City of Carlsbad

Parking Data Collection Comparison Memorandum (January 2019)

Glossary of Terms

The following terms and concepts are used throughout this Comparison Memorandum to describe the performance of the parking system or individual components of the parking system.

Effective Capacity

Effective capacity is an industry-accepted occupancy threshold for parking facilities that indicates the efficiency of the facility or system. Based on industry standards, the primary threshold is 85 percent of the total capacity of the parking system and/or certain areas within the system. This is the threshold that indicates whether the parking system is operating effectively. For example, when observed or projected occupancies are under this threshold, users can typically locate spaces easily. When observed or projected occupancies are at or above this threshold, users cannot typically find available parking easily.[1]

In-lieu Fee

In-lieu fee, as provided for in the existing Village and Barrio Master Plan (effective outside the Coastal Zone) and Village Master Plan and Design Manual (effective inside the Coastal Zone), is a cash payment made by a developer to the city instead of providing the total number of minimum parking space or spaces required by the code. These payments are calculated on a per space basis to reduce a portion or all a development's parking requirement. Fees are collected and used in a defined area to provide additional parking supply, or parking-related infrastructure and services. The in-lieu fee program is available only to non-residential projects.

License Plate Recognition Technology (LPR)

License plate recognition technology is a computer-based optical system that can sense the presence of a license plate from its reflective material. Once a license plate is detected, the plate number may be recorded in addition to state of origin. This technology can be used for data collection to better understand parking behaviors and/or perform parking enforcement activities.

Parking Demand

Parking demand is the metric representing the projected quantity of parking generated by employees, patrons, residents, visitors, and others associated with a business or land use within the parking system. Each business or land use generates a certain quantity of demand for parking spaces to accommodate their users. The total number of spaces generated by business

[1] "Parking 101: A parking Primer: A Publication of the International Parking Institute", International Parking Institute, 2015; "Shared Parking, Second Edition", Urban Land Institute

or land use patrons at a given time is the parking demand for that business or land use. This demand is based on the land use intensity (building square footage or number of units) and the land use type (restaurant, office space, retail, single and multi-family residential, etc.). Parking demand may differ from the actual parking supply or standard parking requirements.

Parking Duration

Parking duration is a measure of how long vehicles are parked in a parking space. This metric is analyzed through data collection efforts and is used to help define policies such as parking time limits.

Parking Facility

A parking facility refers to any on- or off-street location designated for parking.

Parking Occupancy

Parking occupancy is the percentage of occupied spaces in a parking facility at a given time. Parking occupancy is calculated by dividing the number of observed or projected vehicles parked in a facility by the number of total spaces in the facility.

Parking System

Parking system refers to the entire collection of parking spaces, parking facilities, technologies, equipment, policies, regulations, and personnel that work together to provide the parking needs of employees, patrons, residents, visitors, and other users in a study area.

Introduction

In 2016, Kimley-Horn developed a Parking Management Plan (PMP) for the City of Carlsbad that resulted in a set of parking management strategies that are intended to balance parking and transportation demands and needs of the various users in the study area (visitors, residents, business owners, etc.), while creating a system that is sustainable.

Since the completion of the PMP in 2016, the City has proactively assessed the implementation of various components of the PMP recommendations. One such component is to track parking occupancy and duration data on a regular basis with the intention of re-evaluating parking demands for the study area and the various individual neighborhoods, as appropriate.

Utilizing regularly collected, current parking data aids the City in proactively identifying areas for consideration of parking and transportation management strategies, and/or areas of interest that are approaching but not reaching established thresholds for action. Strategies for consideration are outlined within the PMP, with any appropriate strategy or potential action considered on the unique basis of each neighborhood or area of interest and the results of these ongoing parking behavior analyses. Additionally, the ongoing collection of parking behavior data informs decisions that support the community's goals related to transportation, economic development, and sustainability.

It is important to note that the inventory of analyzed spaces is not inclusive of all parking spaces in the study area, but rather those spaces that are accessible for data collection and have an impact on the implementation of various parking management strategies. Residential spaces, especially those with gated access or enclosed garages, are generally not included in the study area parking inventory and subsequent parking analysis.

In addition, this document discusses findings specific to areas of specific interest based on localized concentrations of facilities experiencing high occupancies. These areas differ from the 2016 PMP sub-areas. In 2016, the PMP examined the Village, Barrio, and Beach areas. Beginning with collections completed in May 2018, the sub-areas have been dissected differently to provide a micro level analysis of areas of particular concern while the overall study area boundary remains the same. ***Figure 1*** on the following page illustrates the study area and three of the subareas. **Figure 13** identifies the fourth sub-area, or the area east and west of the railroad tracks. The sub-areas are referenced throughout this document.

