TO: Council Committee on Economic Sustainability

FROM: Dwight Bassett, Director of Economic Development & Parking Services

Michael Carew, Parking Services Manager

RE: 4th quarter 2021 Parking data

DATE: January 18, 2022

Our overall parking demand is weak, but we see signs of increased demand from 11:00am until 3:00pm and picking up again around 4:00pm.

- Our on-street spaces have strong demand and is at times over-parked due to demand.
 Fridays and Saturdays are our best days for peak demand.
- On-street parking is also showing high demand with some periods exceeding supply.
- Wallace deck is showing strong demand across the days with the exception of in December.

This report shows that our downtown is still struggling with the pandemic, and people are still somewhat hesitant to be out.

We see a need to remind parkers that there are off-street lots/decks nearby throughout downtown and that it is \$.25 less than on-street parking. We will be exploring signage to help redirect parkers looking for a parking spot.

We also see a need to do more to promote on off-street spaces on social media and other marketing. There seems to be a lack of clarity of opportunity for those off-street deck and lots and we need to capture the opportunity to educate people of the option.



Town of Chapel Hill
Parking Demand Report



Q4 FY21

Town of Chapel Hill Parking Services www.parkonthehill.com



Introduction



This is the first in a new series of quarterly reports on public parking supply and demand in the Town of Chapel Hill. It is the goal of the Town's Parking Services Division to publish the available data on all Town-operated lots, decks, and street spaces in an informative and detailed way 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.

Q4 FY2021 Summary

- We remain in a pandemic, and it has current effects on our parking demand.
- Chapel Hill currently has a reasonable public parking supply (1075 paid spaces), but demand for on-street spaces (187 spaces) often exceeds supply during peak hours, particularly on weekends. Even though street spaces make up only 16% of the Town's parking supply, they accounted for 30% of the total parking volume in Q4.
- Off-street parking supply is generally underutilized. A significant exception is the Wallace Deck, which showed healthy levels of activity throughout Q4 and possibly occasional overuse, particularly on weekends.
- Comparing less utilized lots with the Wallace Deck, and less utilized streets with busier streets such as Franklin, location appears to be the main factor driving demand for parking.
- Parking demand remained steady Monday-Friday despite a significant decline overall parking volume for December, a change seen almost entirely in weekend traffic.

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 equipment technology such as plates and sensors to detect occupancy in real time, which are prohibitively expensive in all but the largest of cities for the limited benefit to the taxpayer.

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%. 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	75-85% Occupancy	>85% Occupancy				
(<85% off-street)	(85-95% off-street)	(>95% off-street)				
Underutilized	Healthy	Overutilized				

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

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 and daily).
- **Turnover:** Volume divided by supply, expressed as the number of vehicles per space in a time interval (below, calculated daily).

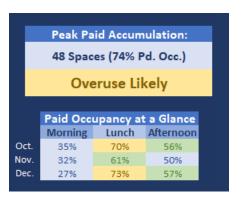
Tables and Charts

This report divides analysis of the on-street parking supply into zones based on major streets, and offstreet 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 in the following components:

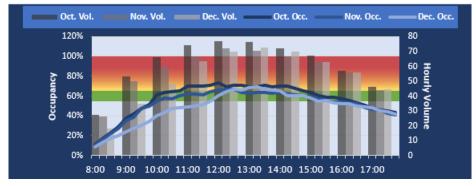
Zone Summary:

These panels give a quick summary of the zone's utilization to convey the likely ease or difficulty of finding parking at peak hours and throughout the day.

Note: If accumulation exceeds the target range at any point during an average week, the zone is marked as possibly overutilized, even if the average over any given interval is lower. This is to highlight brief "rushes" of less than an hour where parking is difficult to find, usually during lunchtime hours, even when the surrounding time intervals are less busy.



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.

Volume by day:

The total number of cars paid to park over the course of an average day for every month of the quarter. A quick reference for change in utilization over time.



Duration:

For every hour of paid parking, the duration of the average active session during that hour is shown over the course of an average day for every month of the quarter, and the average for the quarter.

