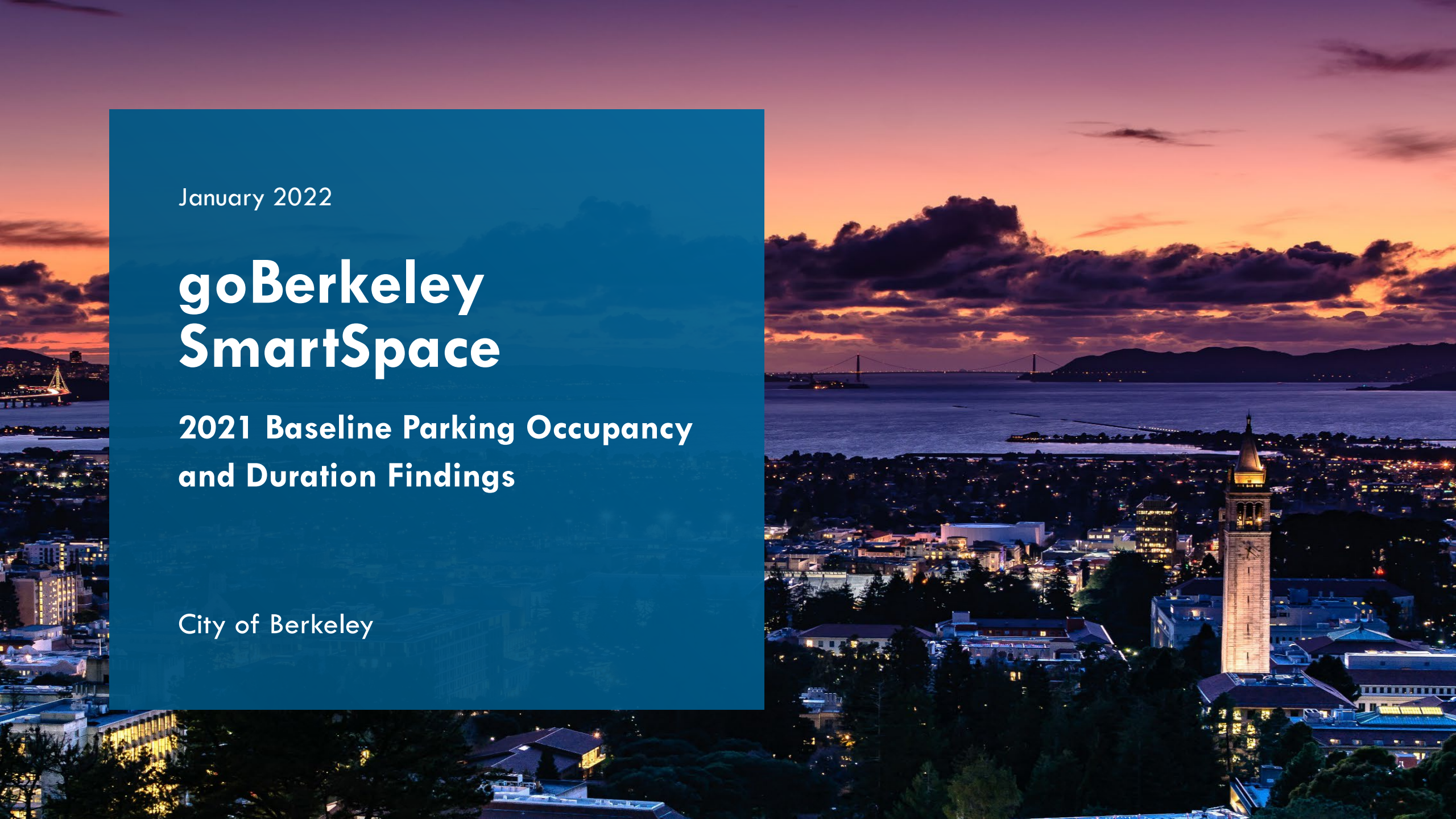


January 2022

goBerkeley SmartSpace

**2021 Baseline Parking Occupancy
and Duration Findings**

City of Berkeley



Types of Data Collected

In the Elmwood and Southside/Telegraph areas, baseline data was collected on the following:

- Parking **inventory**
- Parking **utilization**
- Parking **duration**
- Time spent driving a designated route and searching for a parking space (for greenhouse gas estimation purposes)

This summary focuses on 2021 parking utilization findings within a specified sample (see map of sample locations on page 7), and compares them to equivalent parking utilization data collected in 2019. There are also findings on inventory and parking duration. Future analyses will be compared to this baseline data, and will also include driving time analyses.



Timeline

- **2019 (Autumn):** A fully comprehensive baseline inventory and data collection occurred in the Southside/Telegraph and Elmwood districts.
- **2020 (Winter/Spring):** The project was placed on hold following statewide emergency declarations and quarantines.
- **2021:** The project was re-established as Berkeley's economy and public health gradually recover.
- Although the **changes in how people choose to travel and conduct business since the pandemic** are challenging to fully understand at many scales, they are consequential enough to merit a **new baseline of parking data in Berkeley's most popular districts** prior to implementing the pilot.



2021 Data



0

Total parking inventory

Within both study area boundaries:

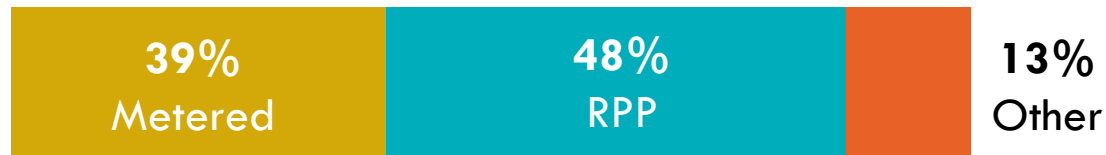
2,256 total parking spaces

- 31% are metered, 57% are RPP, and 11% are other (e.g., ADA, Commercial Loading Zone, Passenger Loading Zone, Bus Zone, et al)



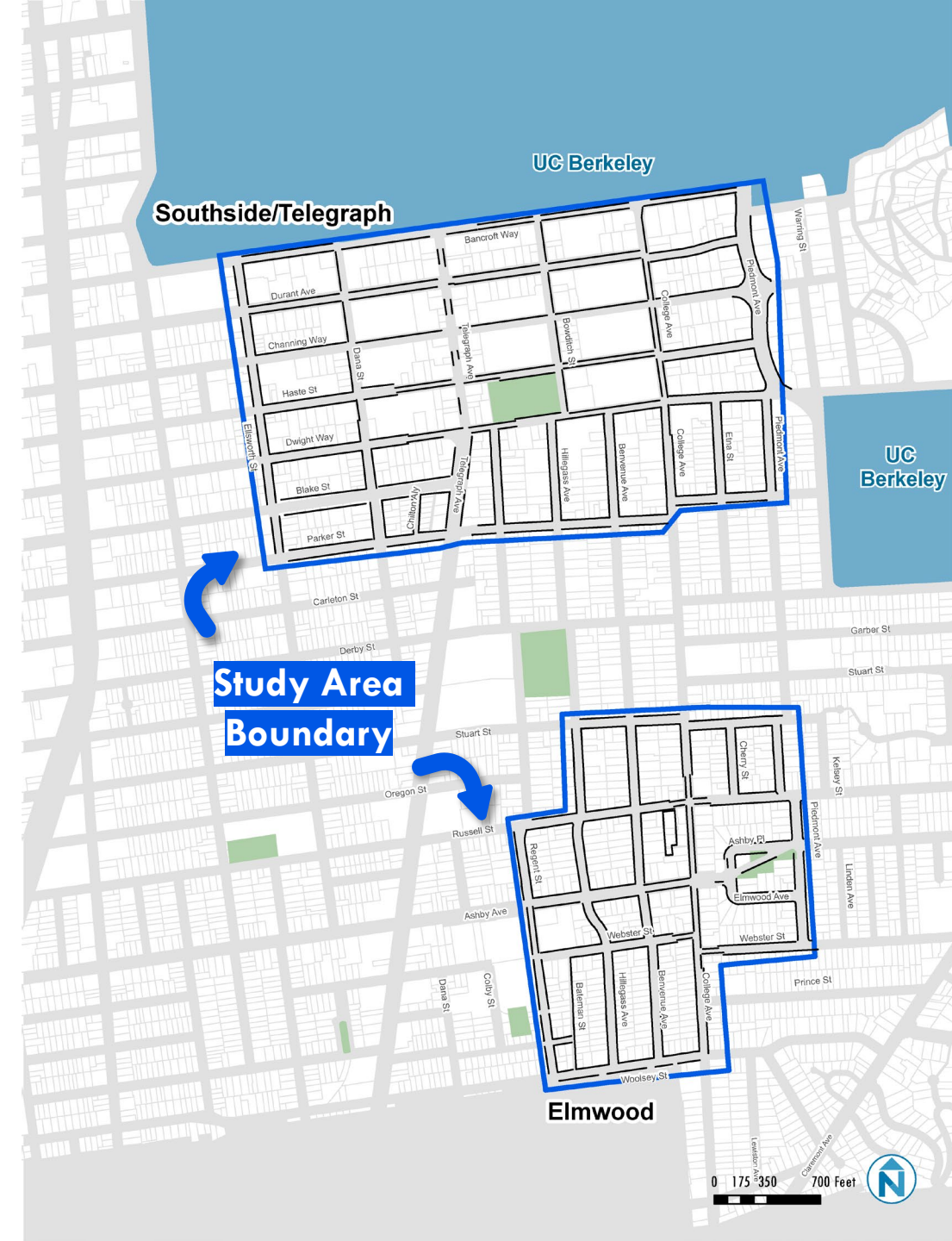
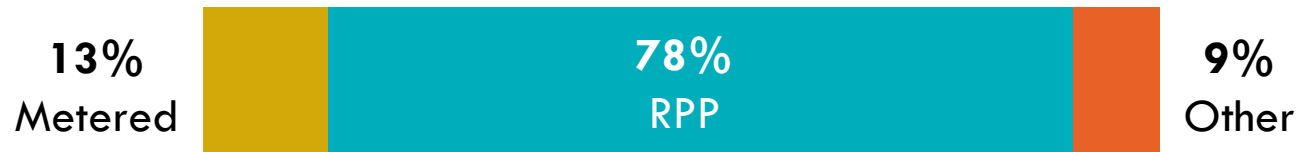
Southside/Telegraph: 1,558 total parking spaces

- 39% are metered, 48% are RPP, 13% are other



Elmwood: 698 total parking spaces

- 13% are metered, 78% are RPP, 9% are other



Adding a new baseline measure to the existing project required a partial sample for utilization and duration counts.

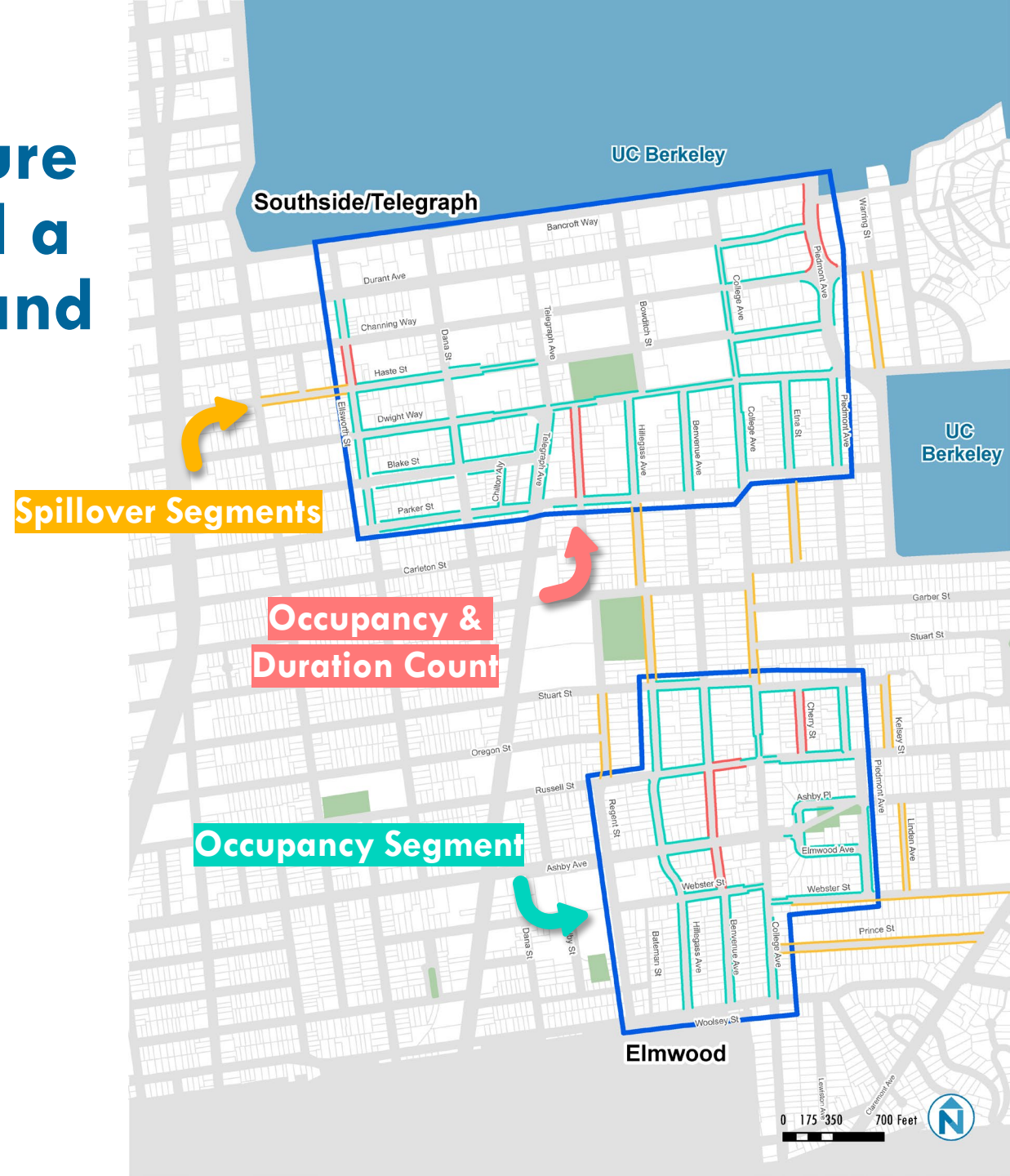
From 7:00 AM to 9:00 PM:

- Occupancy was counted every other hour in 1,727 spaces.
(807 spaces in Southside/Telegraph, 493 spaces in Elmwood, and 427 spaces on spillover segments)
- Duration was counted hourly in 15 street segments.

Parking count dates occurred on:

- Thursday, October 7, 2021 and
- Saturday, October 16, 2021.

Note: Unlike 2019, overnight counts were not done in 2021



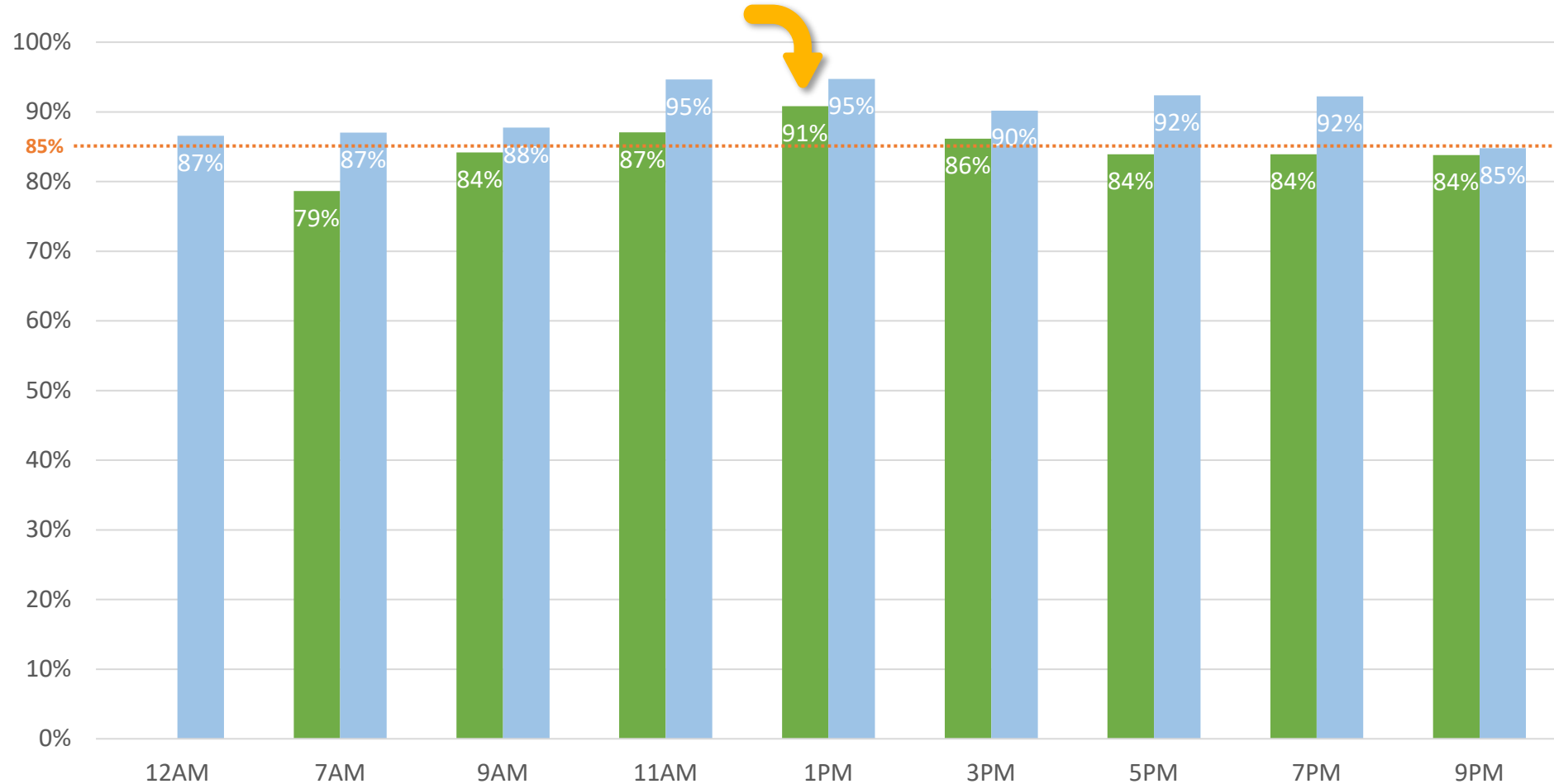
Weekday Findings



1

**Across both study areas, weekday use peaks at 1:00 PM.
In 2019, the same streets were more utilized.**

Weekday Overall Pilot Area Utilization Summary



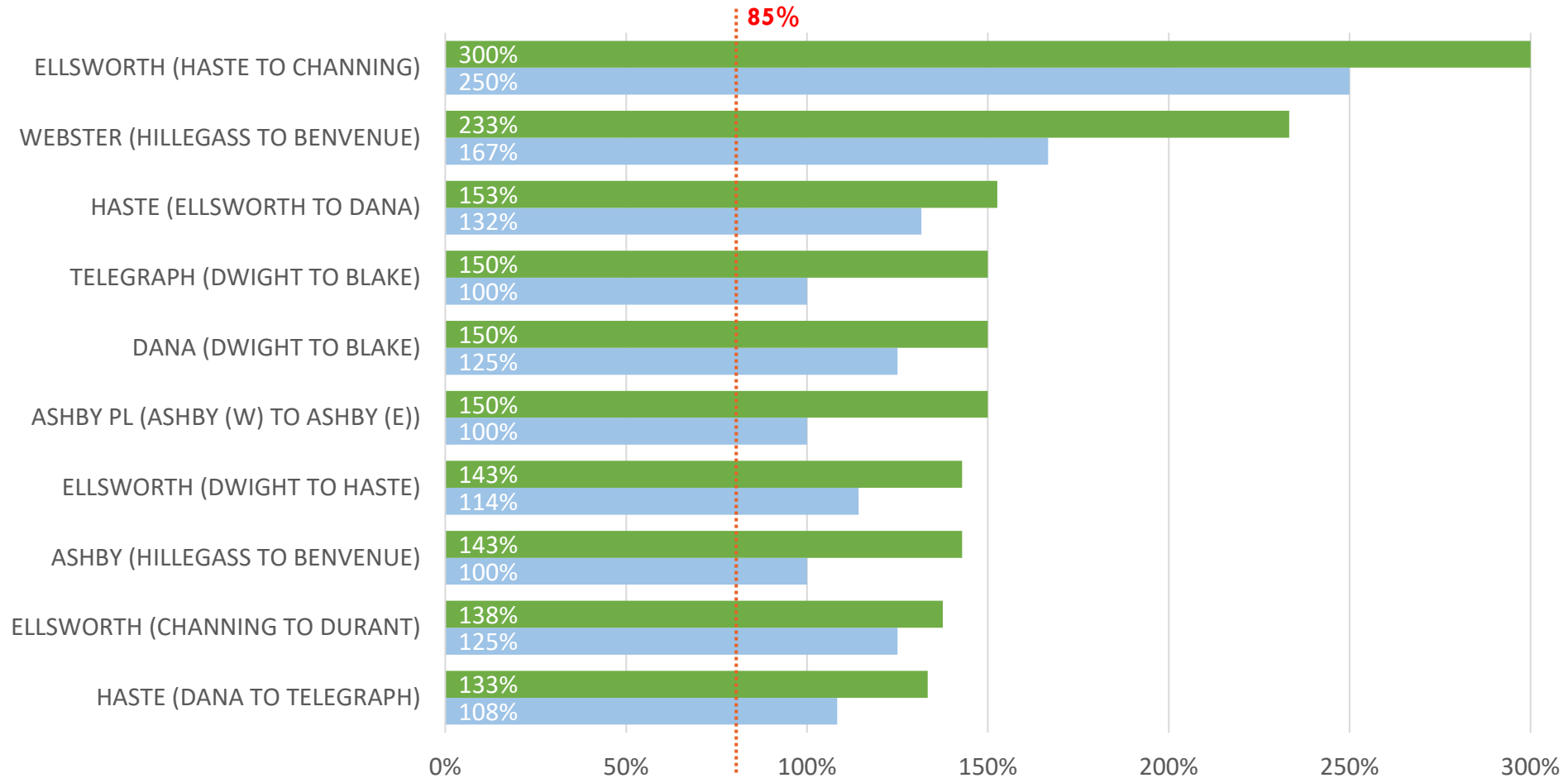
This chart shows parking utilization in the sample locations in both the Elmwood & Southside/Telegraph areas (see map on page 7).

