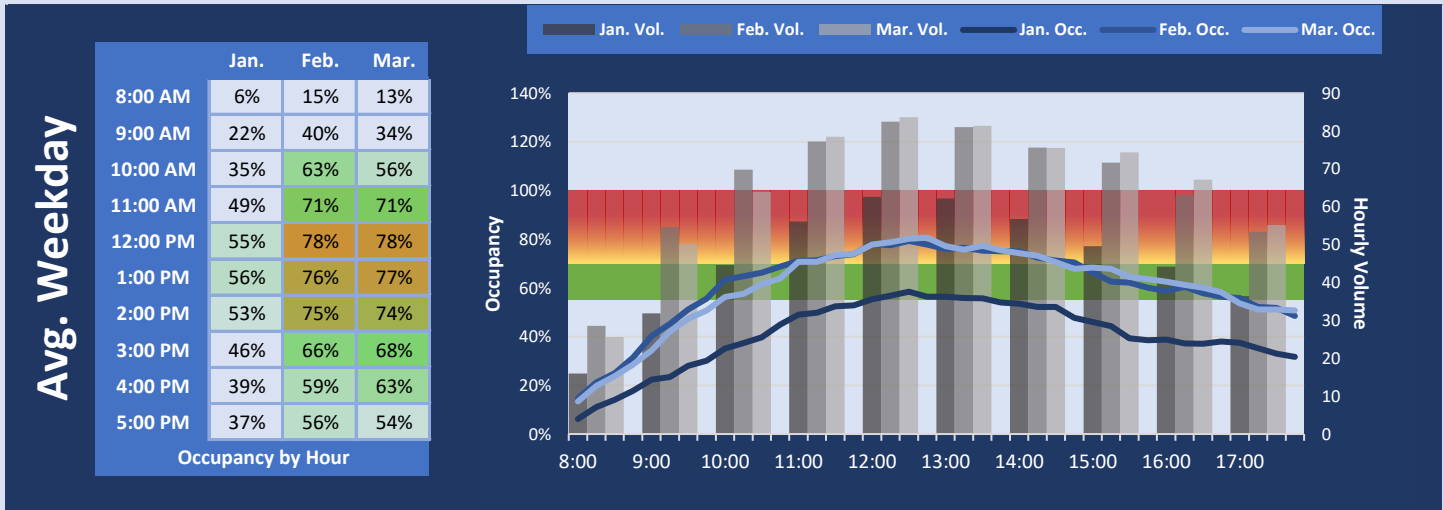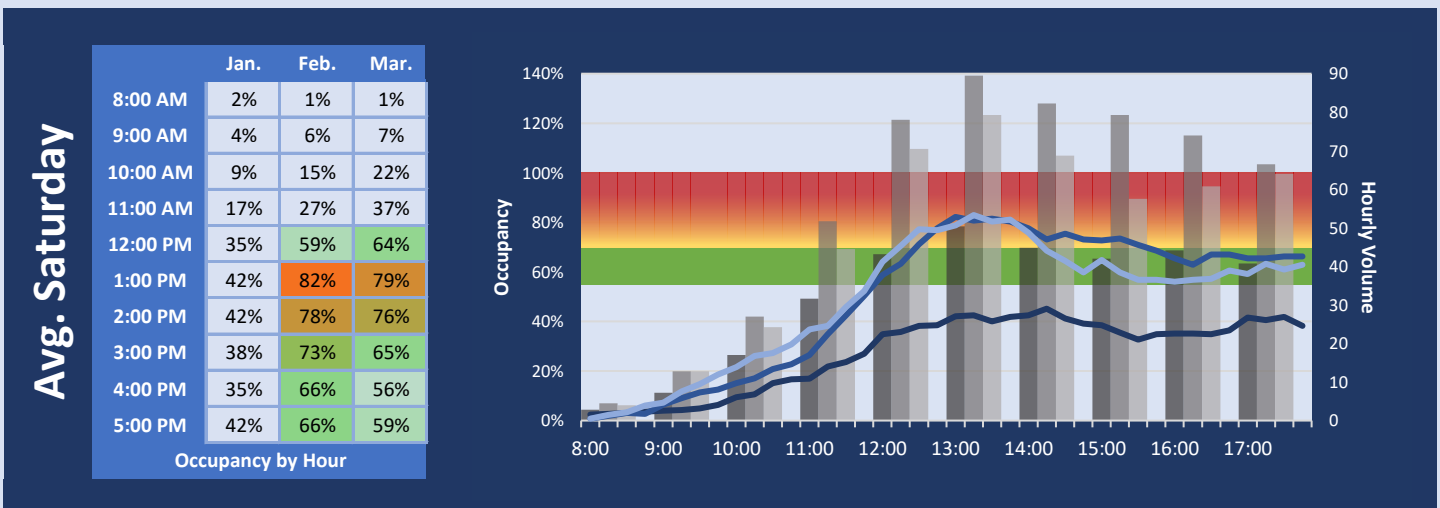
Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	8%	9%	9%
9:00 AM	11%	15%	14%
10:00 AM	16%	22%	21%
11:00 AM	18%	25%	24%
12:00 PM	19%	27%	26%
1:00 PM	21%	30%	30%
2:00 PM	21%	30%	29%
3:00 PM	20%	28%	27%
4:00 PM	18%	26%	25%
5:00 PM	18%	24%	24%
6:00 PM	16%	23%	24%
7:00 PM	14%	23%	25%
Occupancy by Hour			

Legend: Jan. Vol. | Feb. Vol. | Mar. Vol. | Jan. Occ. | Feb. Occ. | Mar. Occ.