		8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00		
Duration	Oct.	1:37	1:41	1:44	1:48	1:46	1:44	1:40	1:41	1:35	1:16	1:24	Daily Avg.
	Nov.	1:44	1:43	1:49	1:54	1:50	1:52	1:52	1:50	1:42	1:25	1:31	
by Hour	Dec.	1:32	1:39	1:46	1:48	1:46	1:41	1:32	1:23	1:20	1:08	1:17	Duration
Avg Daily		Oct.			Nov.			Dec.			Q4 Avg	:	1:24
Turnover		3.60			3.67			3.93			3.73		

Turnover:

Average daily turnover per spot is given for every month, and the quarterly average.

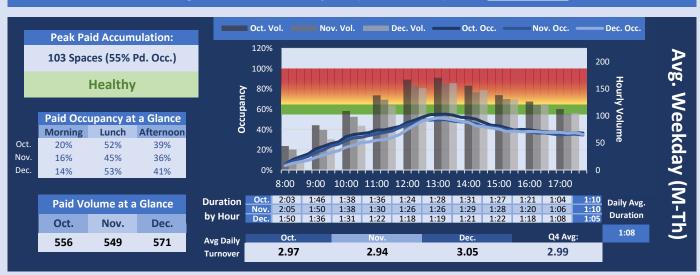
References

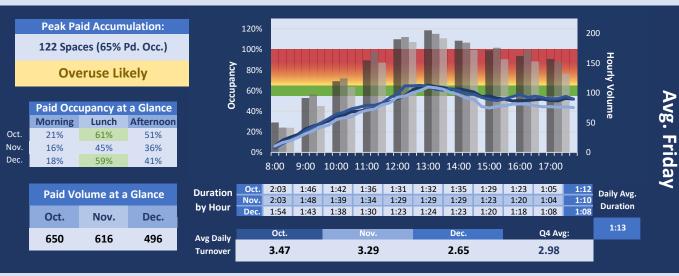
Daniel Jordon, Robert Hampshire, and Tayo Fabusuyi. "Estimating parking occupancy using smart meter transaction data," June 2021, arXiv:2106.02270. https://arxiv.org/abs/2106.02270
Shuguan Yang, Zhen (Sean) Qian. "Turning meter transactions data into occupancy and payment behavioral information for on-street parking," *Transportation Research Part C: Emerging Technologies, Volume 78*, 2017, 165-182. https://doi.org/10.1016/j.trc.2017.02.022