■ 2021 ■ 2019

*2021 count did not include 12:00 AM count

At 1:00 PM, the busiest blocks are even busier than they were two years ago.

Top 10 Street Segments with Highest Utilization at 1 PM

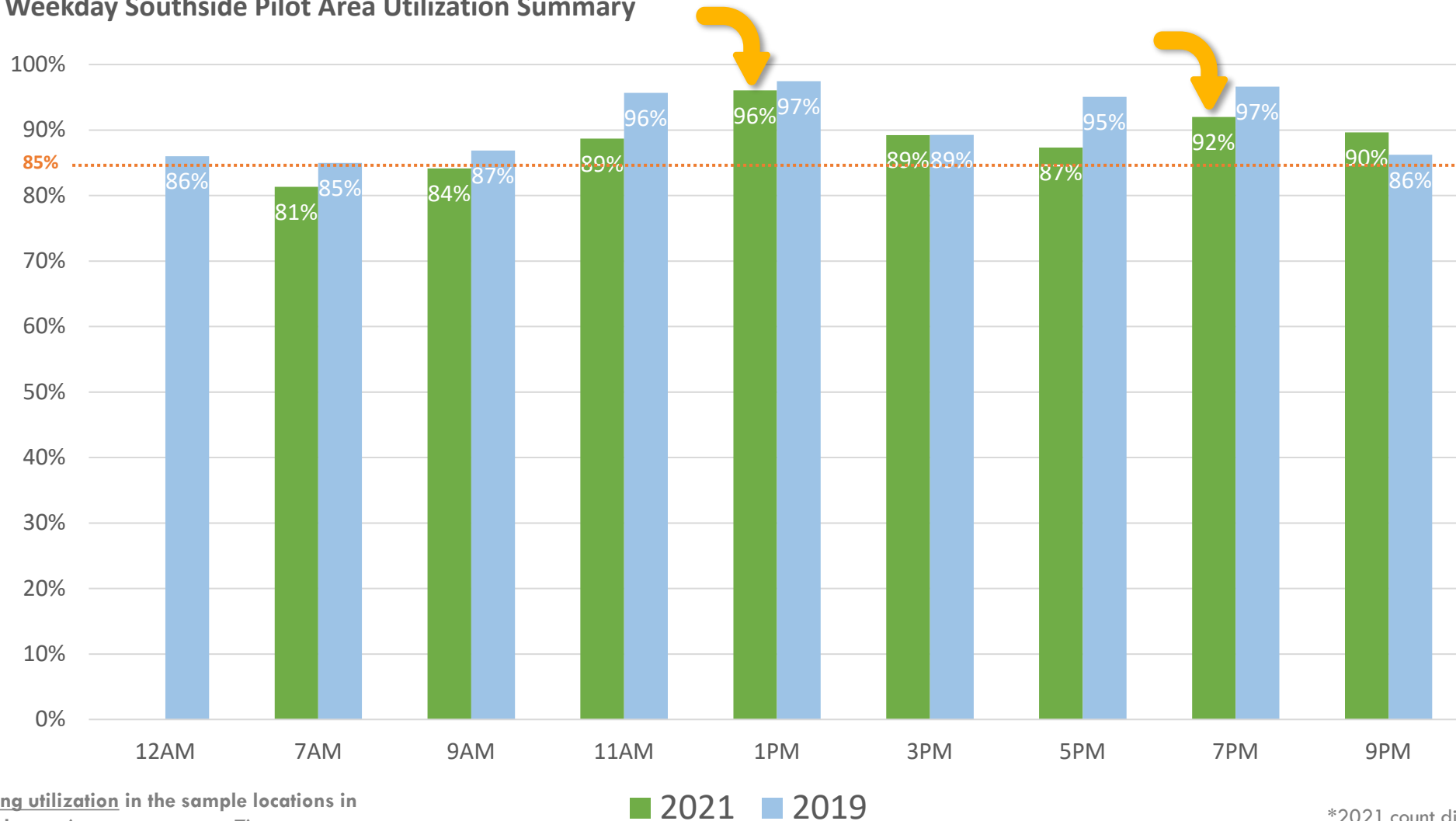


This chart shows street segments with the highest parking utilization in both the Elmwood & Southside/Telegraph areas between 2019 and 2021.

■ 2021 ■ 2019

Like in 2019, Southside/Telegraph parking has two peaks, one at 1:00 PM and another at 7:00 PM.

Weekday Southside Pilot Area Utilization Summary

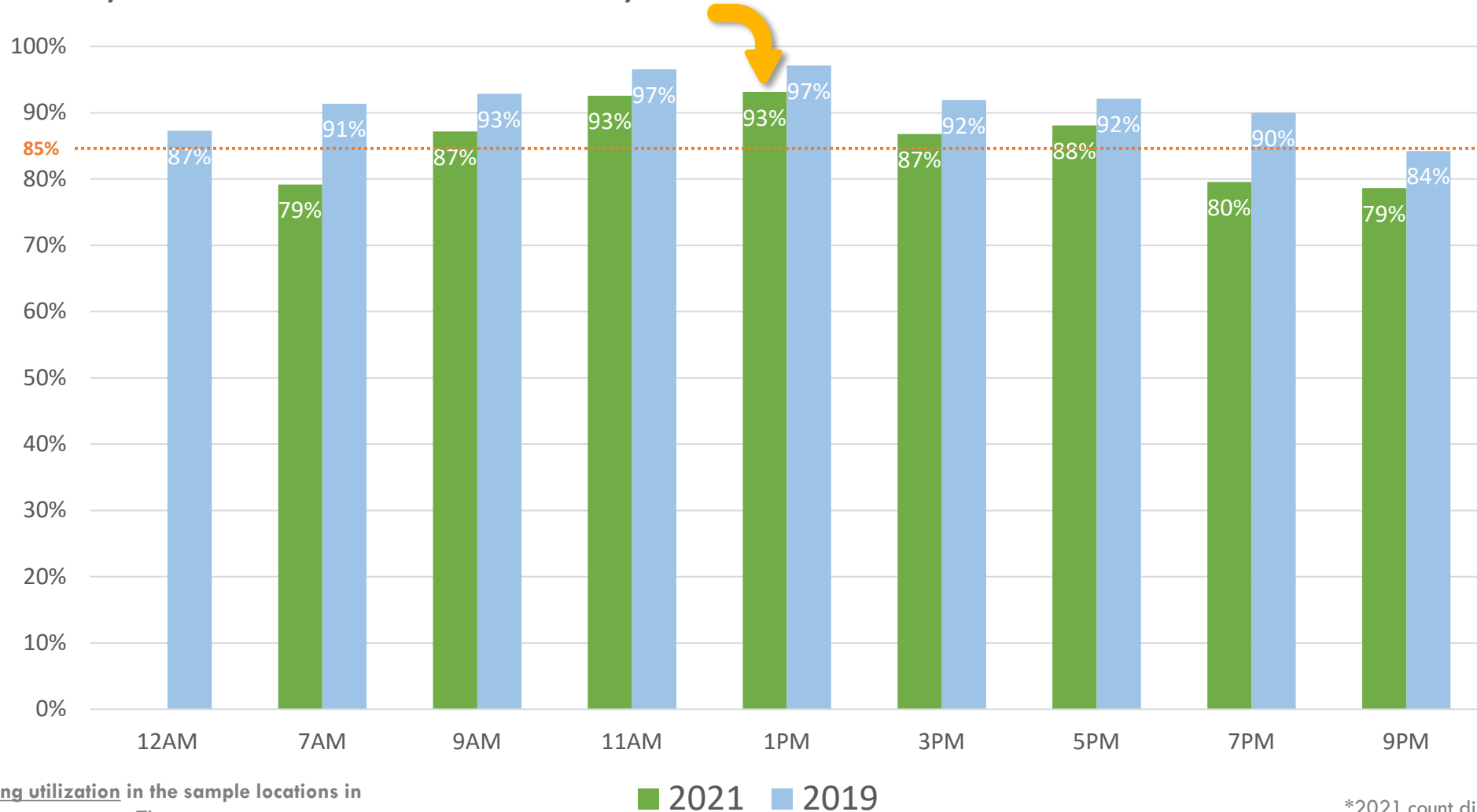


This chart shows parking utilization in the sample locations in the Southside/Telegraph area (see map on page 7).

*2021 count did not include 12:00 AM count

Elmwood parking demand follows the same trend as 2019, but with slightly reduced utilization.

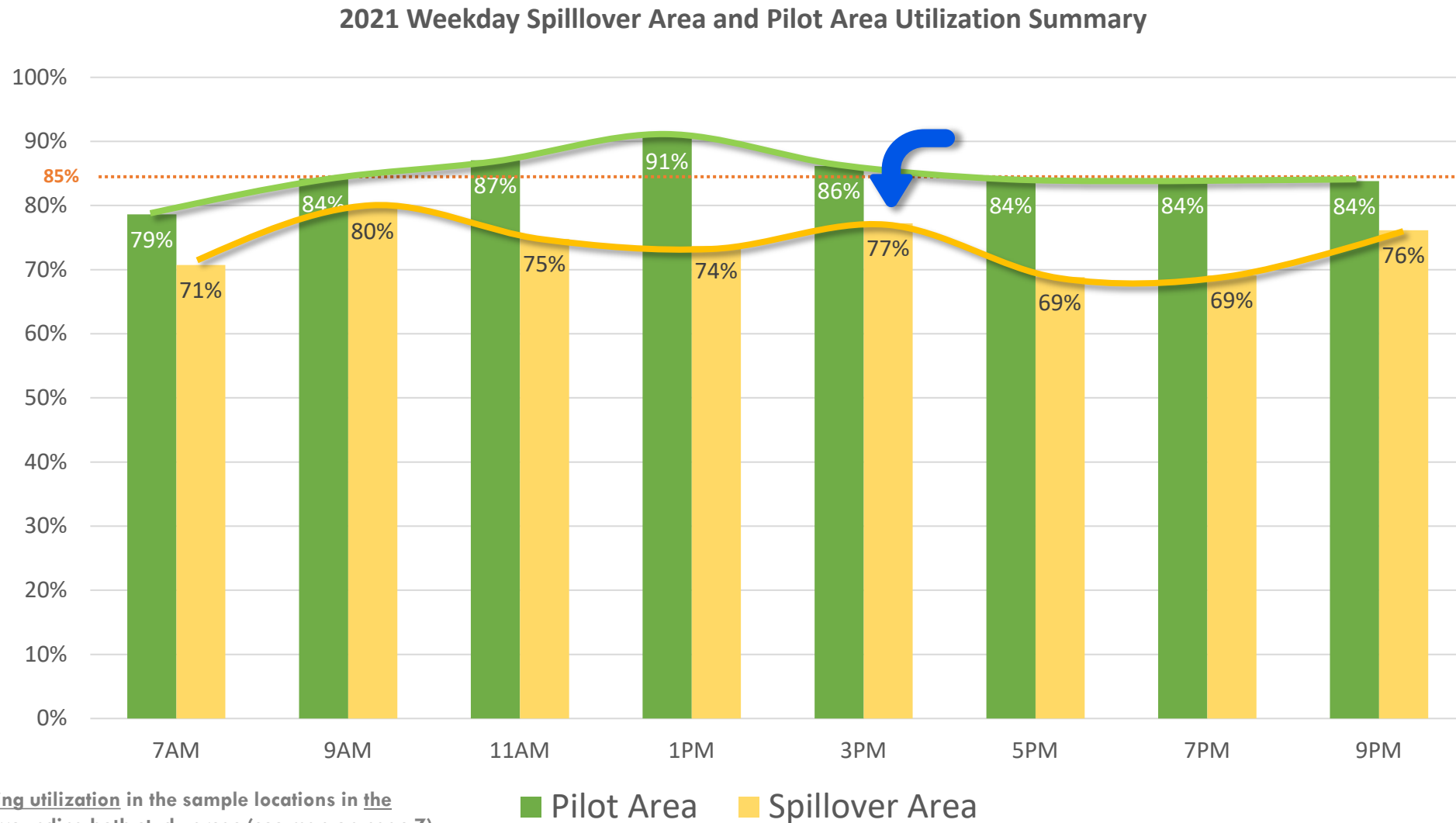
Weekday Elmwood Pilot Area Utilization Summary



This chart shows parking utilization in the sample locations in the Elmwood area (see map on page 7).

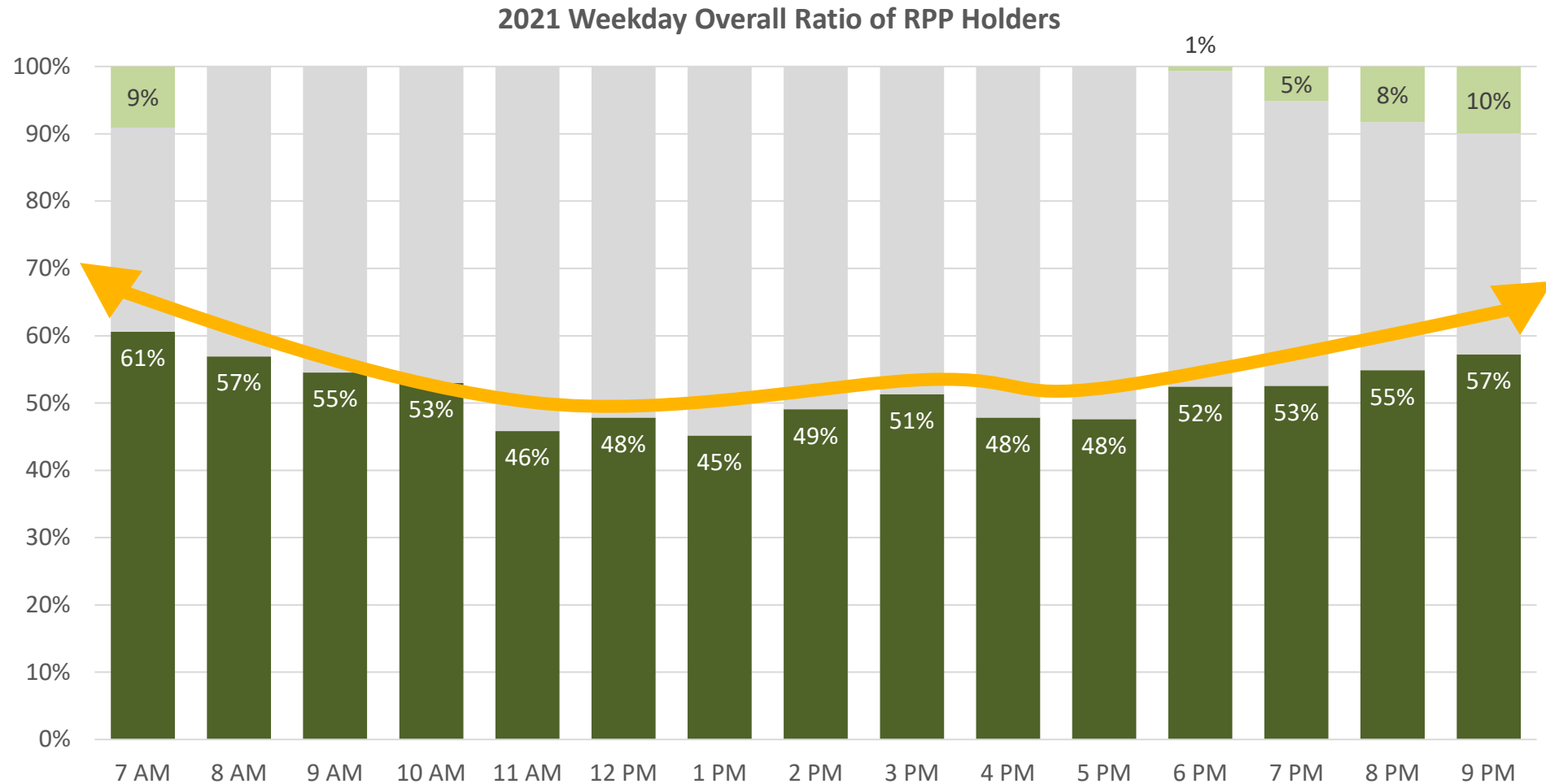
*2021 count did not include 12:00 AM count

Spillover areas are underutilized compared to the Pilot areas.



This chart shows parking utilization in the sample locations in the Spillover Segments surrounding both study areas (see map on page 7).

RPP holders park in fewer spaces during the day, and more are parking overnight.



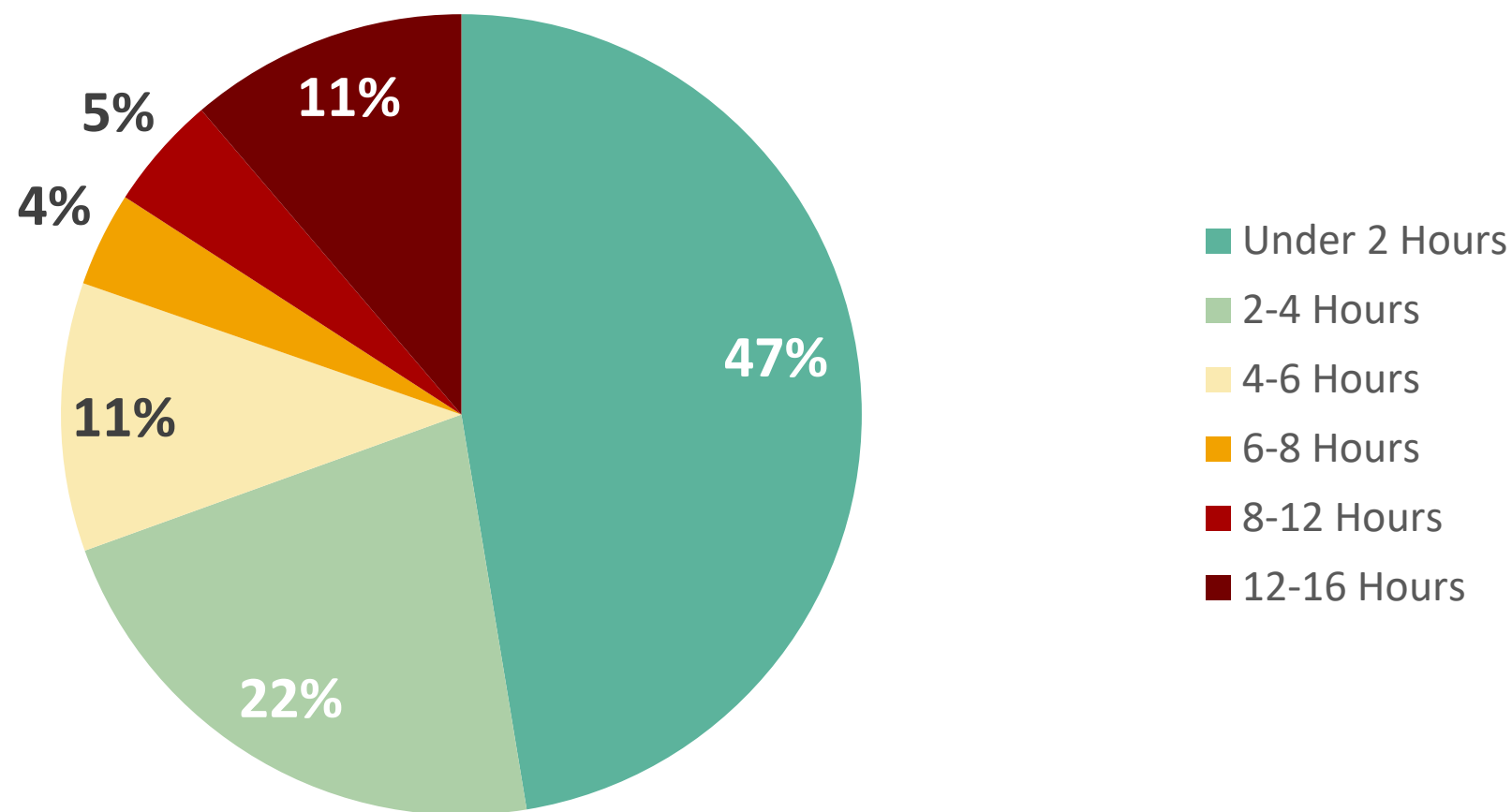
This chart shows RPP holder parking utilization in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).