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	7%	9%	8%
9:00 AM	11%	15%	13%
10:00 AM	14%	21%	18%
11:00 AM	17%	24%	23%
12:00 PM	20%	28%	28%
1:00 PM	23%	32%	33%
2:00 PM	22%	31%	32%
3:00 PM	19%	28%	29%
4:00 PM	19%	26%	26%
5:00 PM	18%	26%	28%
6:00 PM	17%	30%	31%
7:00 PM	16%	34%	35%
Occupancy by Hour			

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	7%	7%	8%
9:00 AM	7%	9%	13%
10:00 AM	9%	12%	16%
11:00 AM	13%	16%	18%
12:00 PM	18%	24%	22%
1:00 PM	22%	33%	29%
2:00 PM	22%	38%	30%
3:00 PM	22%	39%	28%
4:00 PM	22%	37%	27%
5:00 PM	22%	37%	27%
6:00 PM	20%	39%	32%
7:00 PM	18%	38%	34%
Occupancy by Hour			

Target range of 65-80% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

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Parking Demand Report Q3 FY22
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Wallace Deck

Supply: **308 Spaces**   Practical Supply (95%): **292 Spaces**   Optimal Accumulation: **261-292 Spaces**

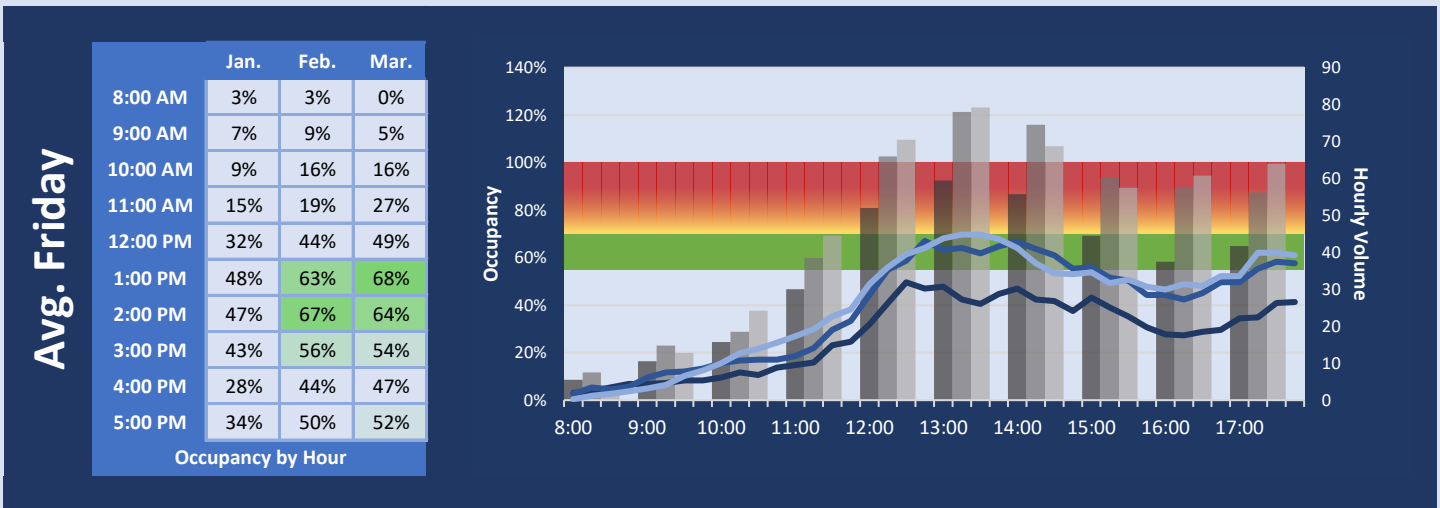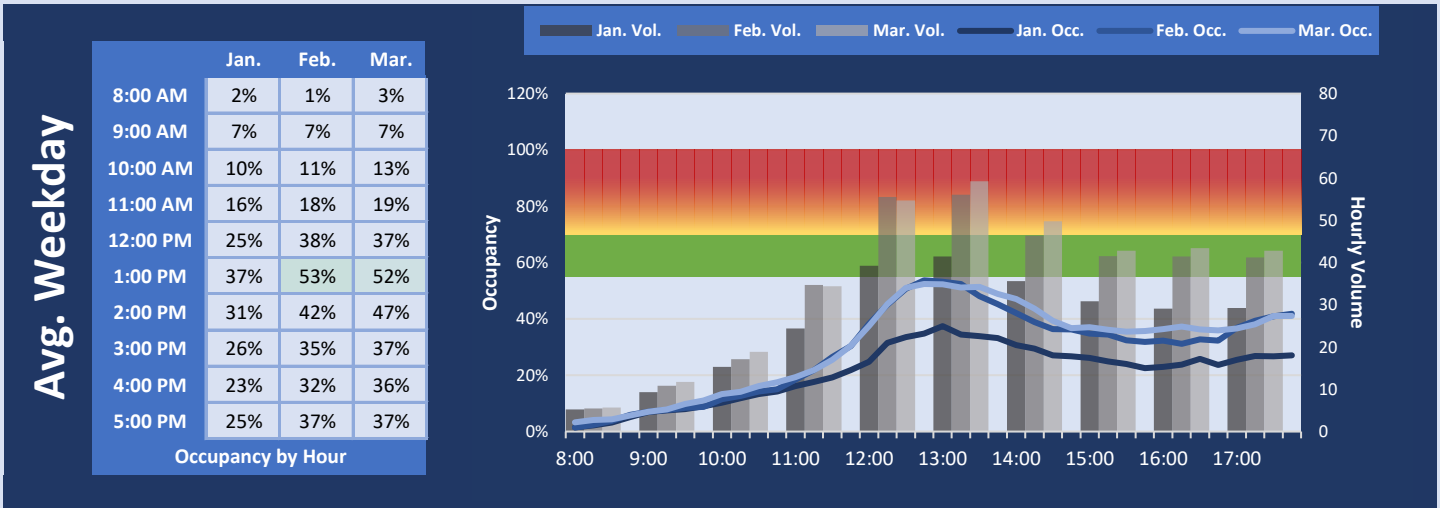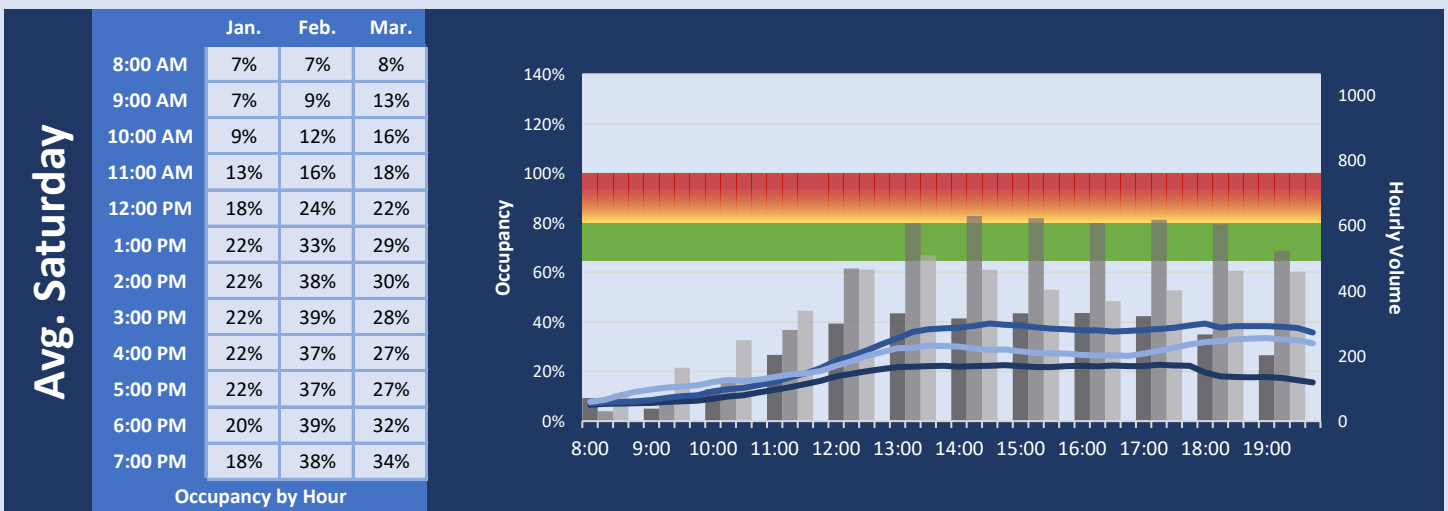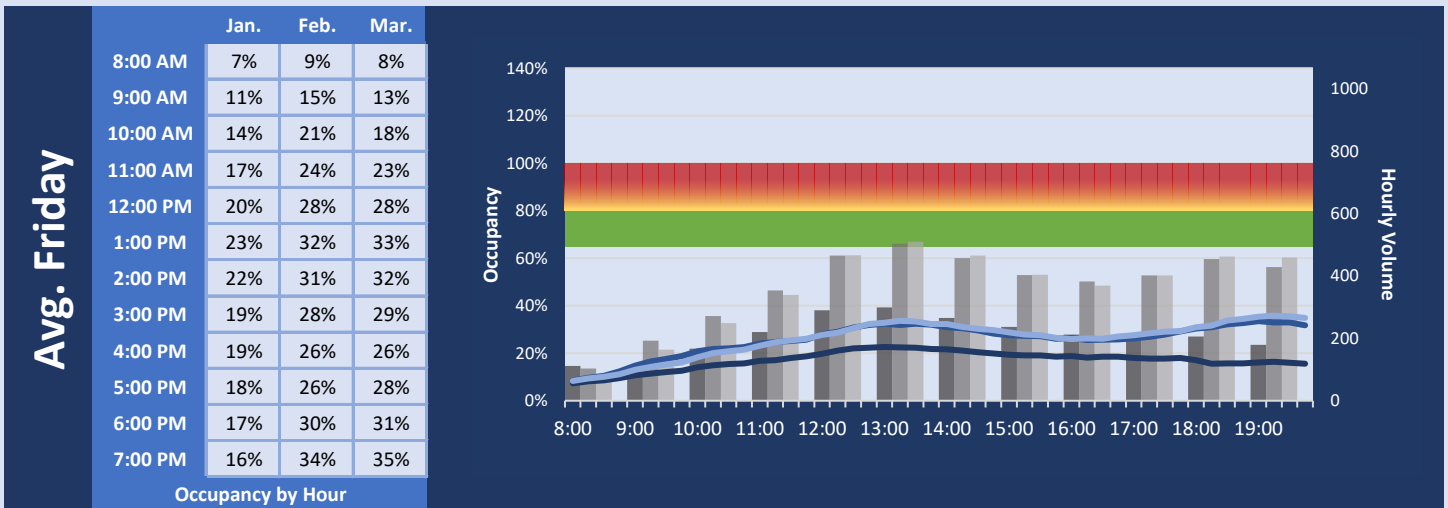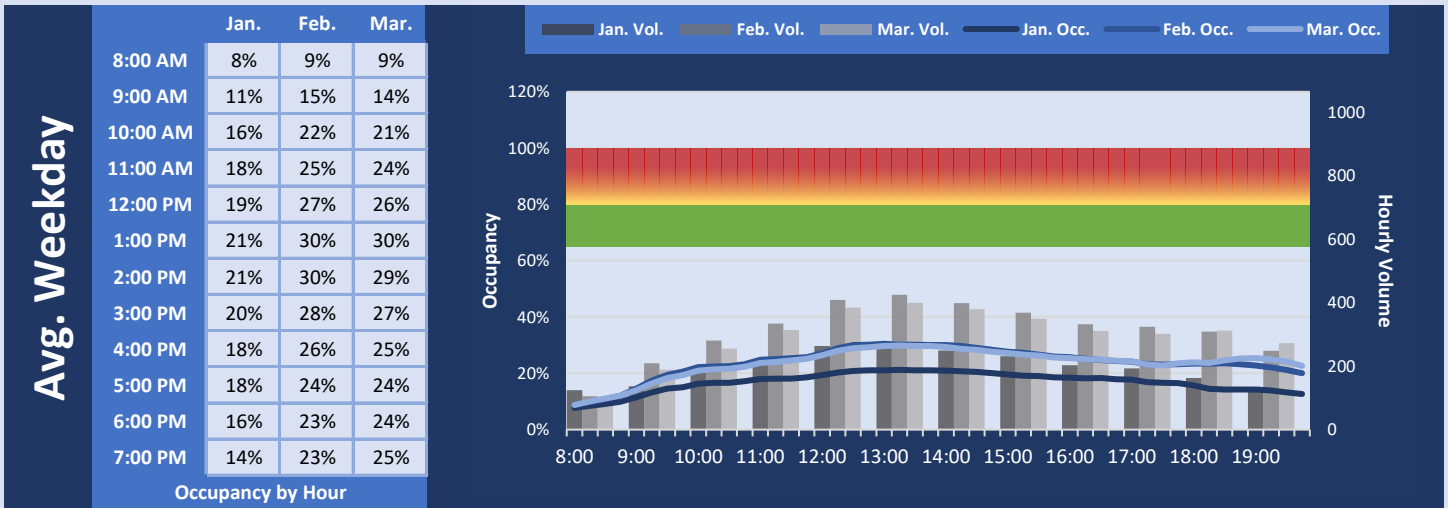Target Paid Accumulation, Adjusted (65-80% Pd. Occ.): **200-246 Spaces**

Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	11%	12%	12%
9:00 AM	14%	16%	15%
10:00 AM	17%	25%	22%
11:00 AM	21%	31%	28%
12:00 PM	22%	34%	30%
1:00 PM	24%	38%	33%
2:00 PM	25%	38%	34%
3:00 PM	23%	35%	32%
4:00 PM	21%	30%	28%
5:00 PM	18%	26%	24%
6:00 PM	14%	19%	19%
7:00 PM	14%	17%	17%

Occupancy by Hour

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	10%	11%	11%
9:00 AM	12%	17%	14%
10:00 AM	14%	22%	18%
11:00 AM	16%	28%	24%
12:00 PM	20%	32%	27%
1:00 PM	23%	34%	30%
2:00 PM	21%	32%	29%
3:00 PM	19%	27%	27%
4:00 PM	16%	24%	21%
5:00 PM	13%	19%	19%
6:00 PM	13%	19%	16%
7:00 PM	14%	17%	17%

Occupancy by Hour

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	10%	10%	11%
9:00 AM	10%	11%	16%
10:00 AM	11%	11%	17%
11:00 AM	12%	12%	14%
12:00 PM	16%	16%	14%
1:00 PM	19%	22%	18%
2:00 PM	19%	25%	19%
3:00 PM	18%	27%	19%
4:00 PM	19%	27%	17%
5:00 PM	19%	25%	18%
6:00 PM	18%	25%	17%
7:00 PM	17%	22%	17%

Occupancy by Hour

Legend: Jan. Vol.   Feb. Vol.   Mar. Vol.   Jan. Occ.   Feb. Occ.   Mar. Occ.

Target range of 65-80% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

TOWN OF CHAPEL HILL

Park On The Hill

140 West

Supply: **147 Spaces**   **Practical Supply (95%):** **139 Spaces**   **Optimal Accumulation:** **124-139 Spaces**