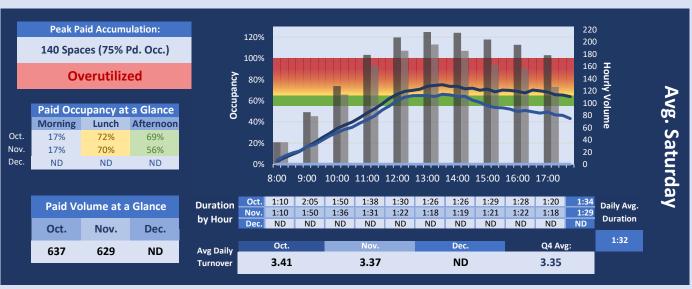
On Street Parking Spaces

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

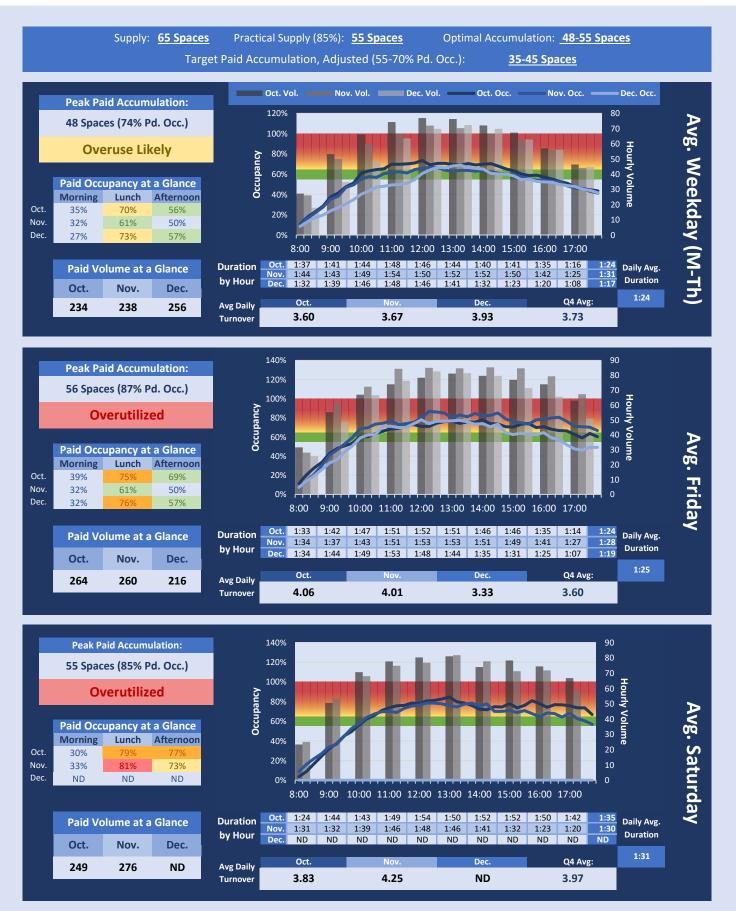
Target Paid Accumulation, Adjusted (55-70% Pd. Occ.): 102-130 Spaces



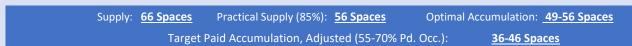


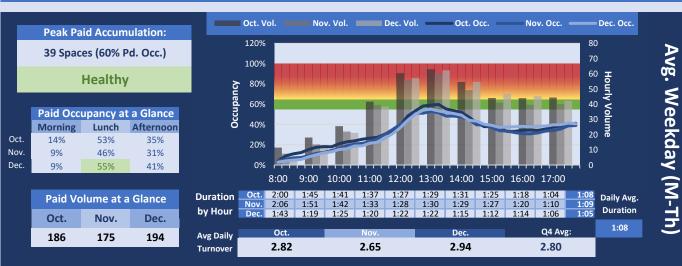


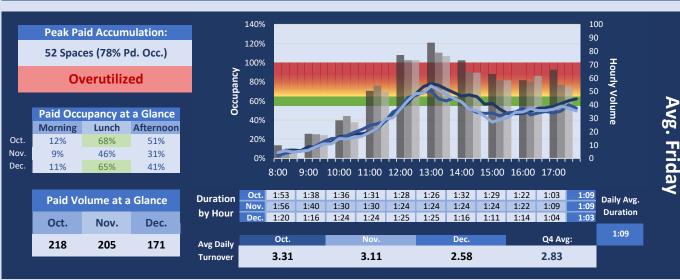
On-Street: East Side (E Franklin and Henderson Meters)