■ RPP Holder ■ Non-RPP Holder ■ Vacant

*15 segments, all of which are majority 2-hour/RPP spaces

Over half the parked vehicles exceed two hours (the time limit of most measured RPP spaces).

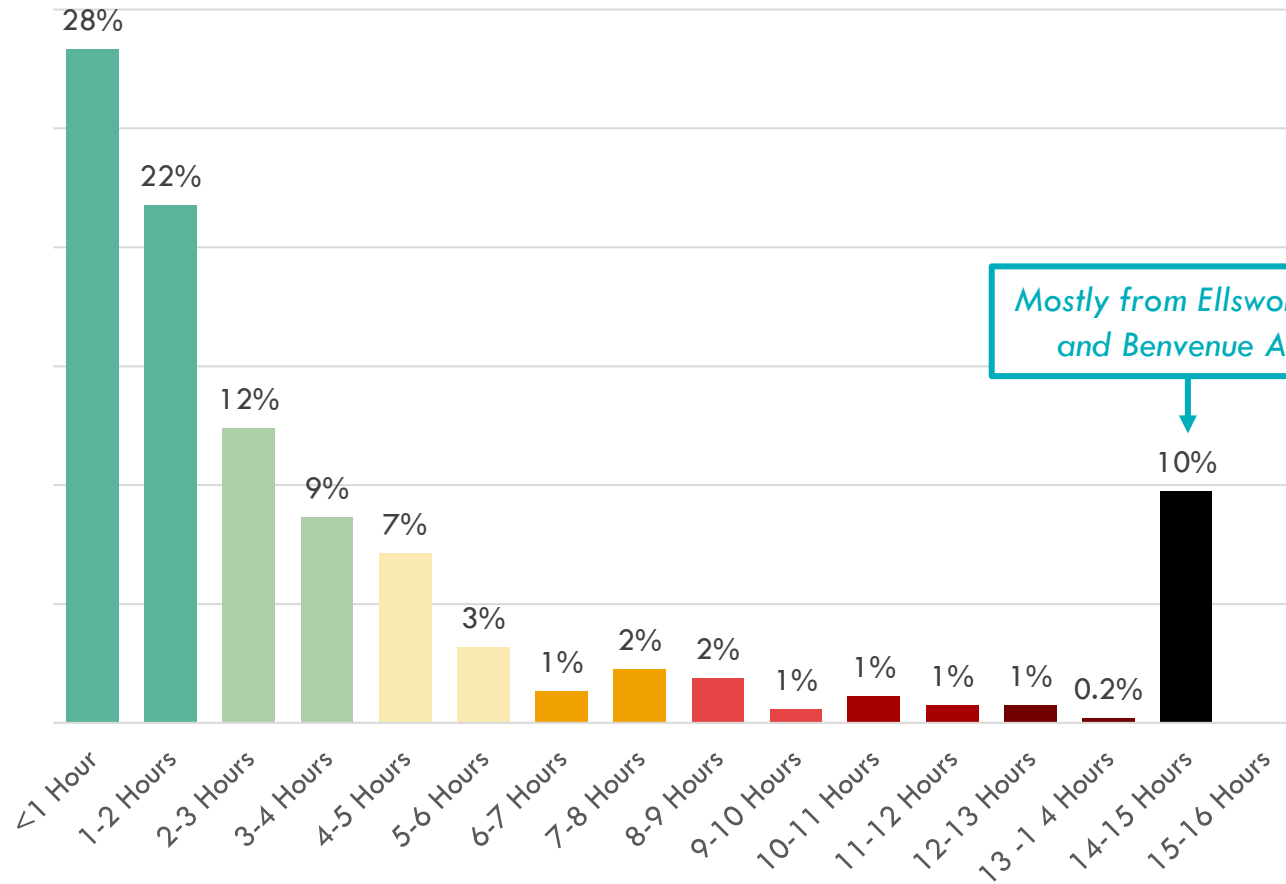
2021 Weekday Ratio of Vehicles Parked at a Time Limited 2-hr (RPP) Space



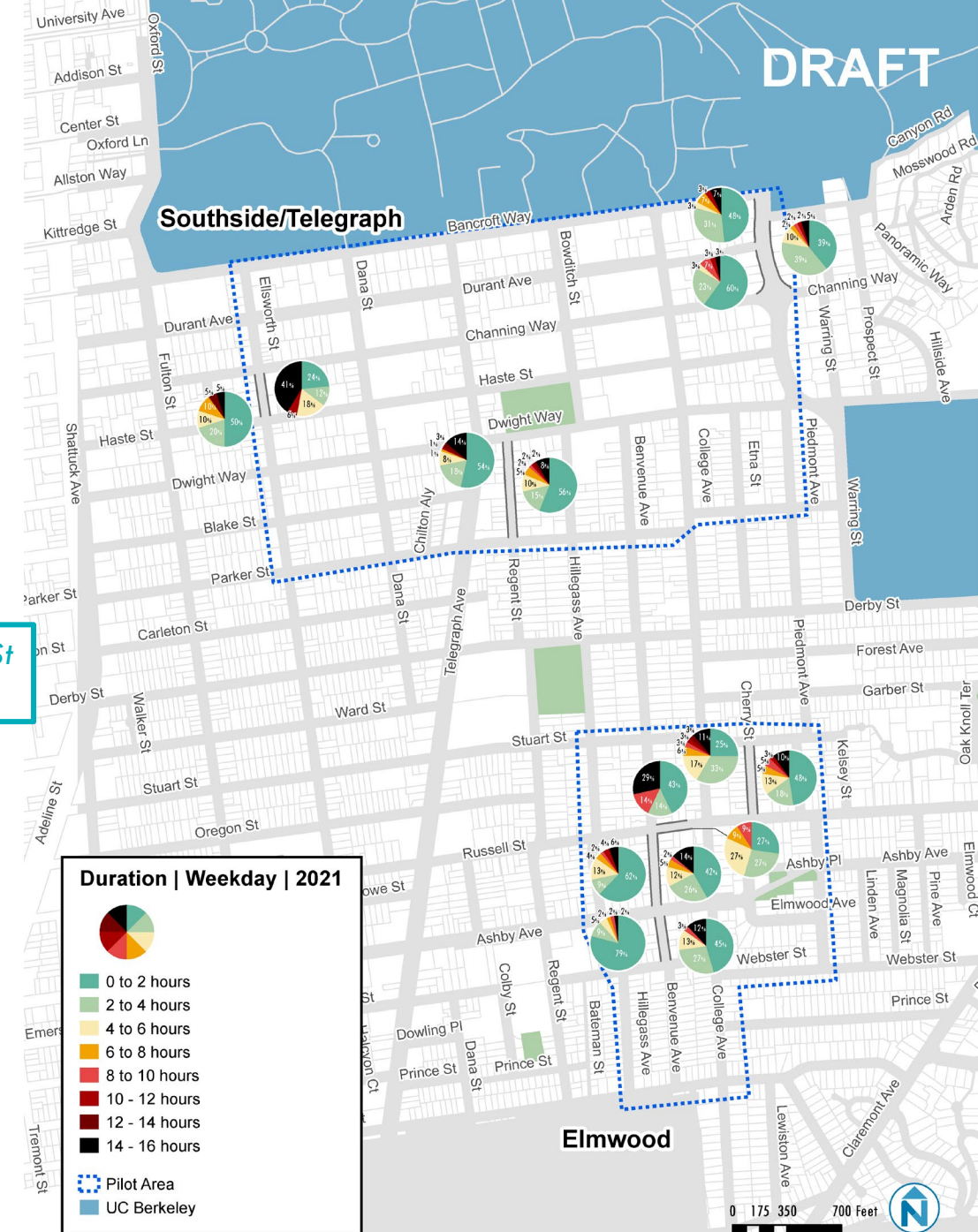
This chart shows parking duration in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).

Almost half of all measured vehicles park less than 2 hours. But 10% of vehicles park for 14-15 hours.

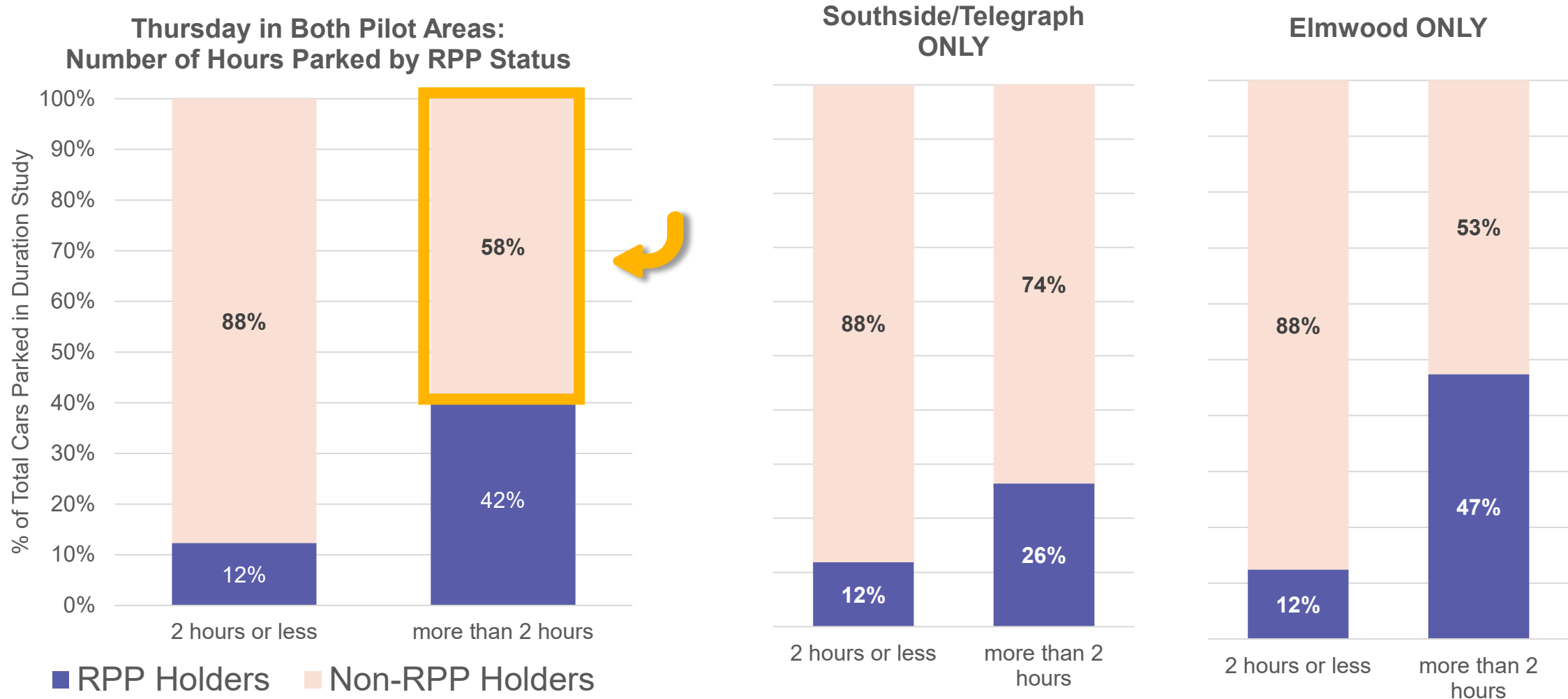
2021 Weekday Parking Duration



This chart shows parking durations among vehicles parking in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).



Of vehicles that park more than 2 hours, 58% of them do not hold a parking permit*



At least 11% of counted vehicles shuffled between multiple streets in one day (Thursday)

- On Thursday, 480 unique vehicles parked on the 15 blockface segments which were measured for duration in both the Elmwood and Southside/Telegraph study areas.
- 55 vehicles parked on more than one segment on Thursday. In other words, they shuffled. Vehicles shuffled at most to 3 spots in one day.
 - 21 vehicles had an annual RPP. On average, they parked 5.2 hours each time, and parked a total of 11.3 hours.
 - 34 vehicles didn't have an annual RPP. On average, they parked 3.3 hours each time, and parked a total of 7 hours.
- About 11% of vehicles shuffled parking spots, but more could have technically shuffled to locations which were not measured.

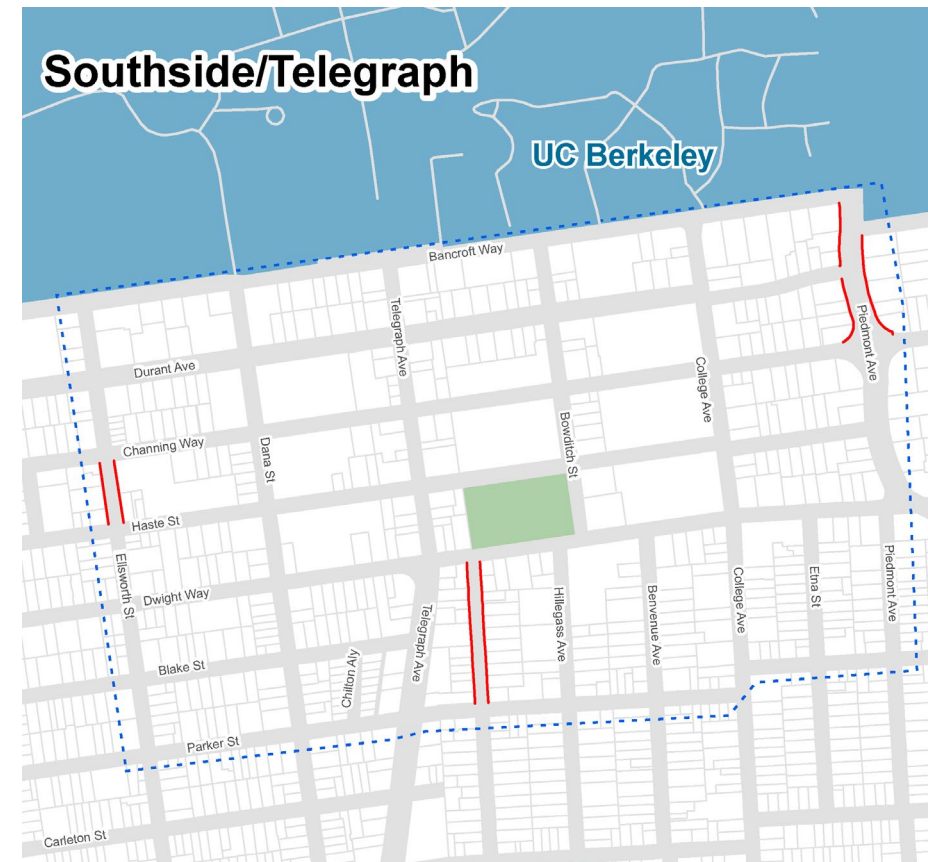
Elmwood – at least 12% of vehicles shuffled

- In just the Elmwood area on Thursday, 354 unique vehicles parked on the 8 blockface segments which were measured for duration.
- 43 vehicles parked on more than one segment on Thursday. In other words, they shuffled. Vehicles shuffled at most to 3 spots in one day.
 - 23 vehicles had annual RPP. On average, they parked 3.4 hours each time, and parked a total of 7.3 hours.
 - 20 vehicles didn't have annual RPP. On average, they parked 5.25 hours each time, and parked a total of 11.3 hours.
- About 12% of vehicles shuffled parking spots, but more could have technically shuffled to locations which were not measured.



Southside/Telegraph – at least 9.5% of vehicles shuffled

- In just the Southside/Telegraph area on Thursday, 126 unique vehicles parked on the 7 blockface segments which were measured for duration.
- 12 vehicles parked on more than one segment on Thursday. In other words, they shuffled. Vehicles shuffled at most to 3 spots in one day.
 - 1 vehicle had annual RPP. On average, it parked 6 hours each time, and parked a total of 12 hours.
 - 11 vehicles didn't have annual RPP. On average, they parked 3.1 hours each time, and parked a total of 6.6 hours.
- About 9.5% of vehicles shuffled parking spots, but more could have technically shuffled to locations which were not measured.



Weekday Occupancy Time Profile Maps



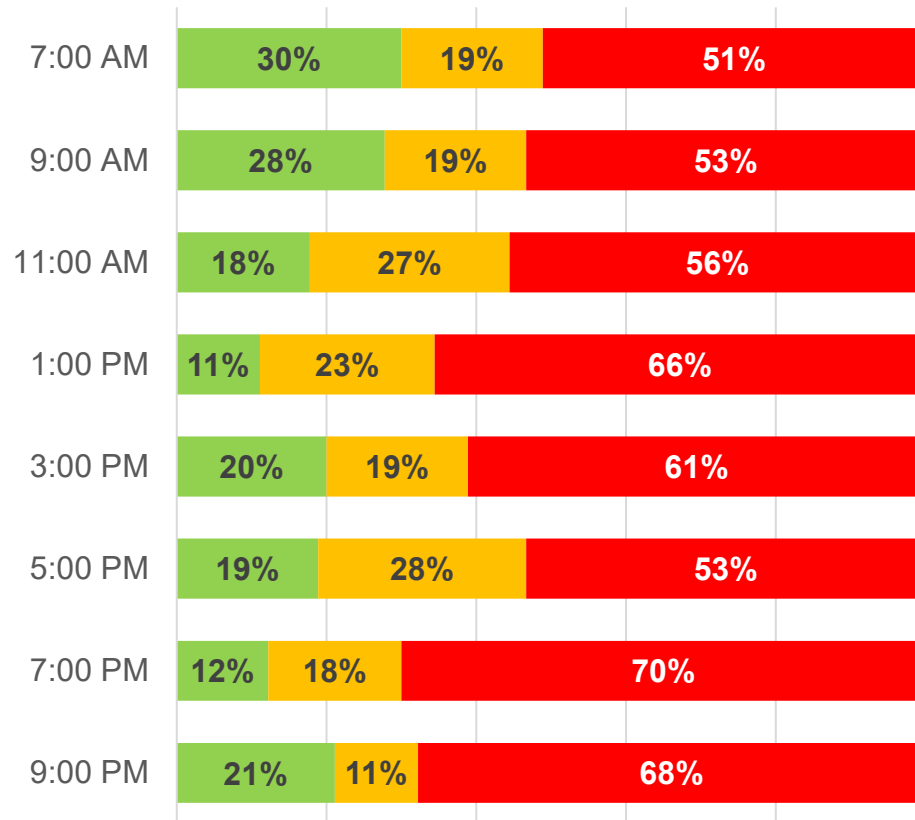
Understanding Occupancy Maps

- **Less than 65% (Green): Underutilized** parking locations. If consistently performing at this level, these can be viewed as excess capacity.
- **65% to 85% (Yellow):** Parking locations at **optimal utilization** for this project. Typically, one can find at least one space available without having to circle for parking.
- **More than 85% (Red):** Parking is **at/above capacity**. If consistently performing at this level, these can reinforce the perception that there is a lack of parking.