Target Paid Accumulation, Adjusted (65-80% Pd. Occ.): **95-117 Spaces**
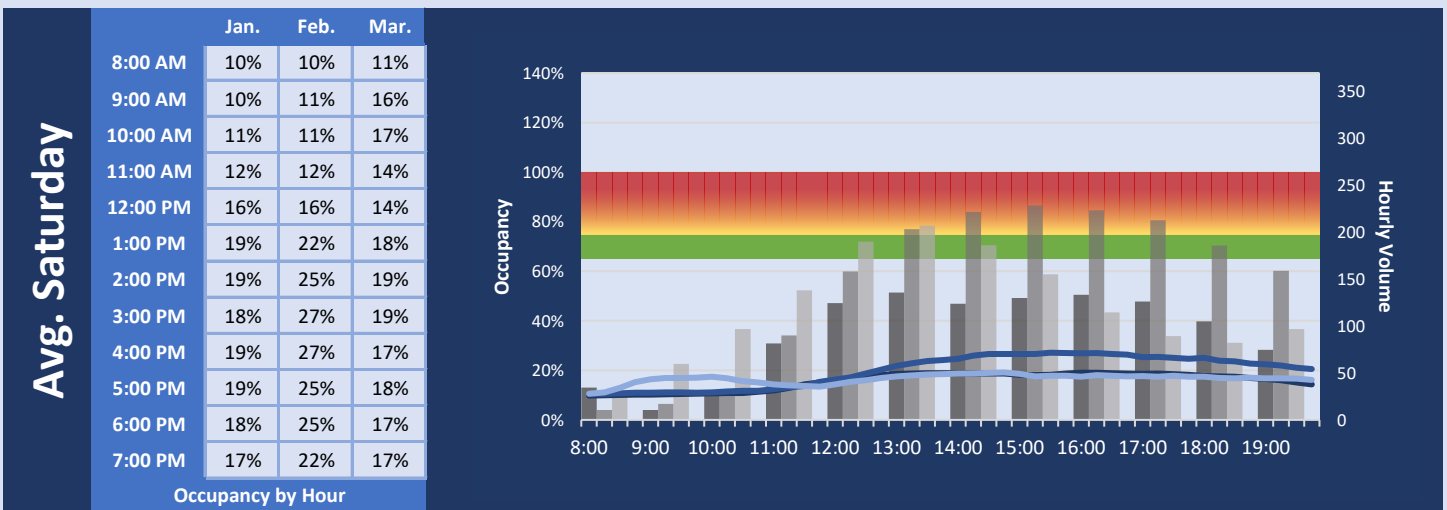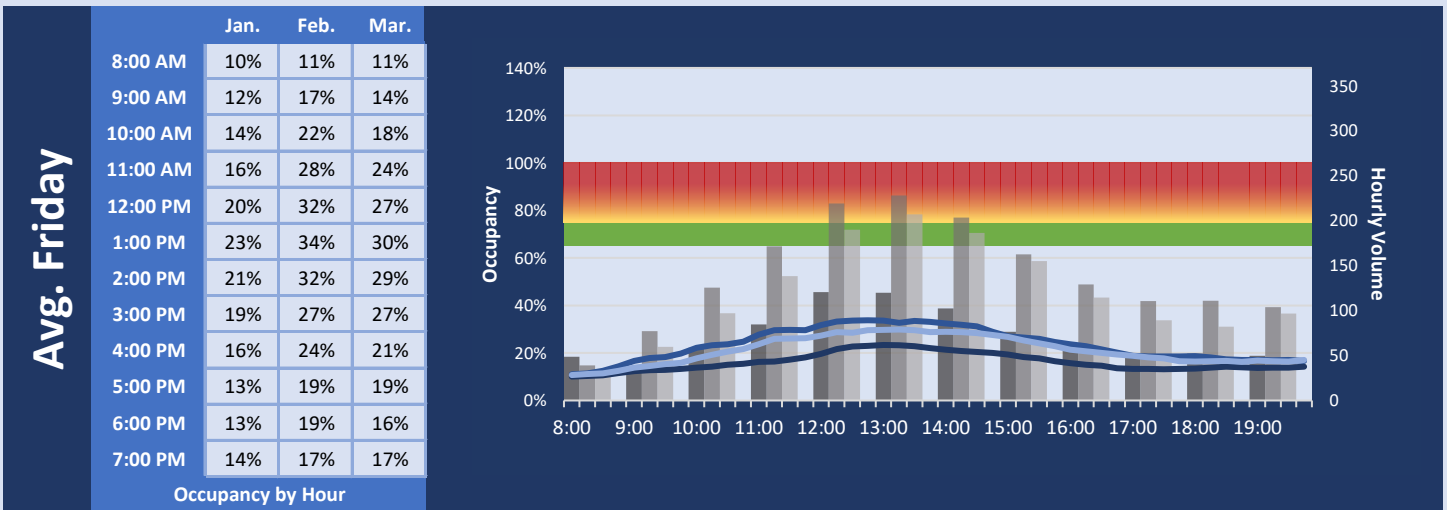
Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	18%	17%	18%
9:00 AM	20%	19%	21%
10:00 AM	22%	22%	24%
11:00 AM	22%	23%	26%
12:00 PM	22%	24%	27%
1:00 PM	21%	24%	27%
2:00 PM	21%	24%	27%
3:00 PM	22%	24%	26%
4:00 PM	22%	23%	25%
5:00 PM	21%	22%	24%
6:00 PM	21%	21%	21%
7:00 PM	20%	21%	21%
Occupancy by Hour			

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	18%	18%	18%
9:00 AM	20%	21%	20%
10:00 AM	21%	22%	21%
11:00 AM	23%	23%	22%
12:00 PM	22%	24%	22%
1:00 PM	22%	26%	25%
2:00 PM	23%	25%	24%
3:00 PM	22%	25%	23%
4:00 PM	21%	24%	23%
5:00 PM	21%	26%	24%
6:00 PM	21%	26%	24%
7:00 PM	21%	26%	26%
Occupancy by Hour			

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	18%	18%	18%
9:00 AM	19%	20%	20%
10:00 AM	19%	21%	21%
11:00 AM	20%	22%	22%
12:00 PM	21%	25%	23%
1:00 PM	21%	30%	23%
2:00 PM	22%	33%	24%
3:00 PM	22%	32%	25%
4:00 PM	22%	31%	23%
5:00 PM	23%	32%	23%
6:00 PM	23%	30%	24%
7:00 PM	23%	28%	24%
Occupancy by Hour			

Target range of 65-80% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).

Parking Lot 2 (Rosemary and Columbia)

Supply: **60 Spaces**   Practical Supply (95%): **57 Spaces**   Optimal Accumulation: **51-57 Spaces**