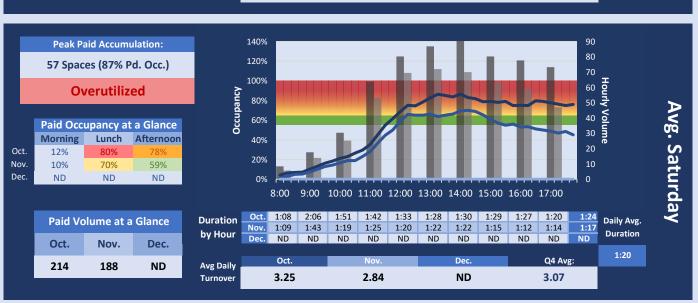


West Franklin Meters

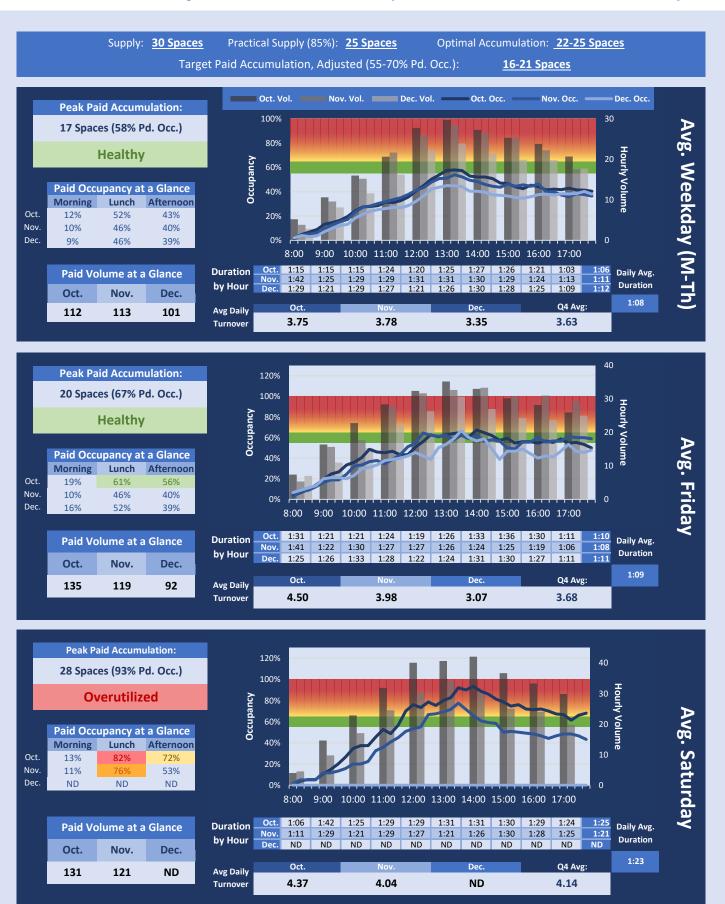








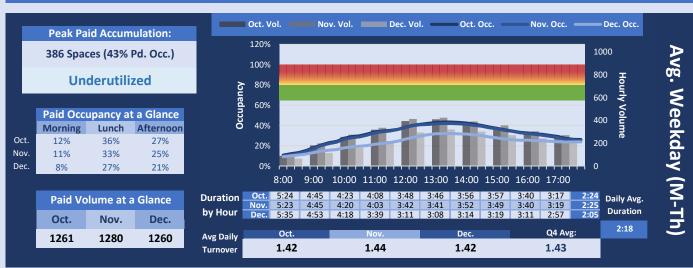
West Rosemary and Side Streets (Roberson and N. Graham)

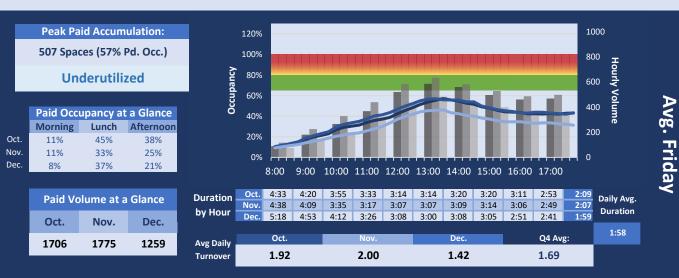


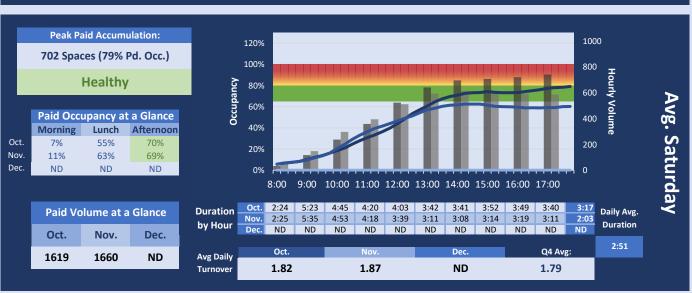
Off-Street Paid Parking Supply

Supply: <u>888 Spaces</u> Practical Supply (85%): <u>754 Spaces</u> Optimal Accumulation: <u>666-754 Spaces</u>

Target Paid Accumulation, Adjusted (65-80% Pd. Occ.): <u>577-710 Spaces</u>







Wallace Deck