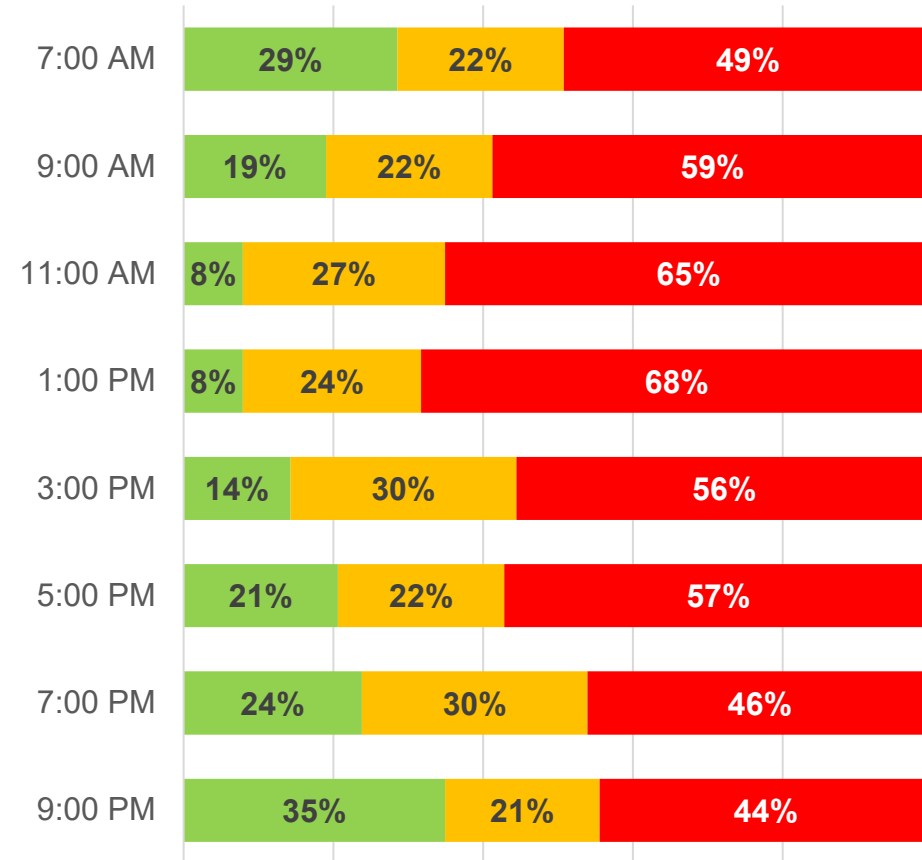


At any given moment, about 50% of streets are above target utilization ratio

Southside/Telegraph Weekday Target Ratio



Elmwood Weekday Target Ratio

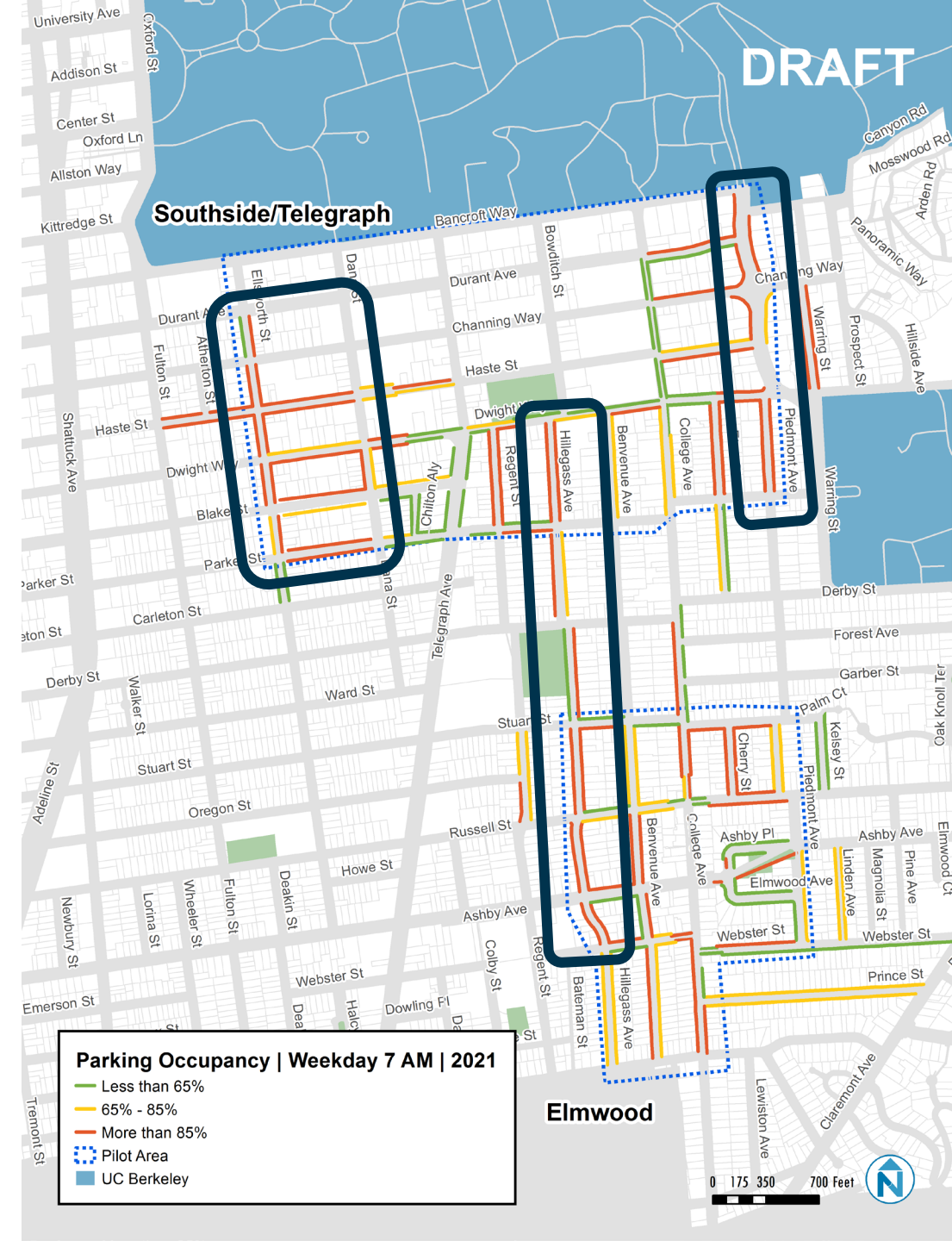


■ Under Target (less than 65%)
■ Within Target (65% - 85%)
■ Above Target (more than 85%)



Residential streets are full before RPP restrictions go into effect.

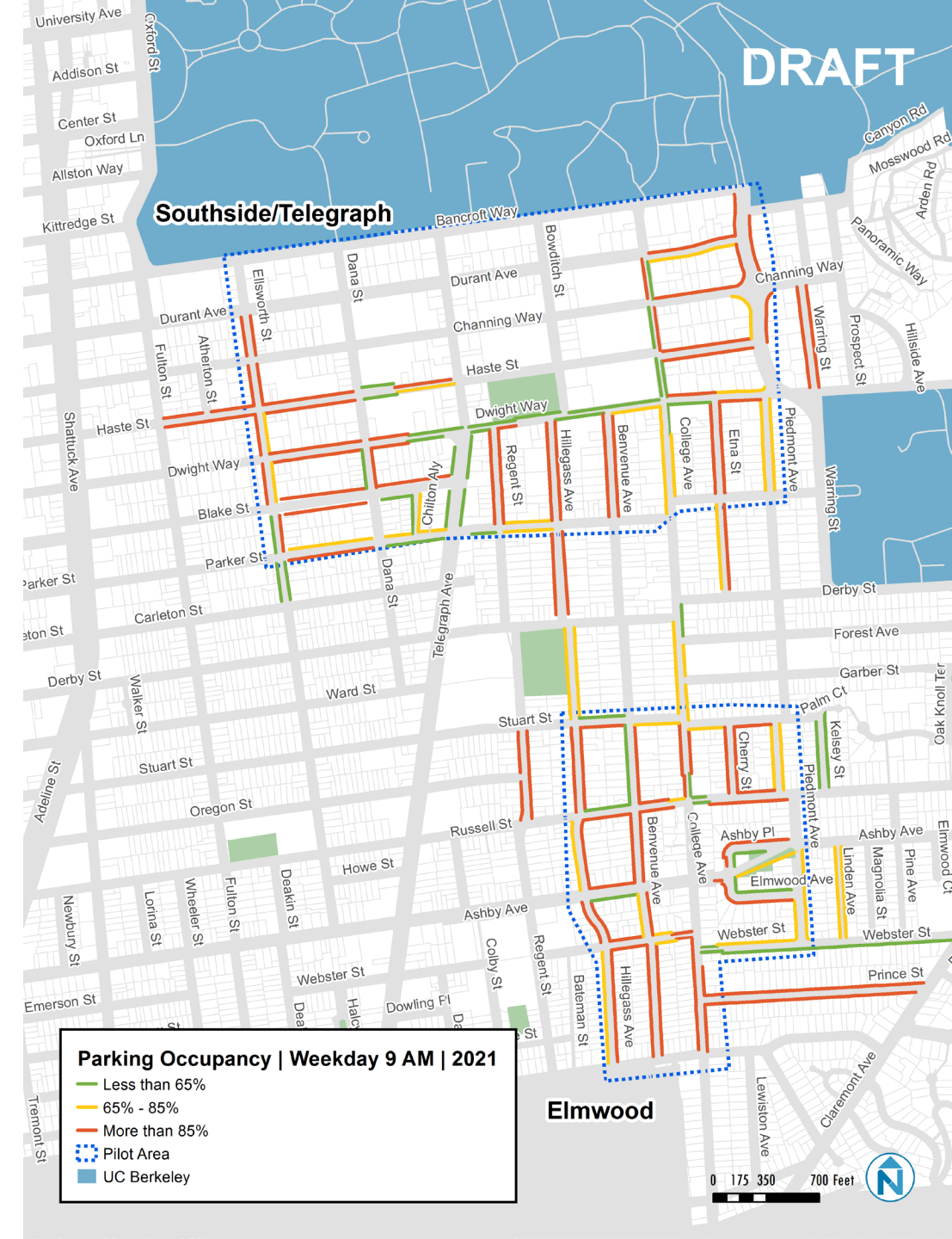
- North-South corridors generally have higher utilization than East-West corridors.
- High occupancy rate on Ellsworth St, Hillegass Ave, and Piedmont Ave.
- Parking availability on College Ave between Durant and Dwight, Dwight Way between Dana and College, Webster St.





Spaces closer to College, Telegraph, and Durant start to fill up.

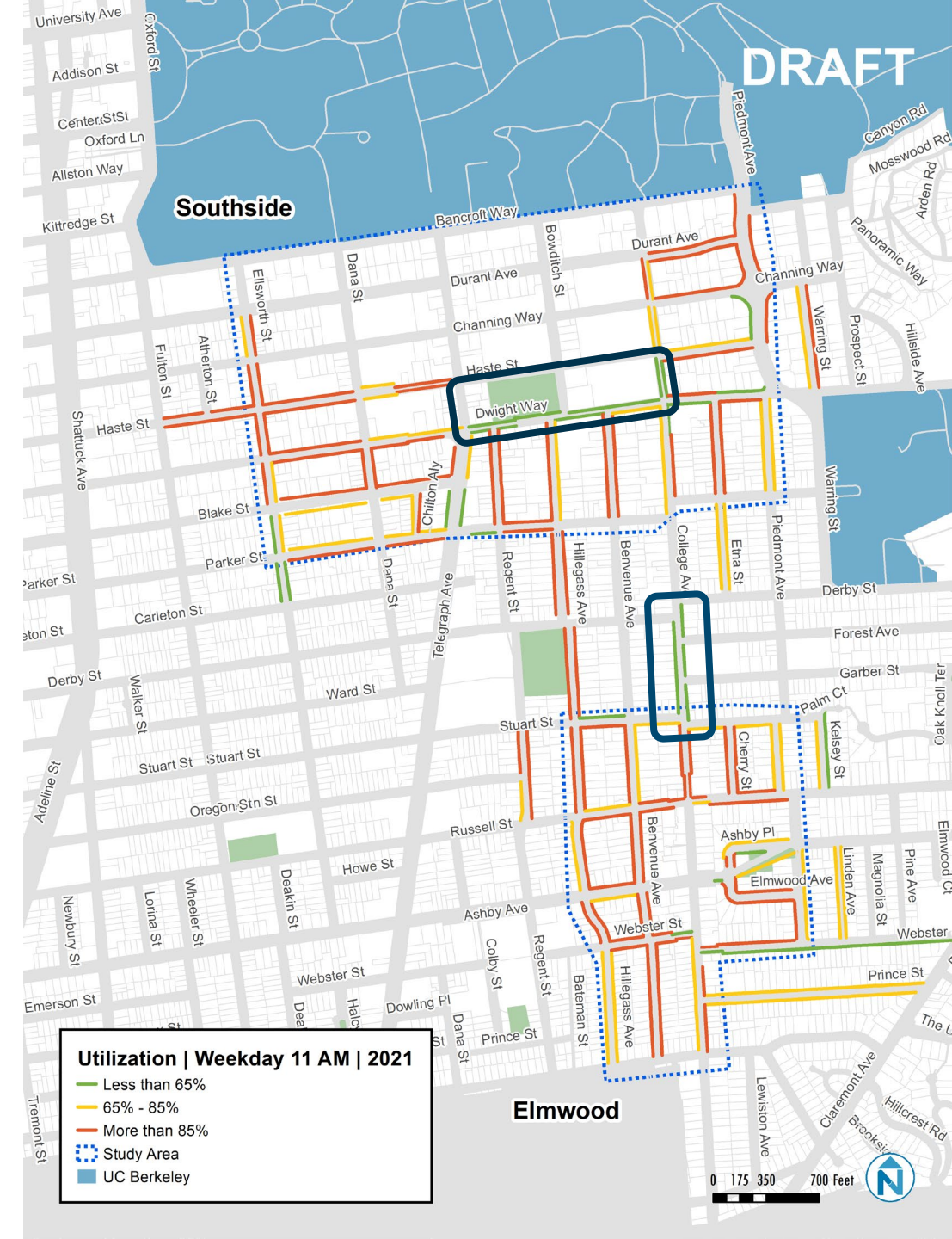
- Despite commercial areas getting busier...
 - Spaces nearest Dwight and Telegraph intersection remain available.
 - Spaces in the spillover zones outside of the pilot areas experience variation in utilization.





Weekday occupancy peaks at 11:00 AM.

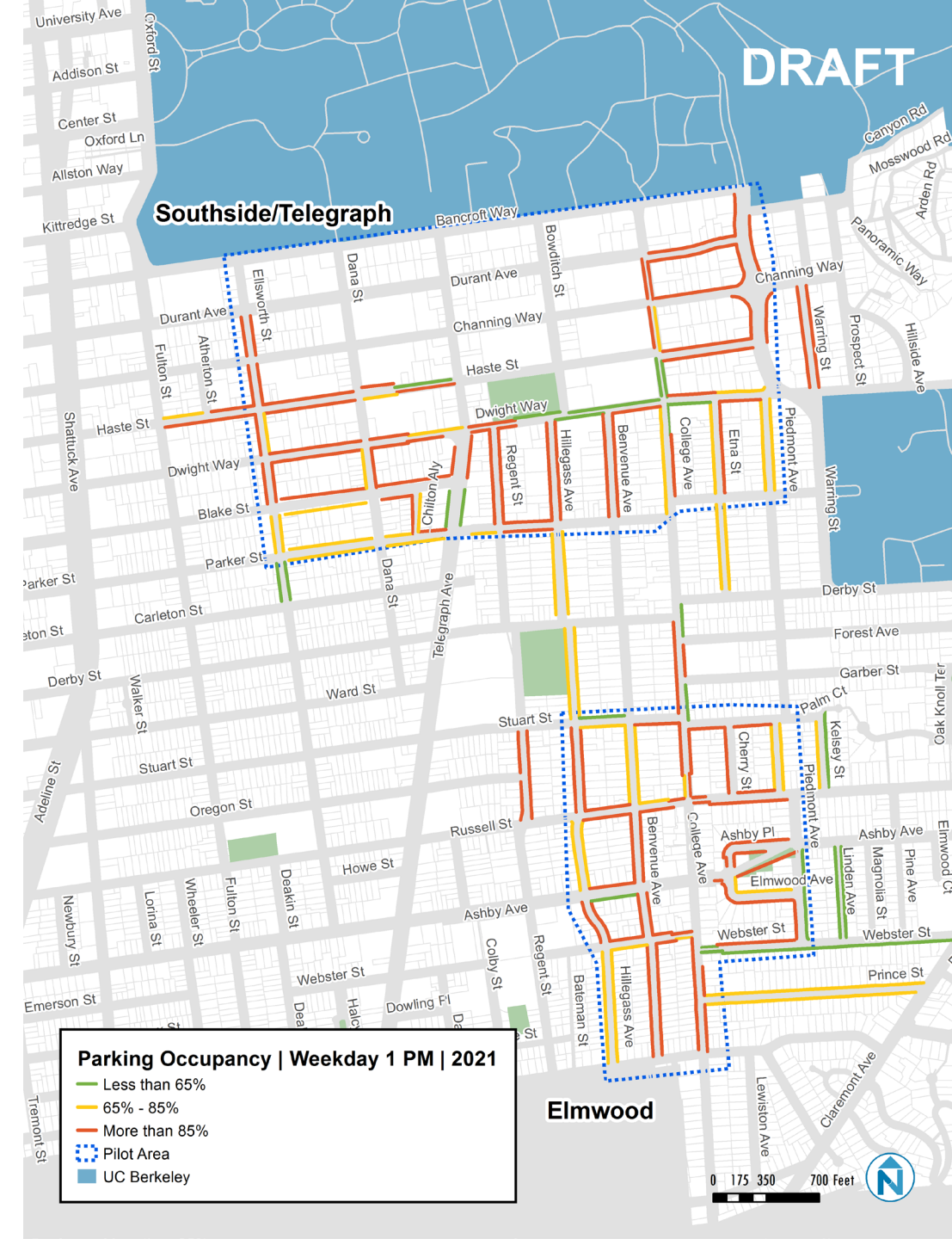
- Even though this is when parking is most occupied overall across both study areas, 11:00 AM is also when **more blockfaces were in the goBerkeley target range of 65% - 85% than any other time all day.**
- There are also streets where parking is available along consecutive blocks:
 - Dwight Way between Telegraph and College and,
 - College Ave between Derby and Stuart.





Residential parking demand continues through the lunch hour.

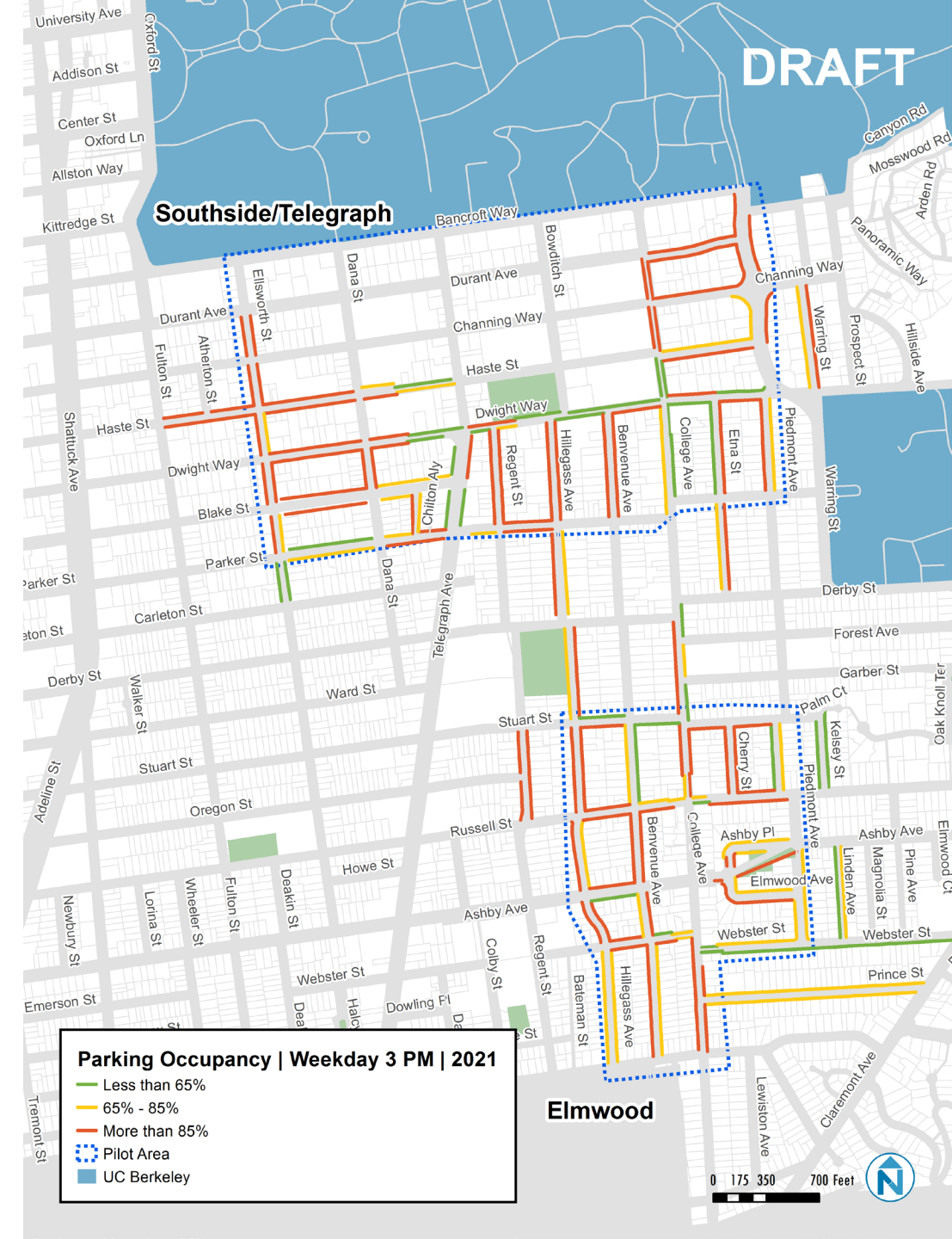
- Some high-occupancy areas, like the southwestern corner of the Southside/Telegraph pilot area and Hillegass Ave, are finally within the target 65%-85% range.





Parking activity takes a slight dip later in the afternoon.