Target Paid Accumulation, Adjusted (65-80% Pd. Occ.): **39-48 Spaces**

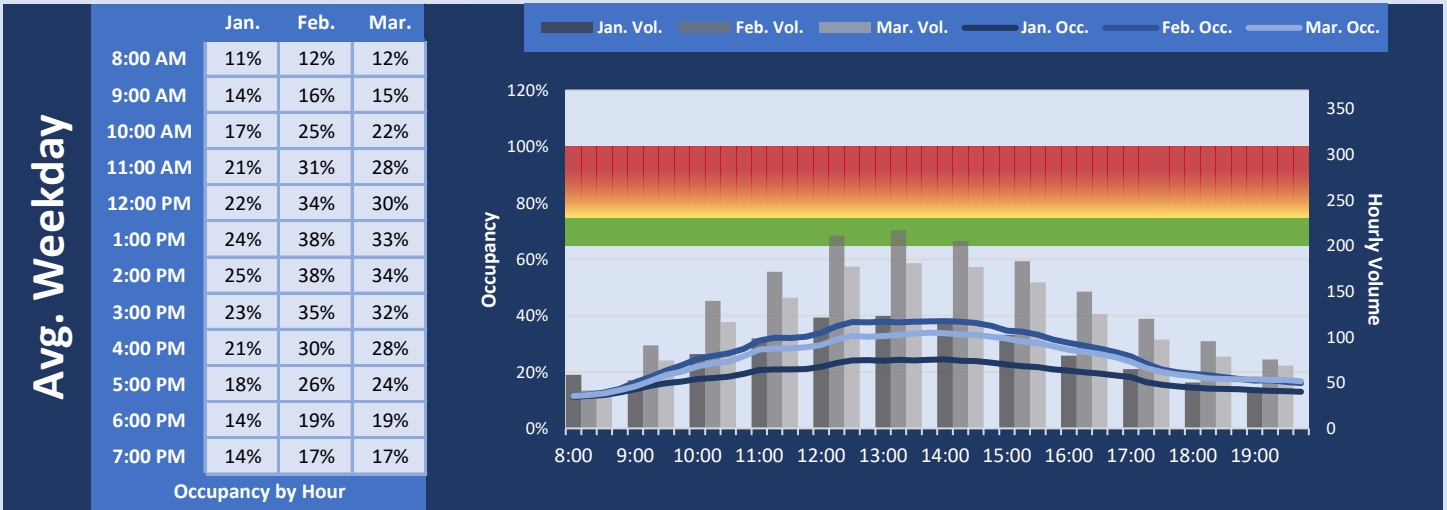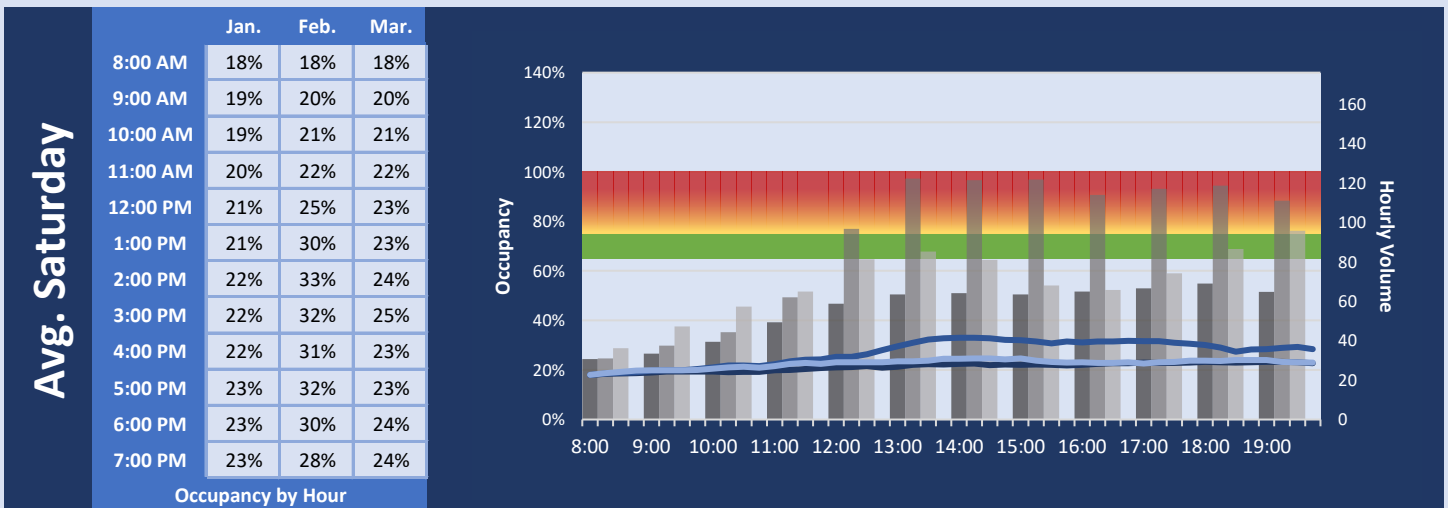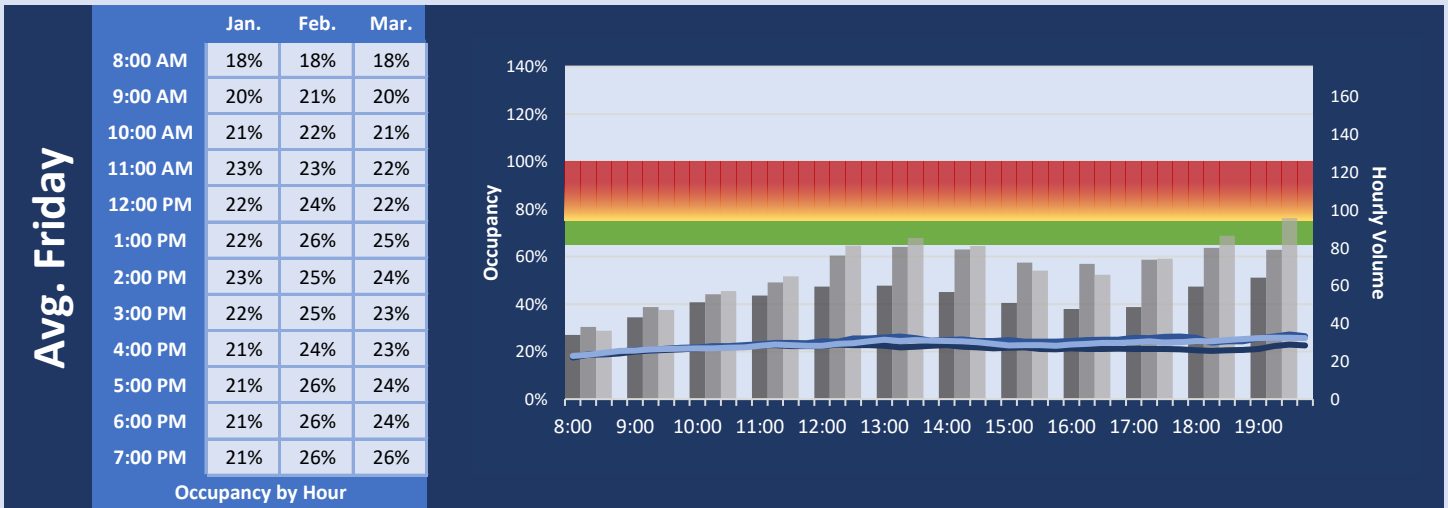