- Available spaces exist near:
 - Telegraph Avenue district and People's Park
 - The southern edges of the Southside/Telegraph pilot area, including College Ave, Etna St, and Parker St
 - The east edge of the Elmwood pilot area
- Some locations remain very busy, especially:
 - All counted blocks north of Channing Way
 - Hillegass Ave in both pilot areas
 - Most locations within one block of the Elmwood's commercial district along College Ave

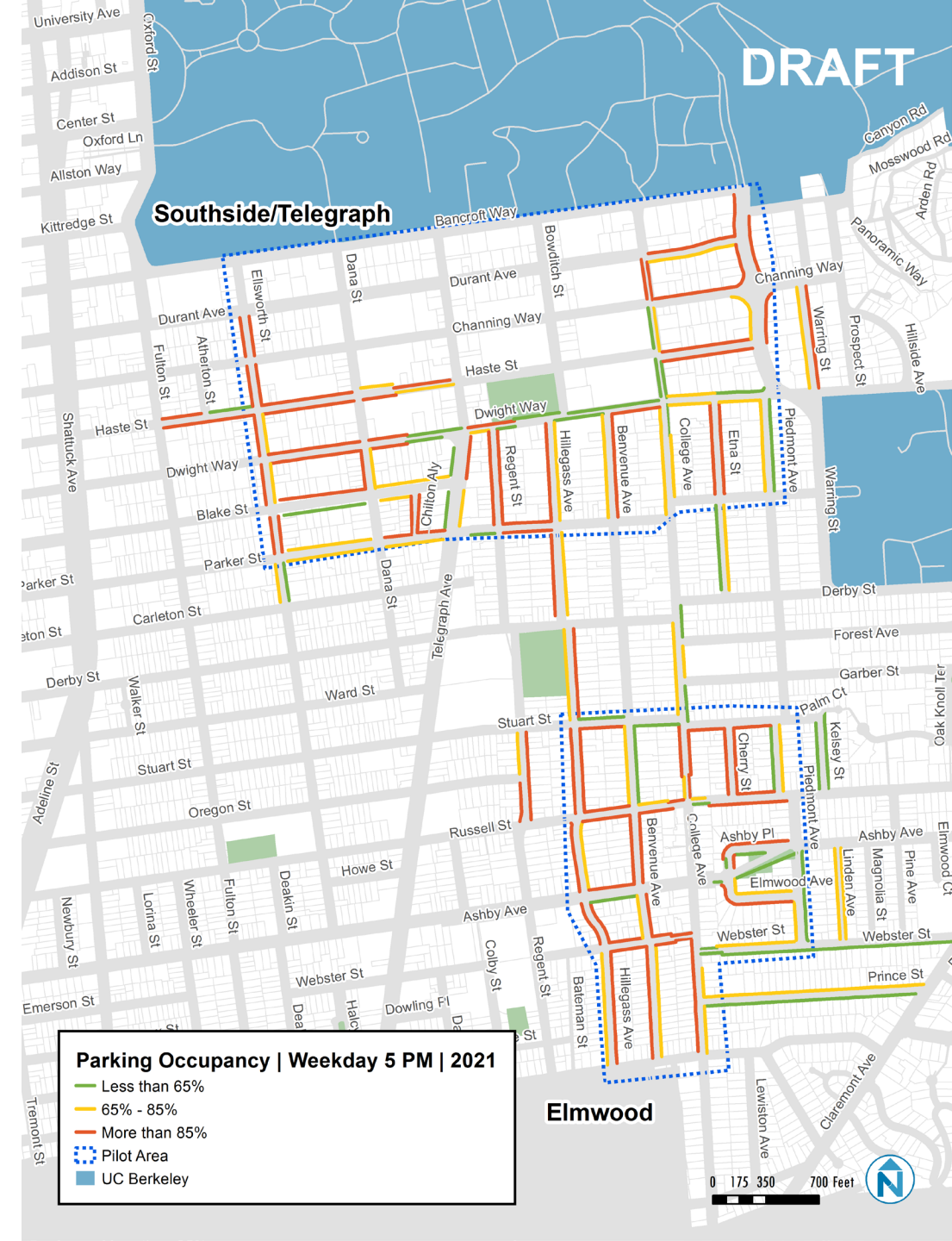


2021 WEEKDAY 5:00 PM



Arterials and residential streets start opening up in the early evening.

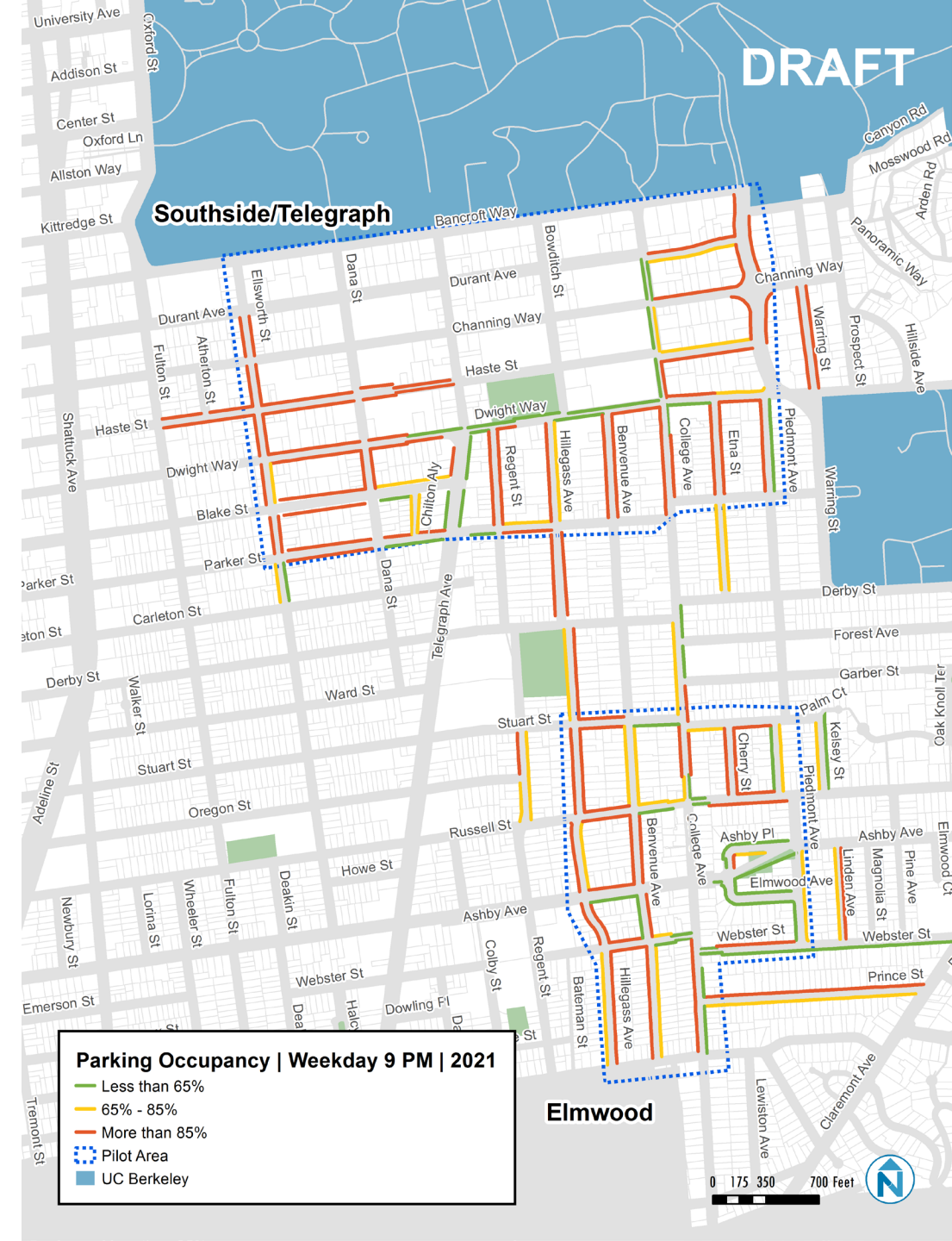
- Availability also increases in many spillover zones around both pilot areas.





Residential streets fill up for the night.

- Some blocks exceed 85% utilization all day long, including:
 - Piedmont Ave between Durant and Bancroft
 - Regent St between Dwight and Parker
 - Ellsworth St between Channing and Haste

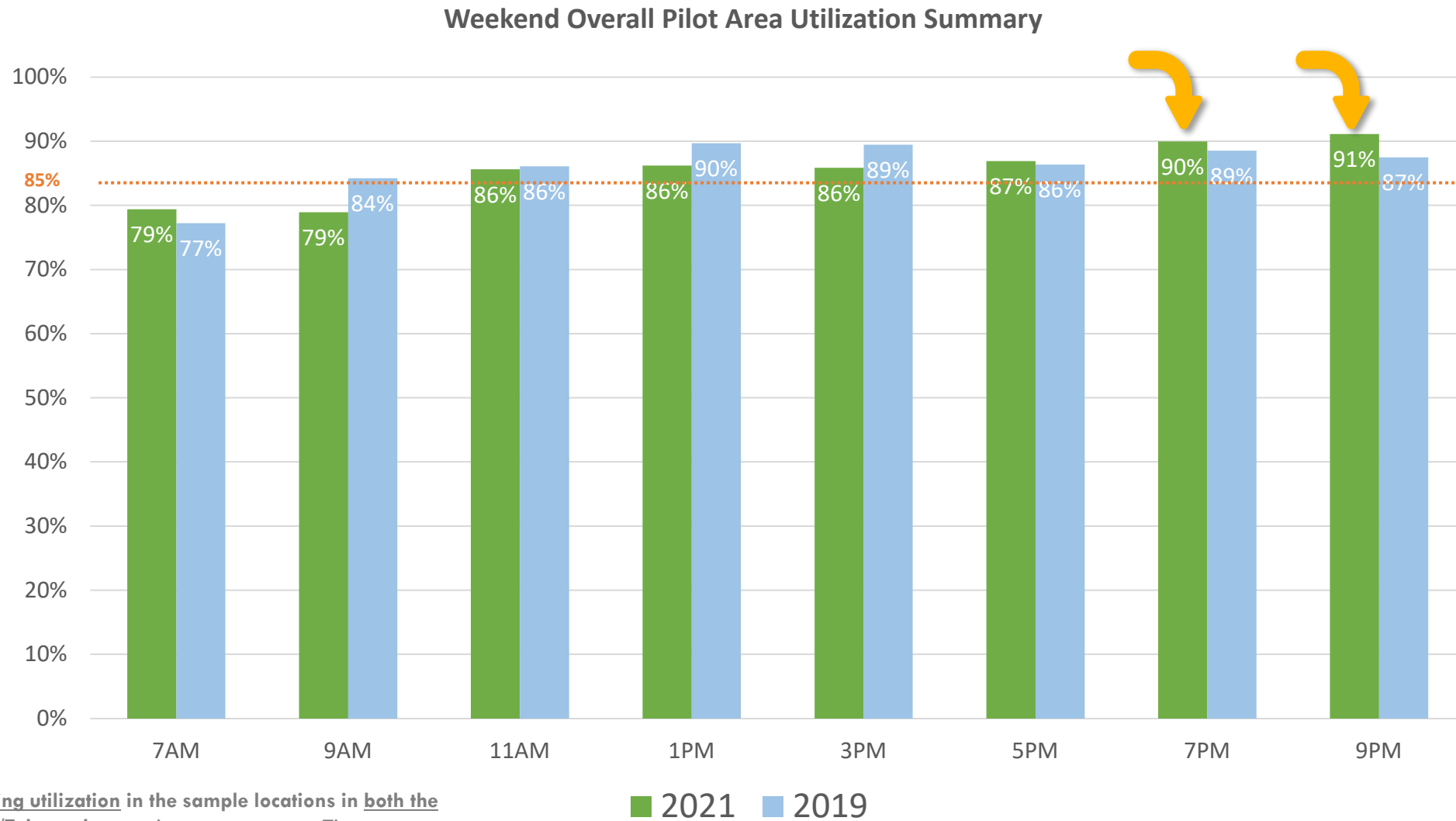


Weekend Findings



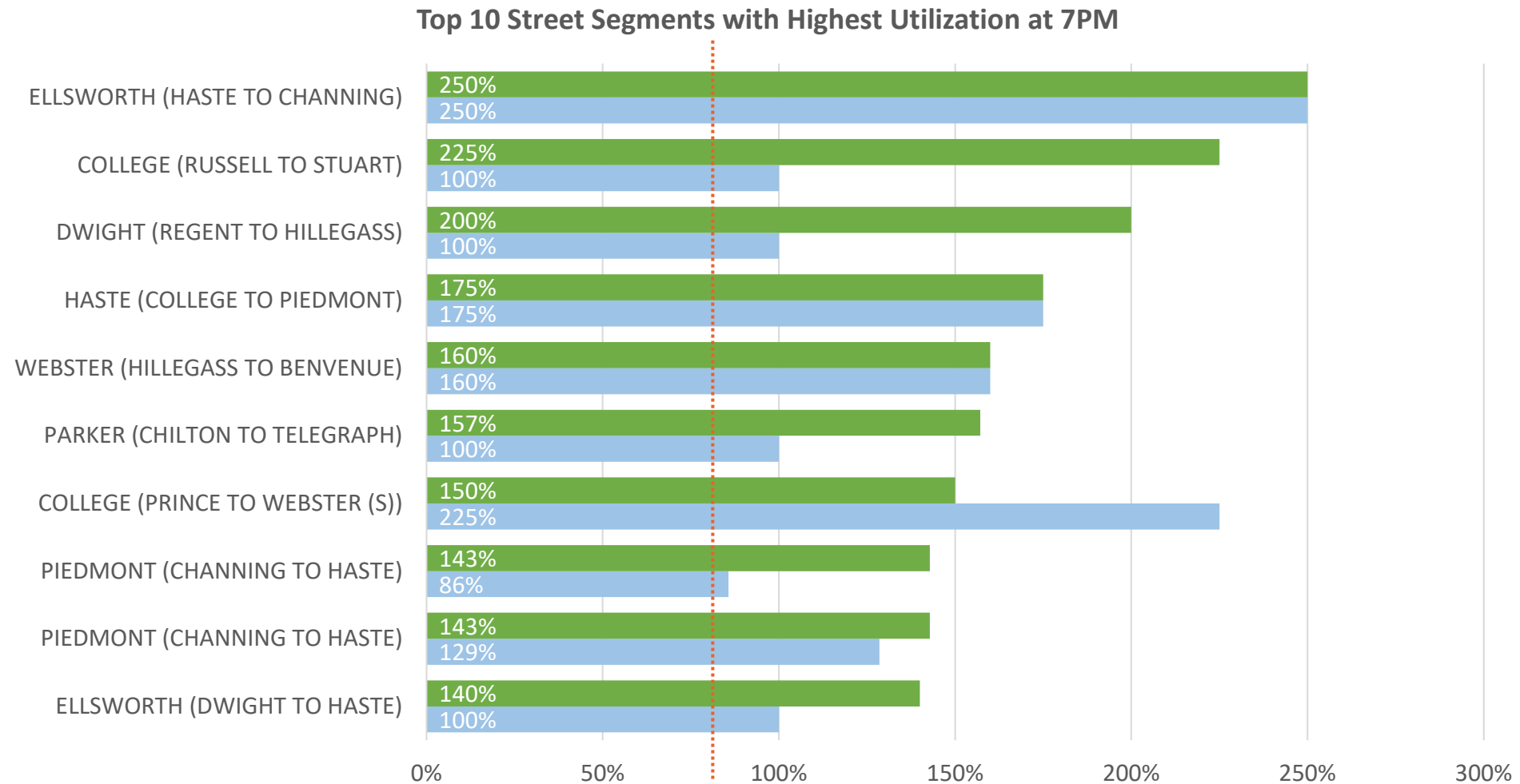
2

In 2021, spaces across both study areas were occupied the most at 7:00 PM and 9:00 PM.



This chart shows parking utilization in the sample locations in both the Elmwood & Southside/Telegraph areas (see map on page 7).

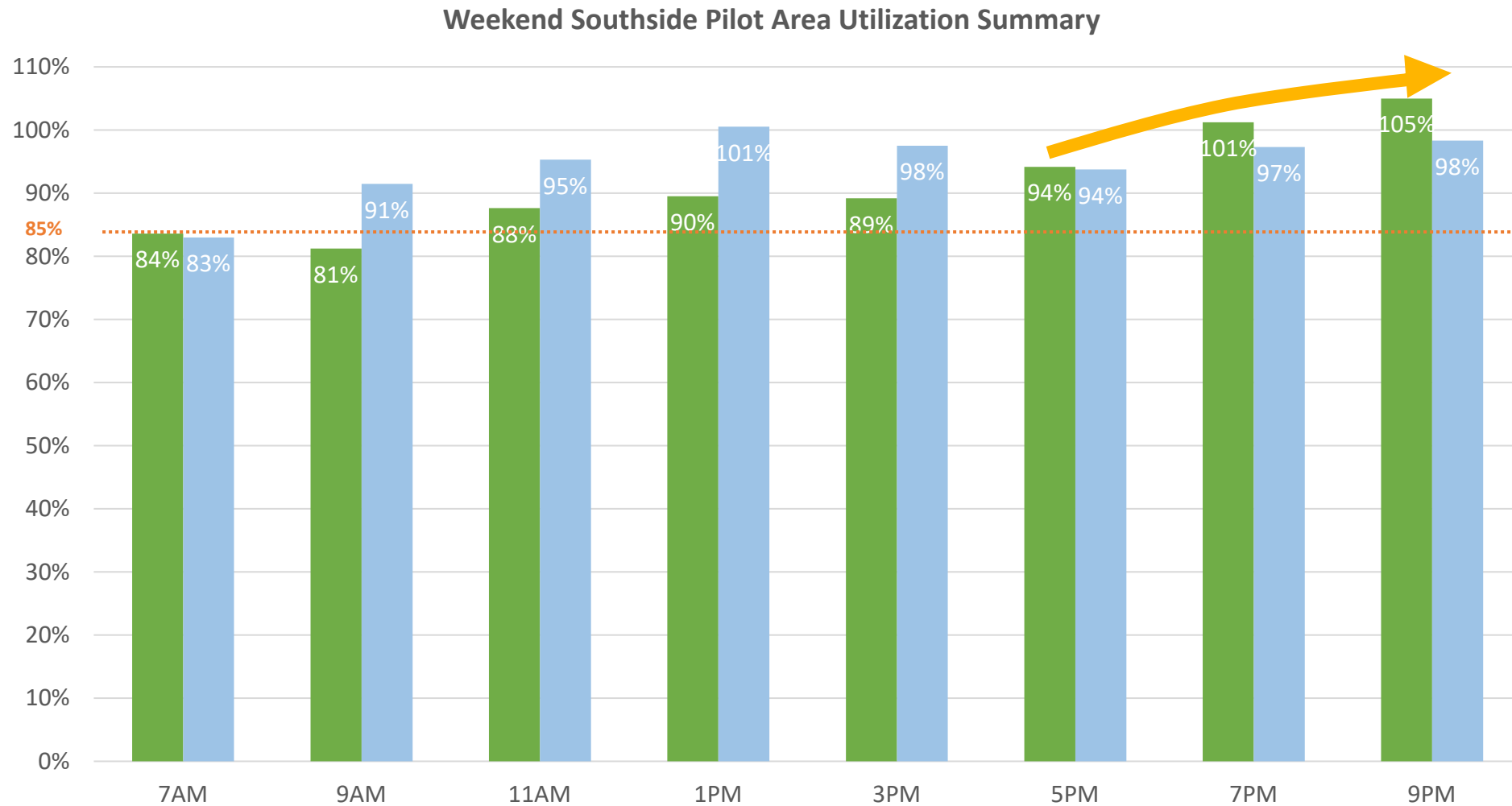
On Saturday evenings, College Ave remains among the busiest segments.



This chart shows street segments with the highest parking utilization in both the Elmwood & Southside/Telegraph areas between 2019 and 2021.

■ 2021 ■ 2019

Compared to 2019, Southside/Telegraph parking demand increases significantly in the later evenings.

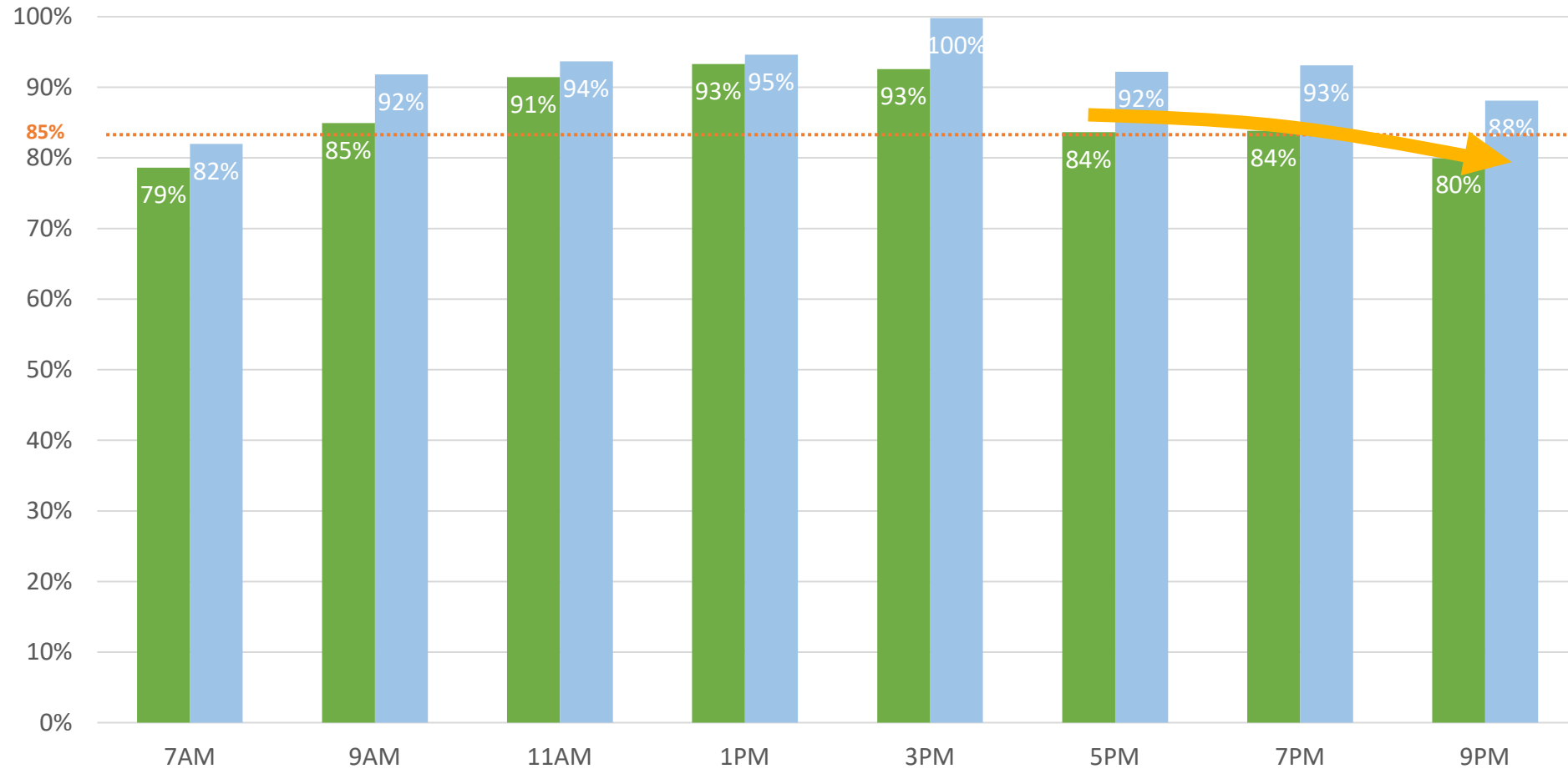


This chart shows parking utilization in the sample locations in the Southside/Telegraph area (see map on page 7).