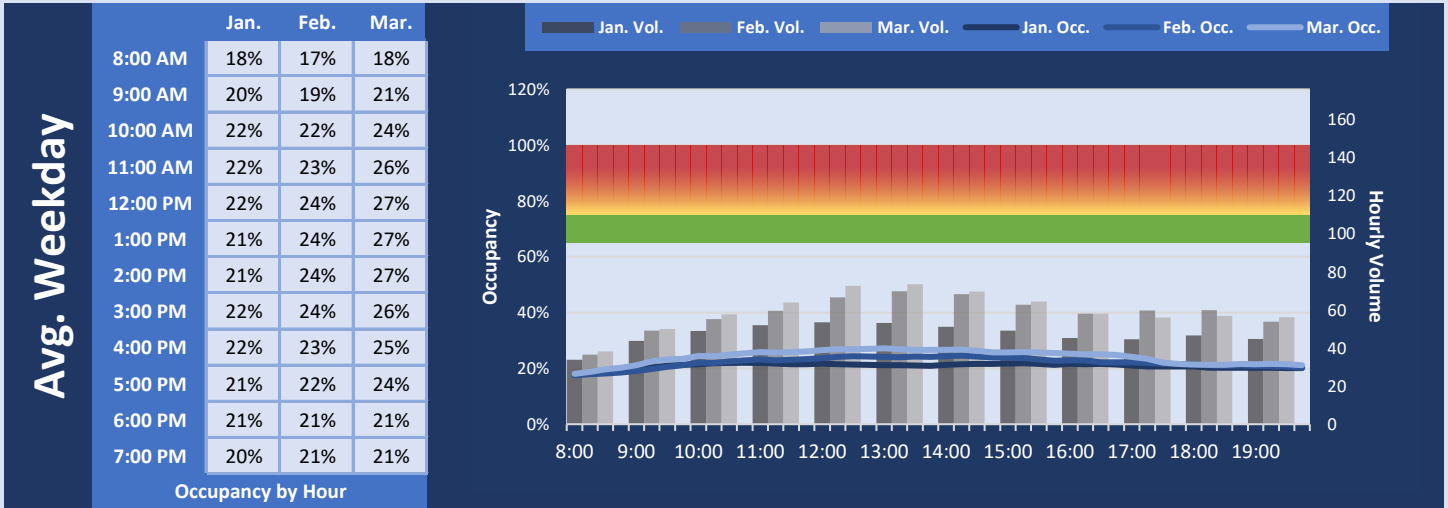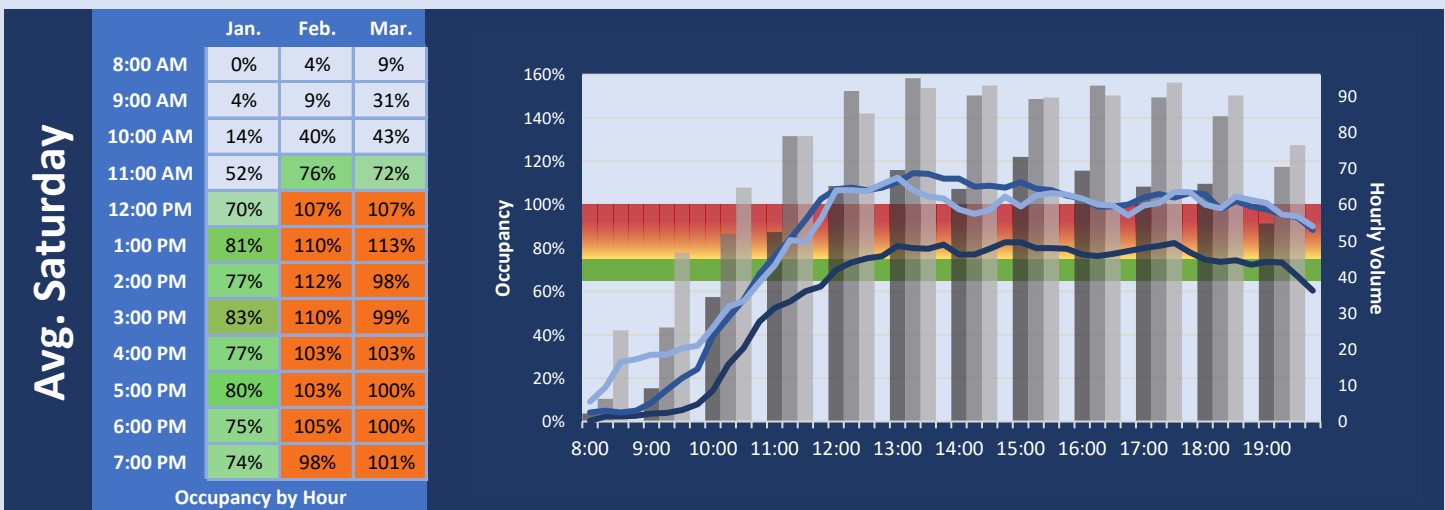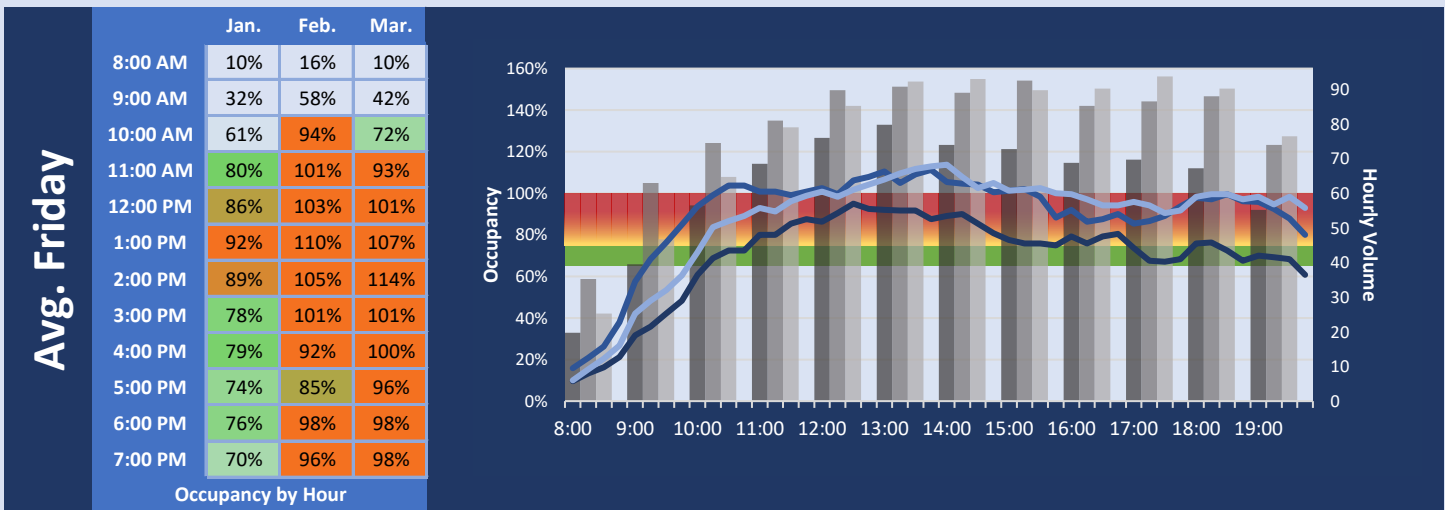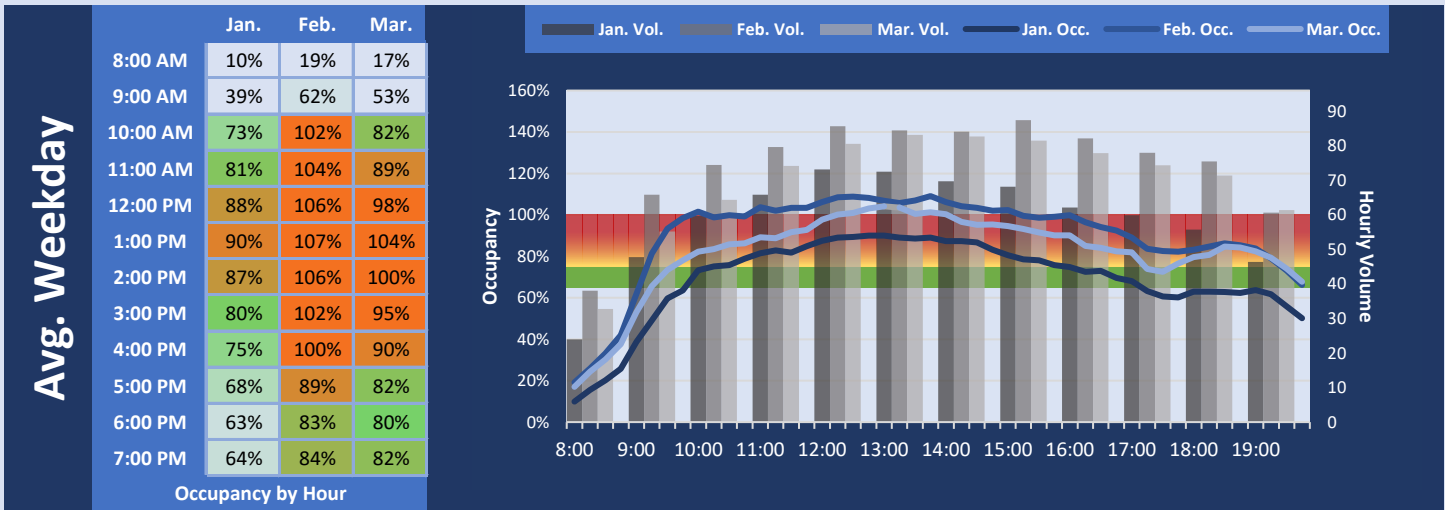## Avg. Weekday