■ 2021 ■ 2019

In contrast, Elmwood parking demand significantly decreases from 5:00 PM to 9:00 PM.

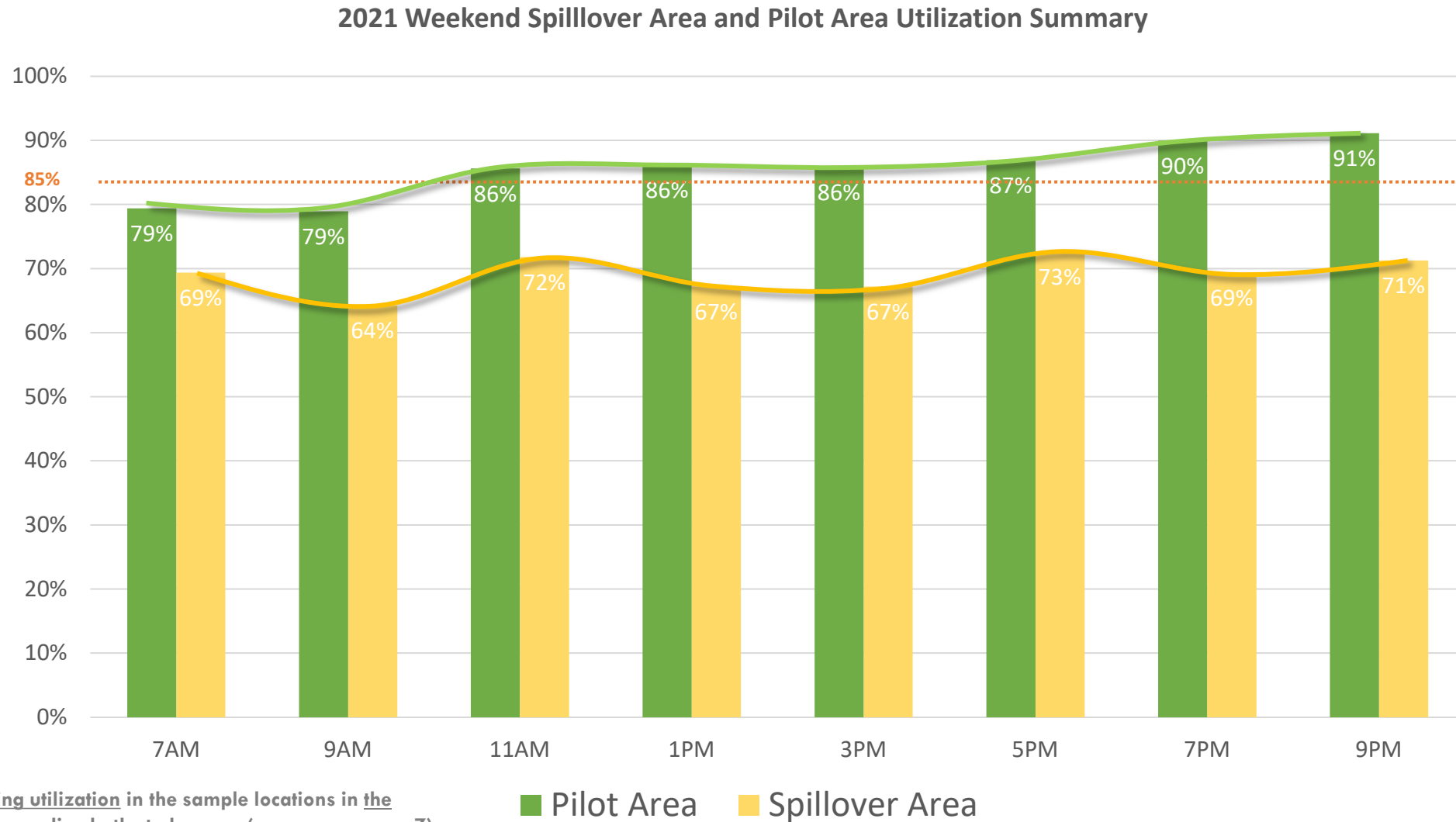
Weekend Elmwood Pilot Area Utilization Summary



This chart shows parking utilization in the sample locations in the Elmwood area (see map on page 7).

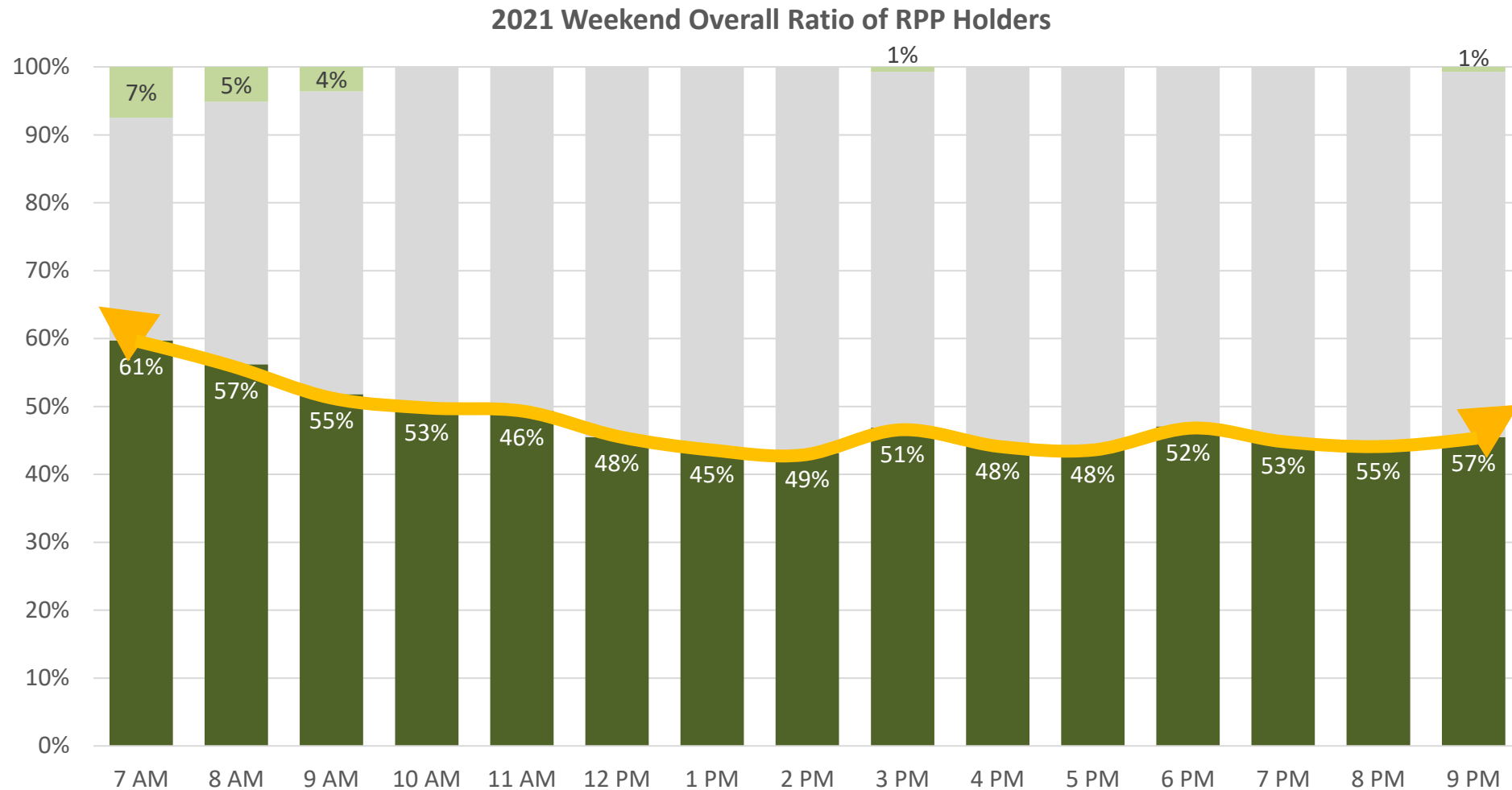
■ 2021 ■ 2019

Spillover areas are underutilized compared to Pilot areas.



This chart shows parking utilization in the sample locations in the Spillover Segments surrounding both study areas (see map on page 7).

RPP holders occupy less spaces during the day, but are more prominent in the early morning and evenings.

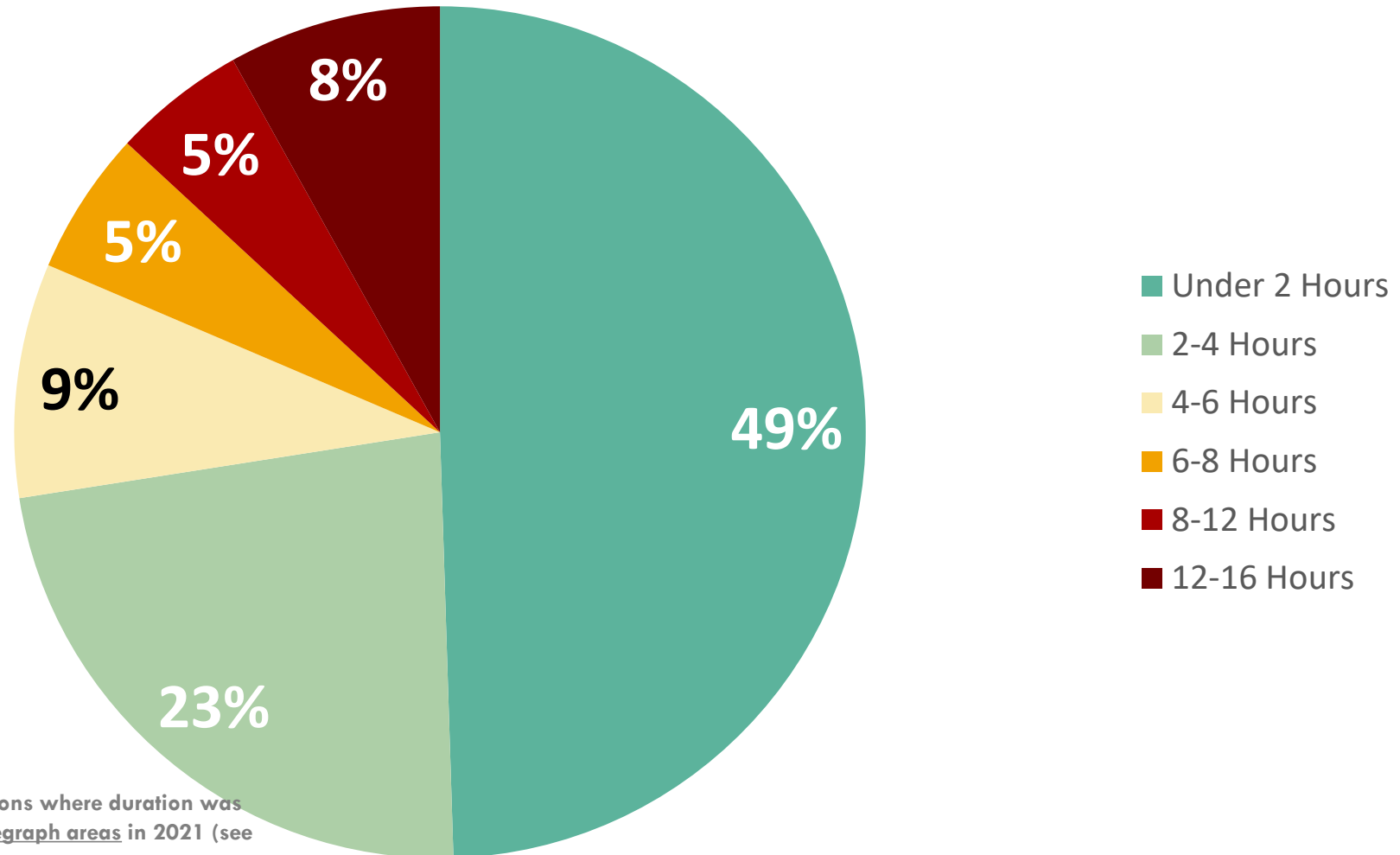


This chart shows RPP holder parking utilization in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).

■ RPP Holder ■ Non-RPP Holder ■ Vacant

Two hours is the approximate median duration parked on weekends (just like on weekdays).

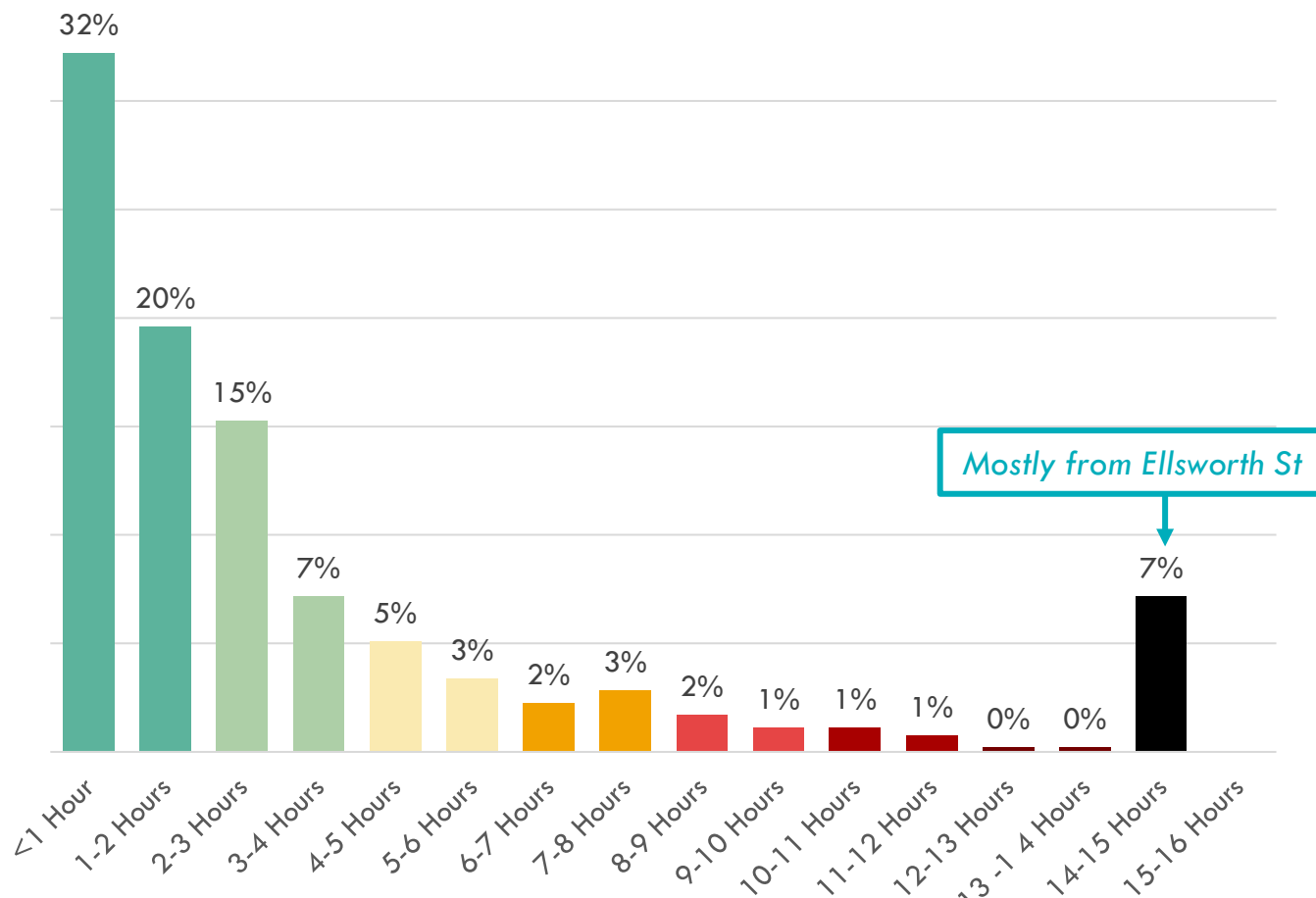
2021 Weekend Ratio of Vehicles Parked at a Time Limited 2-hr (RPP) Space



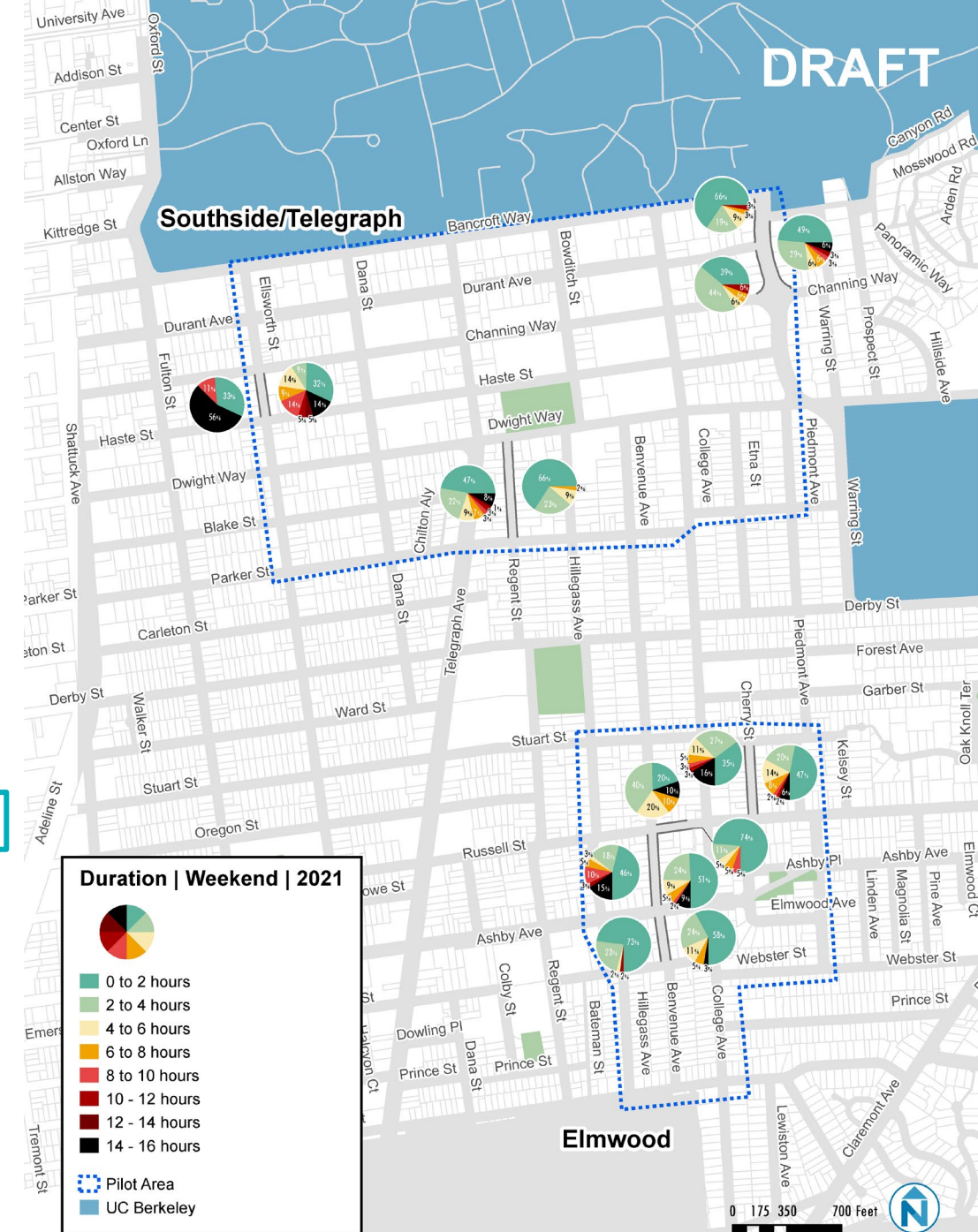
This chart shows parking duration in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).