	Jan.	Feb.	Mar.
8:00 AM	10%	19%	17%
9:00 AM	39%	62%	53%
10:00 AM	73%	102%	82%
11:00 AM	81%	104%	89%
12:00 PM	88%	106%	98%
1:00 PM	90%	107%	104%
2:00 PM	87%	106%	100%
3:00 PM	80%	102%	95%
4:00 PM	75%	100%	90%
5:00 PM	68%	89%	82%
6:00 PM	63%	83%	80%
7:00 PM	64%	84%	82%

Occupancy by Hour

Legend: Jan. Vol. Feb. Vol. Mar. Vol. Jan. Occ. Feb. Occ. Mar. Occ.

Avg. Friday

	Jan.	Feb.	Mar.
8:00 AM	10%	16%	10%
9:00 AM	32%	58%	42%
10:00 AM	61%	94%	72%
11:00 AM	80%	101%	93%
12:00 PM	86%	103%	101%
1:00 PM	92%	110%	107%
2:00 PM	89%	105%	114%
3:00 PM	78%	101%	101%
4:00 PM	79%	92%	100%
5:00 PM	74%	85%	96%
6:00 PM	76%	98%	98%
7:00 PM	70%	96%	98%

Occupancy by Hour

Avg. Saturday

	Jan.	Feb.	Mar.
8:00 AM	0%	4%	9%
9:00 AM	4%	9%	31%
10:00 AM	14%	40%	43%
11:00 AM	52%	76%	72%
12:00 PM	70%	107%	107%
1:00 PM	81%	110%	113%
2:00 PM	77%	112%	98%
3:00 PM	83%	110%	99%
4:00 PM	77%	103%	103%
5:00 PM	80%	103%	100%
6:00 PM	75%	105%	100%
7:00 PM	74%	98%	101%

Occupancy by Hour

Target range of 65-80% paid occupancy assumes real occupancy to exceed paid occupancy by 15-25% (see p. iii).