On the weekend, vehicles parked all day long are concentrated in fewer locations than on the weekday.

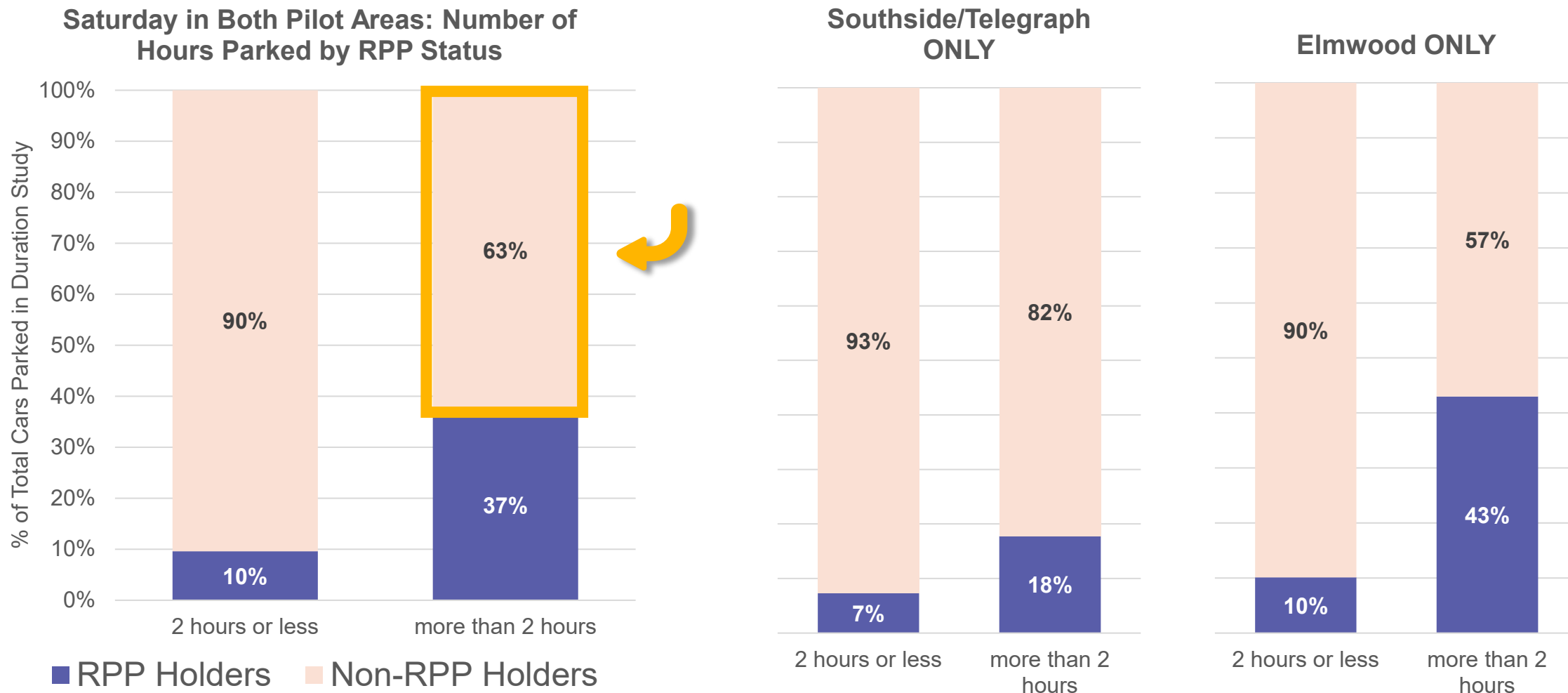
2021 Weekend Parking Duration



This chart shows parking durations among vehicles parking in the locations where duration was counted in both the Elmwood & Southside/Telegraph areas in 2021 (see map on page 7).



Of vehicles that park more than 2 hours, 63% of them do not hold a parking permit



At least 8% of vehicles shuffled between multiple streets in one day (Saturday)

- On Saturday, 511 unique vehicles parked on the 15 blockface segments which were measured for duration (a 6.5% increase from Thursday's number of unique vehicles) in both the Elmwood and Southside/Telegraph areas.
- 41 vehicles parked on more than one segment on Saturday. In other words, they shuffled. Vehicles shuffled at most to three times in one day.
 - 22 vehicles had an annual RPP. On average, they parked 4.8 hours each time, and parked a total of 10 hours.
 - 19 vehicles didn't have an annual RPP. On average, they parked 3 hours each time, and parked a total of 6 hours.
- About 8% of vehicles shuffled parking spots, but more could have technically shuffled to locations which were not measured.

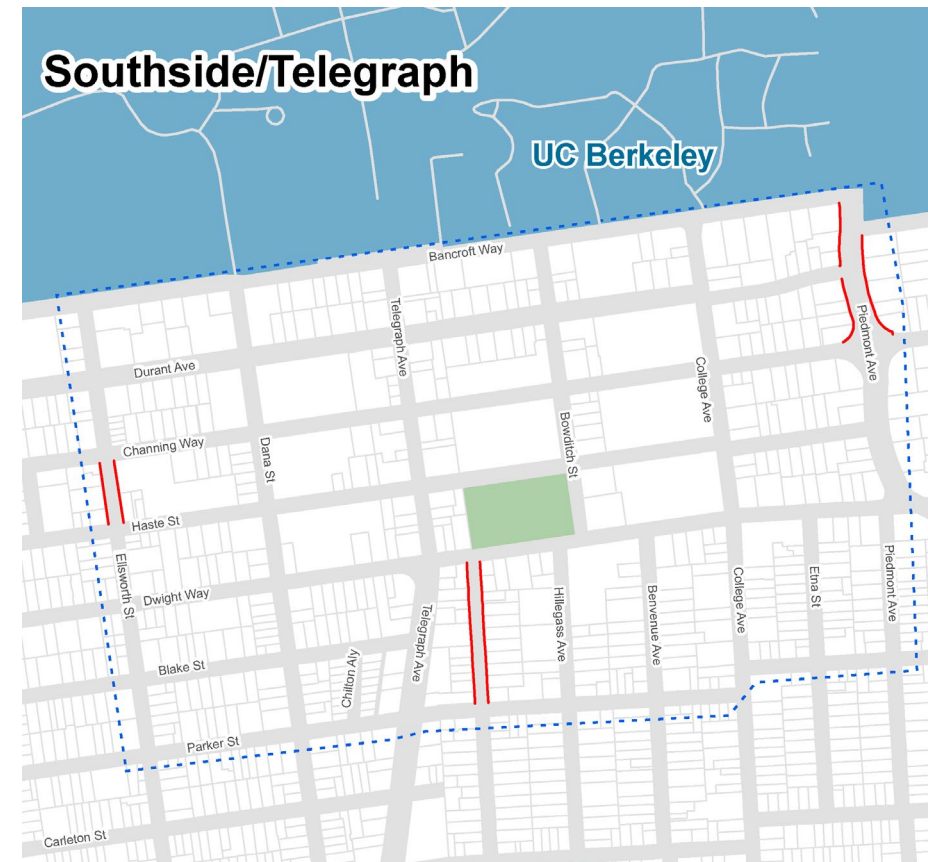
Elmwood – at least 10% of vehicles shuffled

- In just the Elmwood on Saturday, 396 unique vehicles parked on the 8 blockface segments which were measured for duration (a 11.9% increase from Thursday's number of unique vehicles)
- 40 vehicles parked on more than one segment on Saturday. In other words, they shuffled. Vehicles shuffled at most to 3 spots in one day.
 - 21 vehicles had an annual RPP. On average, they parked 4.8 hours each time, and parked a total of 10 hours.
 - 19 vehicles didn't have an annual RPP. On average, they parked 3 hours each time, and parked a total of 6 hours.
- About 8% of vehicles shuffled parking spots, but more could have technically shuffled to locations which were not measured.



Southside/Telegraph – one vehicle shuffled

- In just the Southside/Telegraph area on Saturday, 115 unique vehicles parked on the 7 blockface segments which were measured for duration (a 8.7% decrease from Thursday's number of unique vehicles). Of those, 13 vehicles had annual RPP.
- Only 1 RPP vehicle parked on more than one segment on Saturday. In other words, they shuffled. This vehicle shuffled to 3 spots in one day.
 - It parked 3.3 hours each time and park a total of 10 hours.

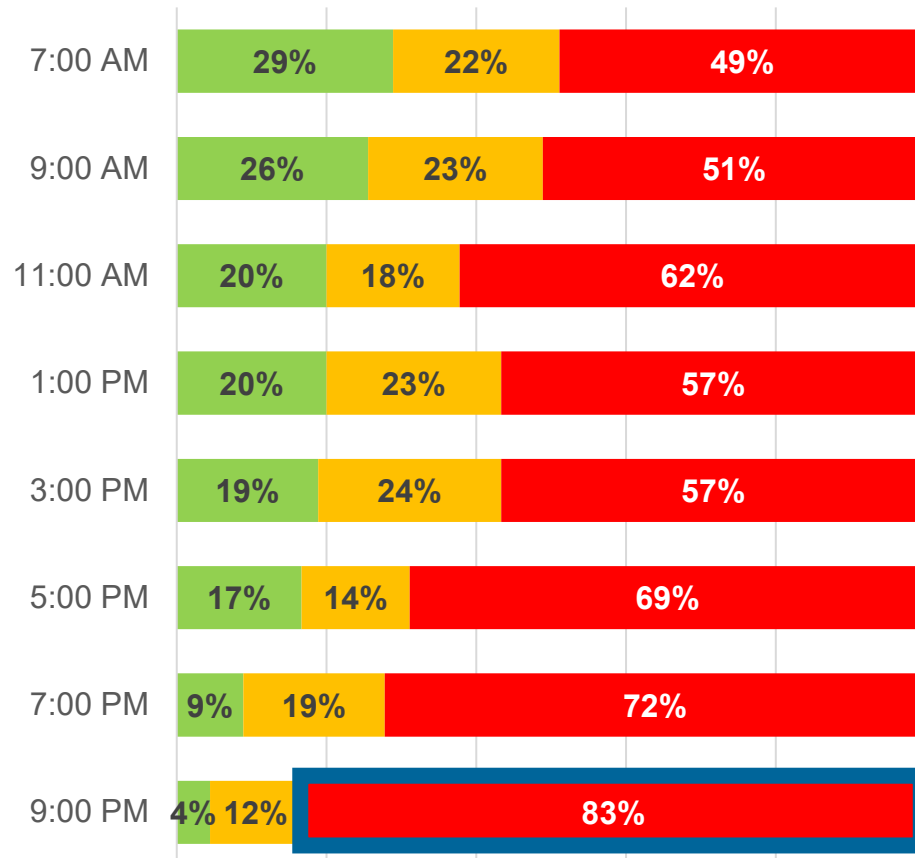


Weekend Occupancy Time Profile Maps

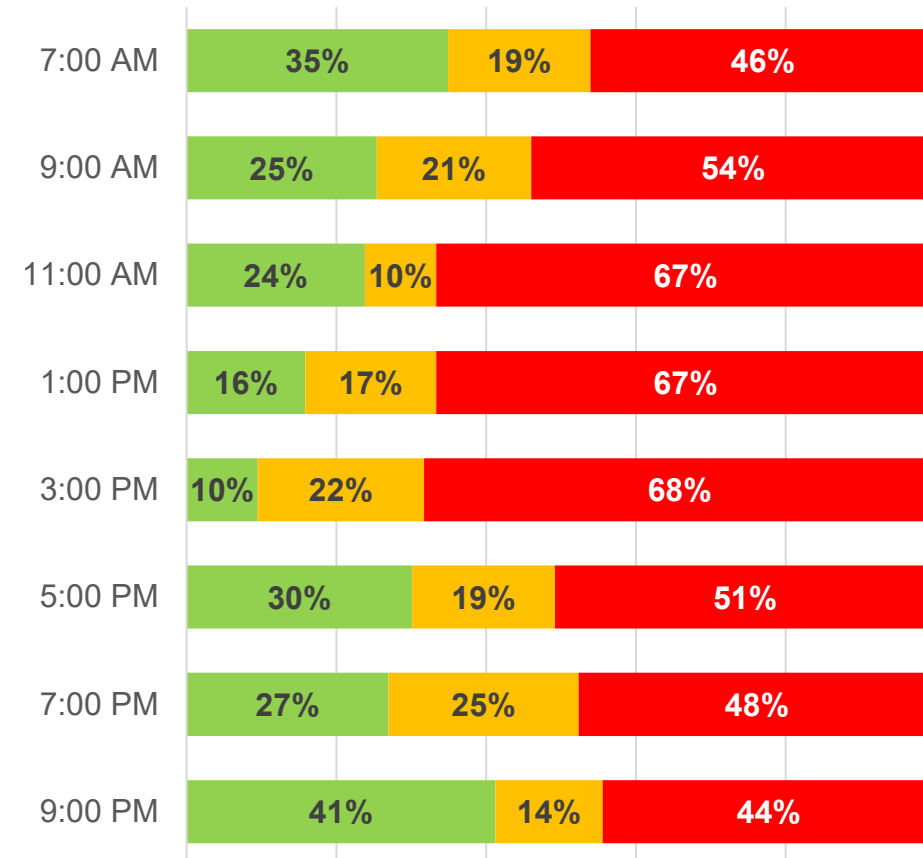


Almost all streets on weekend nights on Southside/Telegraph are above target utilization ratio

Southside/Telegraph Weekend Target Ratio



Elmwood Weekend Target Ratio



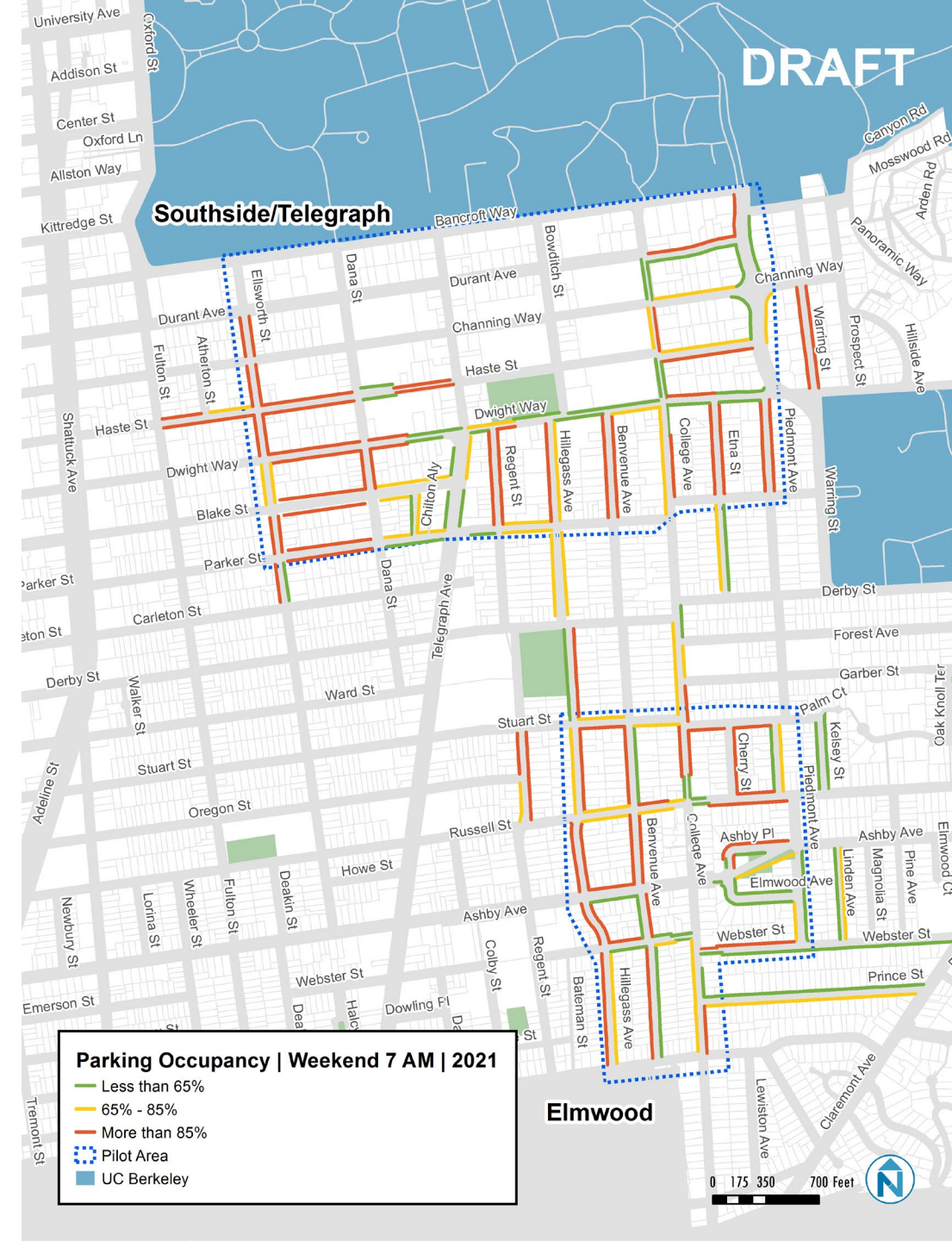
■ Under Target (less than 65%)
■ Within Target (65% - 85%)
■ Above Target (more than 85%)

2021 WEEKEND 7:00 AM



Saturday starts with low utilization.

- Although not yet enforced at this hour, metered parking spaces are at their overall lowest utilization.

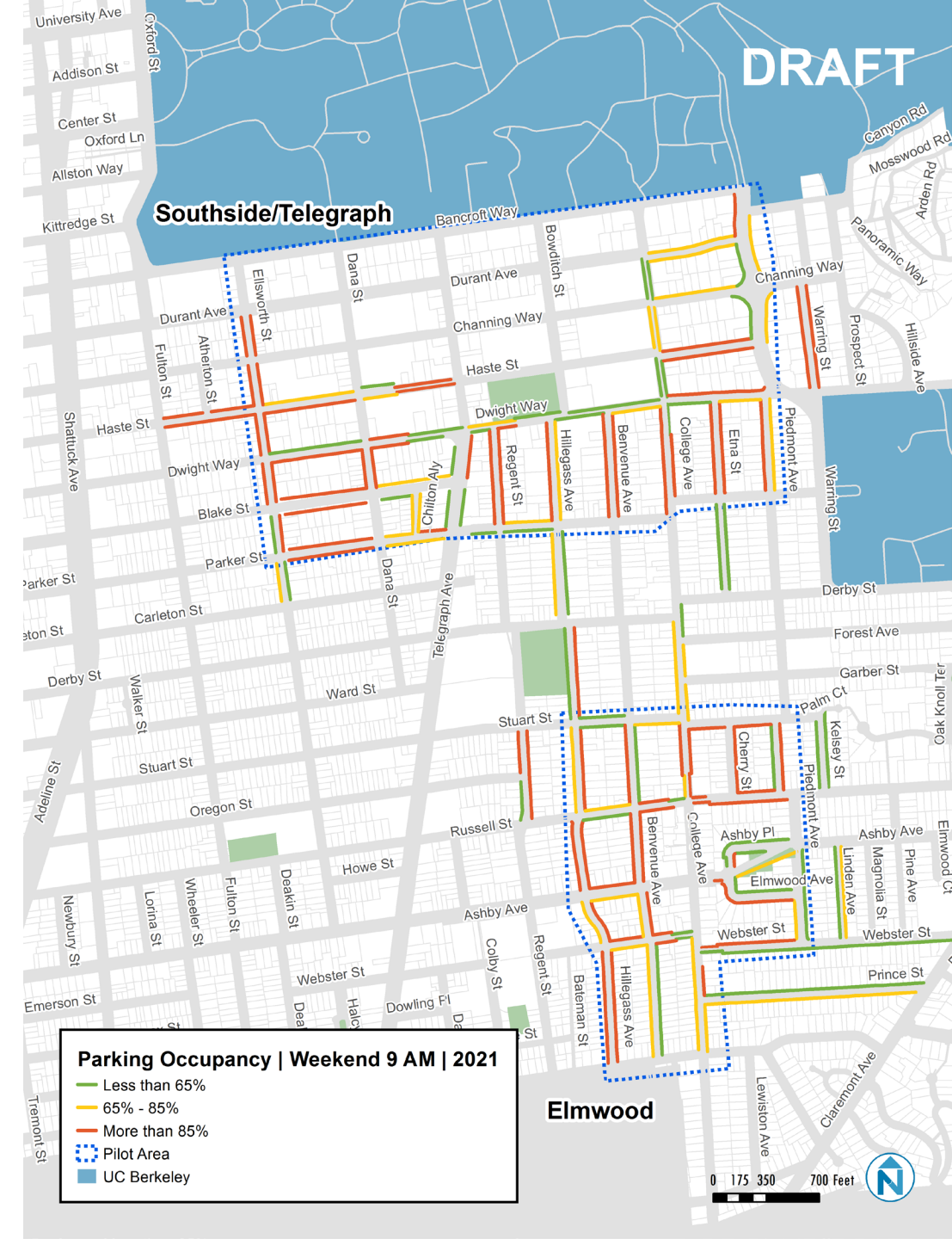


2021 WEEKEND 9:00 AM



Reshuffling of demand picks up in the morning.

- At 9:00 A.M., utilization in the Southside/Telegraph pilot area decreases, while increasing in Elmwood.





DRAFT

-
- Parking Occupancy | Weekend 11 AM | 2021**
- Less than 65%
 - 65% - 85%
 - More than 85%
 - Pilot Area
 - UC Berkeley
- Southside/Telegraph**
- Elmwood**
- DRAFT**
- 0 175 350 700 Feet
- North arrow pointing up.

- Less than 65%
- 65% - 85%
- More than 85%
- ⊞ Pilot Area
- UC Berkeley

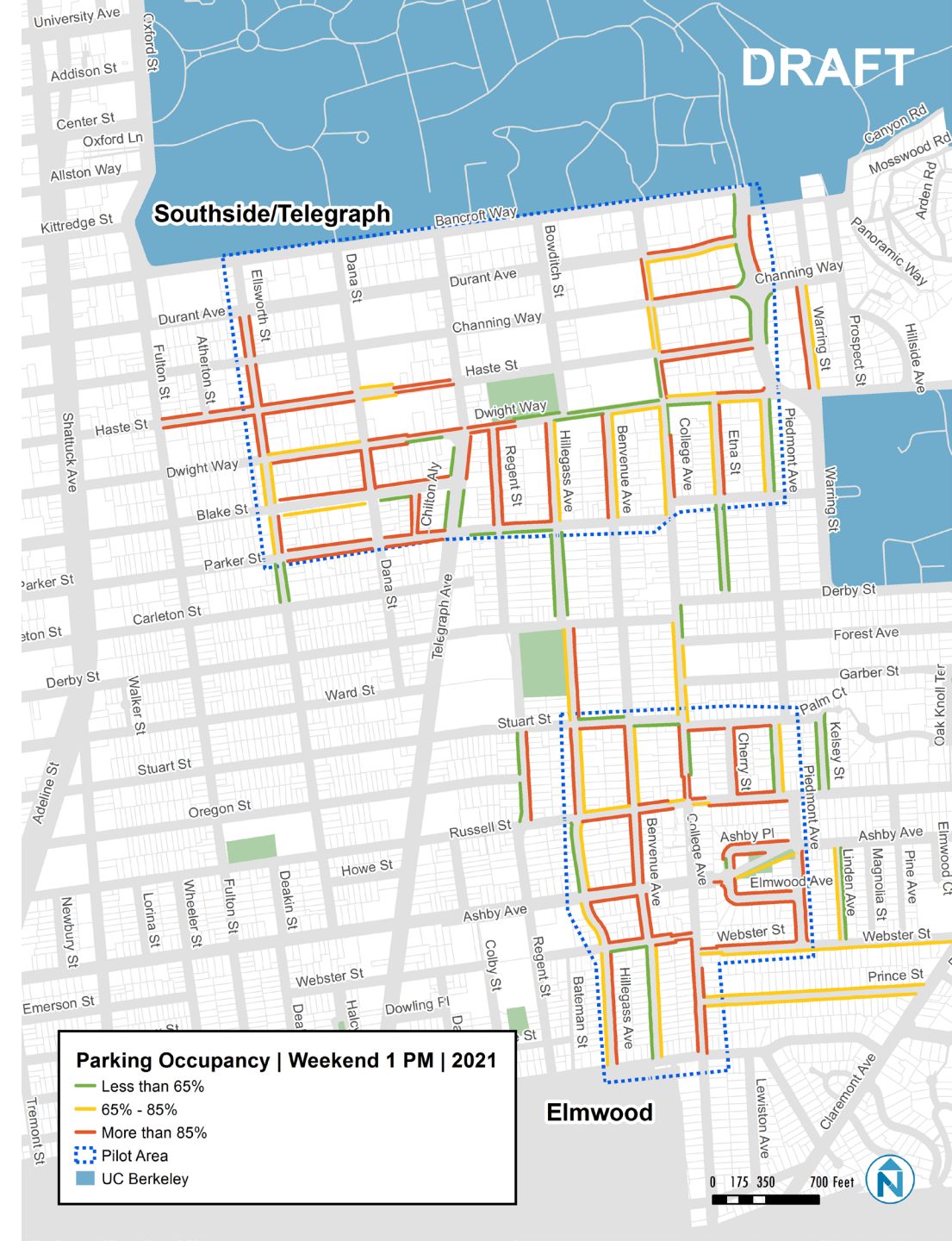
0 175 350 700 Feet

2021 WEEKEND 1:00 PM



Utilization continues hovering above 85% through the midday.

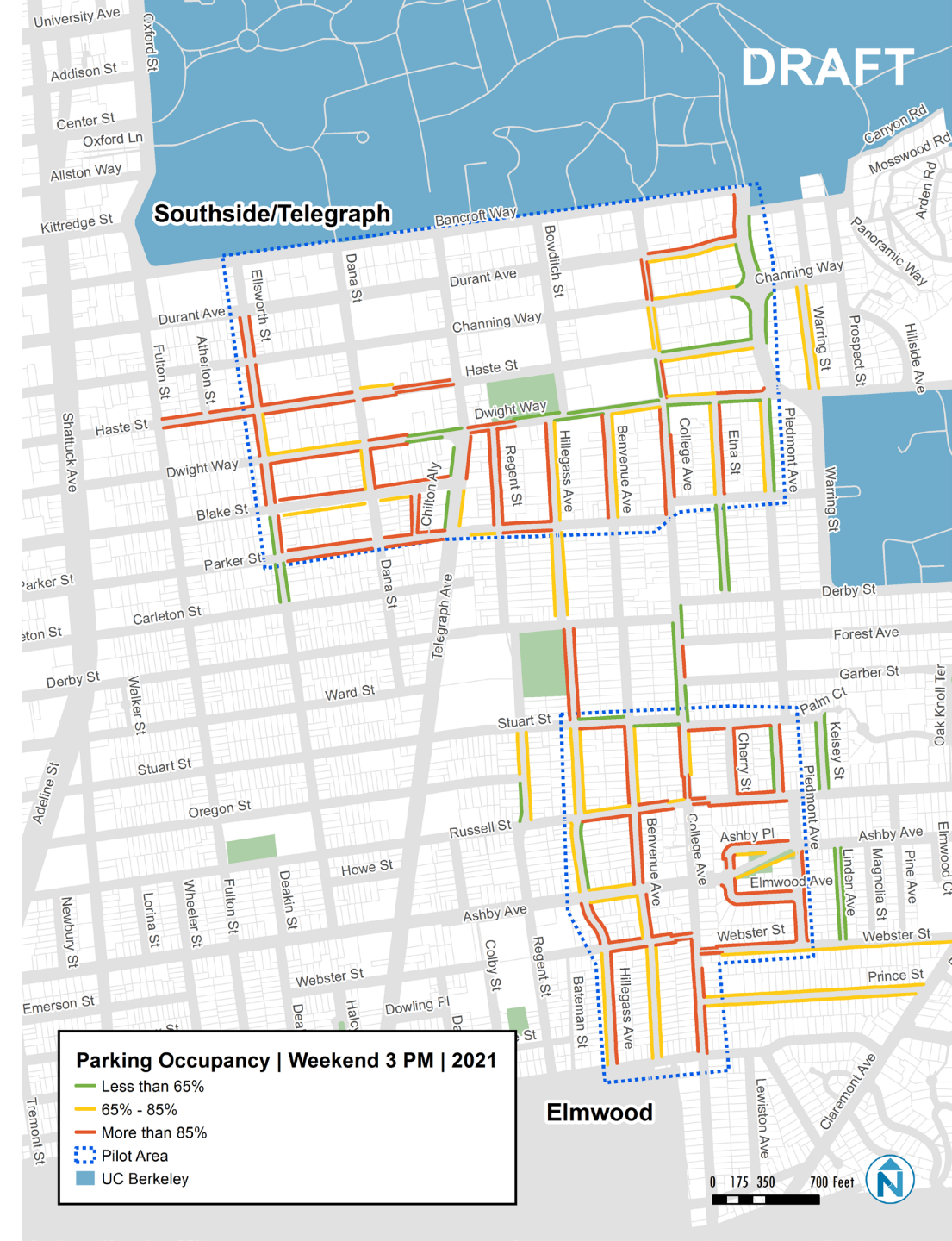
- Spillover areas south of Parker St and west of Piedmont Ave have plentiful parking availability.





Overall occupancy stays above 85%, but demand is spread more evenly.

- All Saturday long, 3:00 PM experiences the highest number of blockfaces within the target range of 65% - 85%.
- Spillover areas east of Elmwood pilot areas have continue to have less than 65% occupancy.

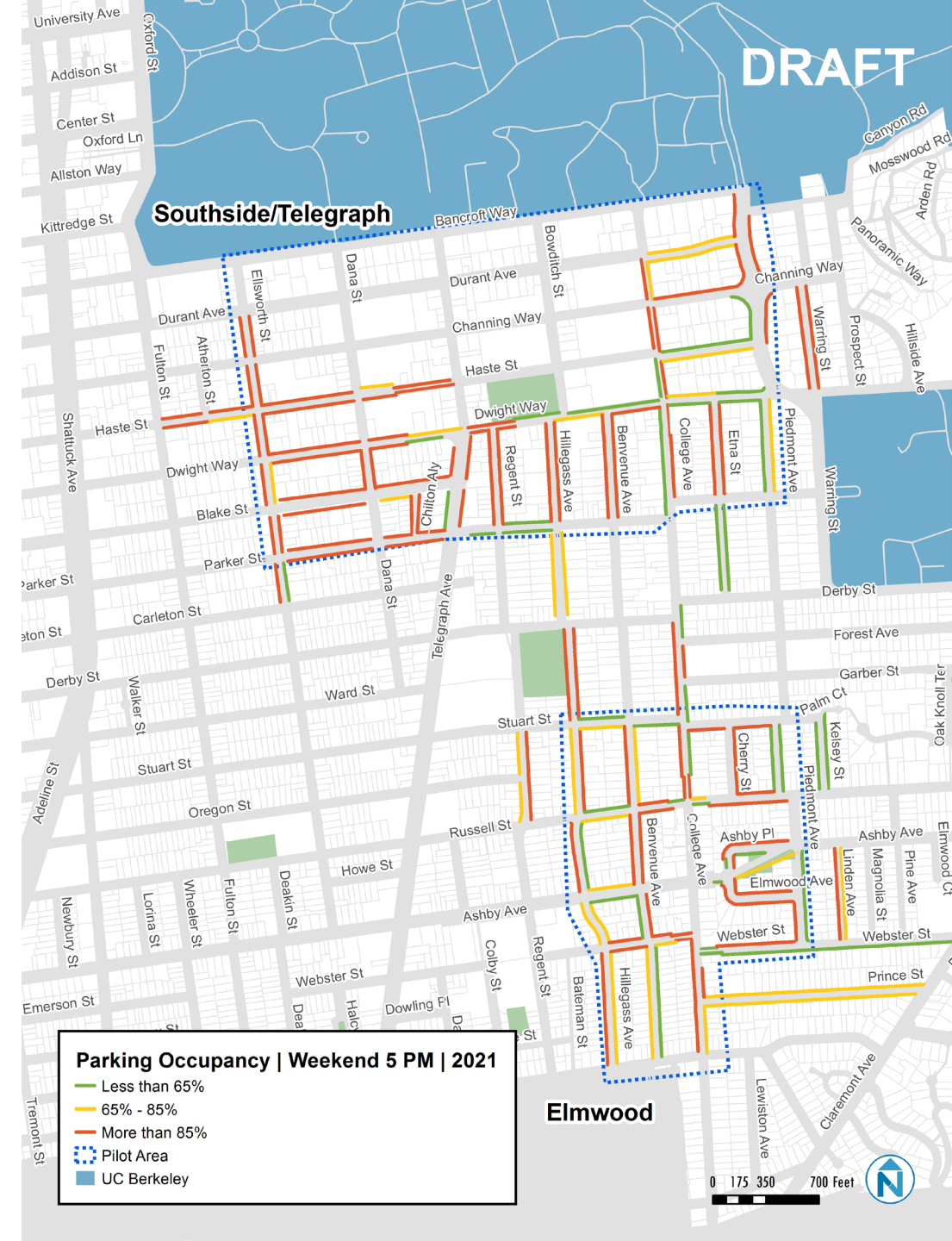


2021 WEEKEND 5:00 PM



Utilization continues to climb in the weekend evening.

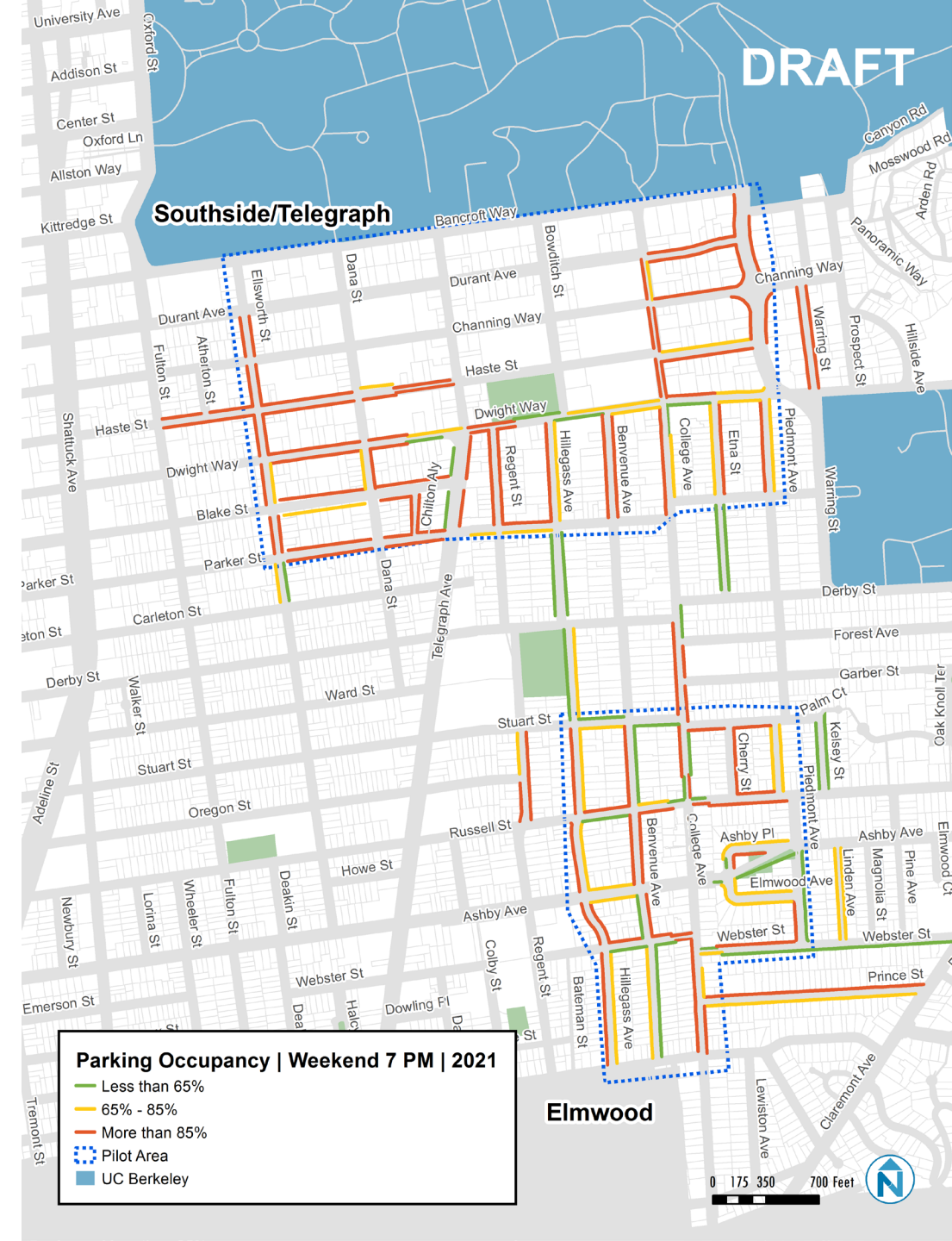
- Relatively fewer available spaces near the Telegraph Ave commercial area.





Peak utilization on Saturday begins.

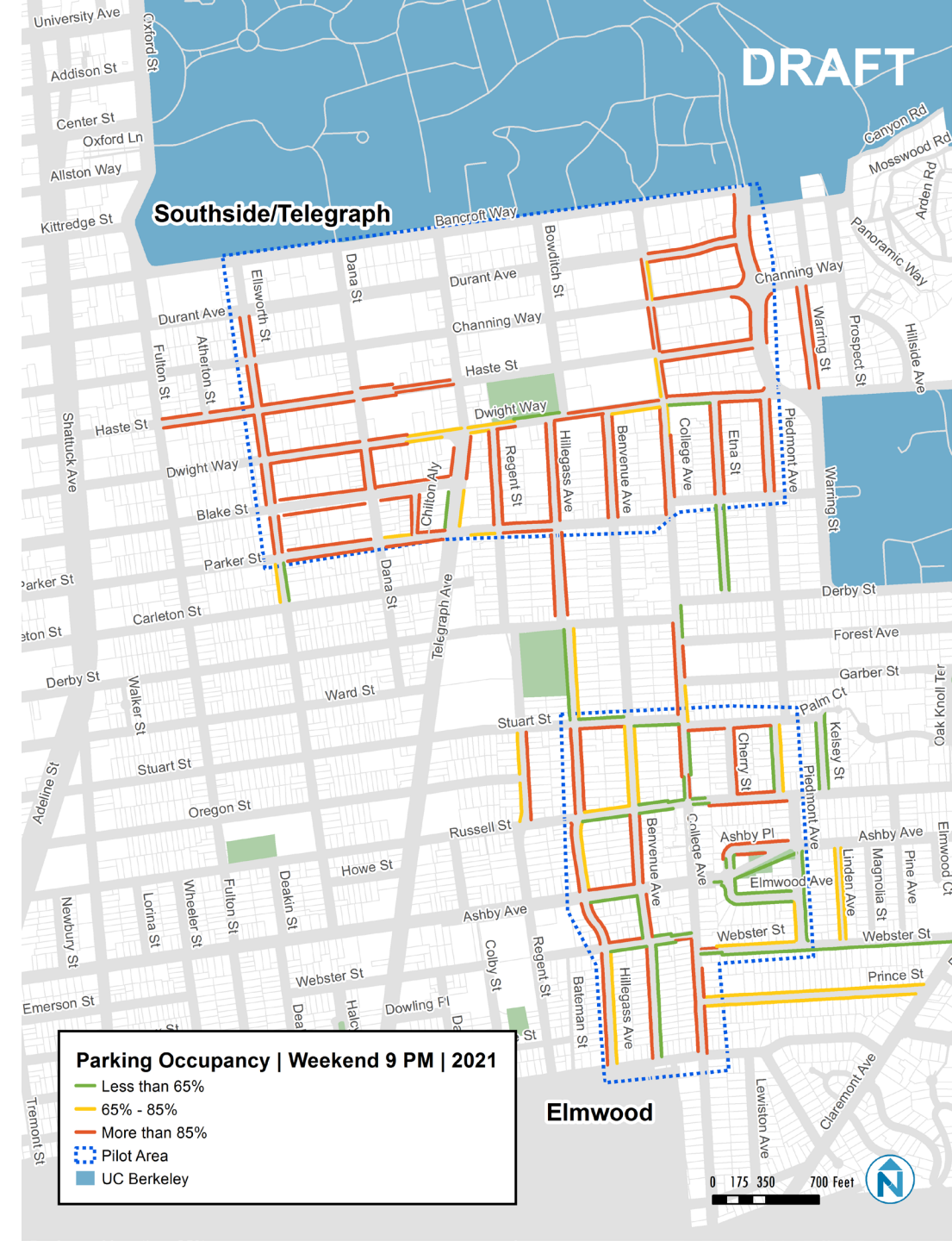
- Locations closest to campus and areas surrounding central Elmwood are reliably full.
- Elsworth St between Parker and Carleton remains available during both 7:00 PM and 9:00 PM peak hours.
- Spillover areas on Hillegass between Parker and Stuart are a pocket of availability.





Saturday peak utilization continues.

- Normally vacant spaces along Dwight Way are getting filled up later into the night.
- Like weekday peak utilization at 11:00 AM, Ellsworth St – where there is multi-residential units.
- Ellsworth St between Parker and Carleton remains available during both 7:00 PM and 9:00 PM peak hours.



Key Findings



4

Key Findings

- There are **areas where parking is persistently occupied at rates above the goBerkeley target of 85%**, such as the Ellsworth and Benvenue corridors; these are locations where parking demand comes from residents, visitors, students, and employees alike.
- There was **no time in the 2021 data collection when the majority of blockfaces counted were within 65% and 85% occupied**.
- There are streets in both the core districts (Dwight) and spillover areas (Kelsey) that are persistently underutilized. Thus, there remains **an uneven allocation of on-street parking demand across Berkeley's most popular districts**.
- Two-hour parking limits do not meet the needs of a sizable proportion of parkers.