Key Themes

Several key themes were identified throughout the updated supply and demand analysis. While many data points were considered as part of the analysis, this section is intended to highlight

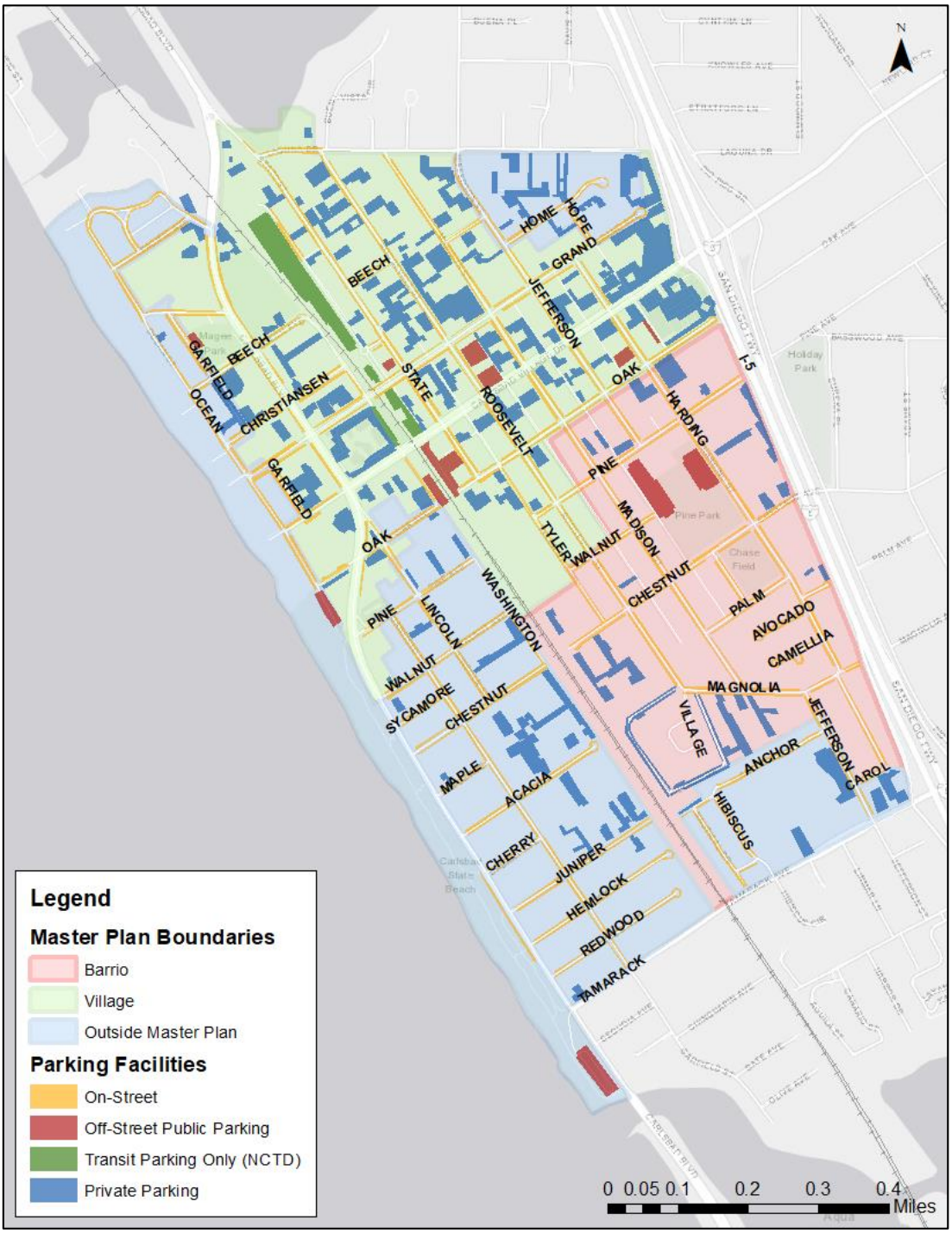
recurring themes observed and provide a summation of the data discussed in greater detail throughout this report.

- Inventory increased slightly from the May 2018 collection to January 2019 with 11,501 total spaces. The only changes to inventory were a reclassification of 197 private on-street spaces to private parking to better reflect their ownership and the addition of 39 on-street spaces along Carlsbad Boulevard and Beech Avenue completed in October 2018.
- The January 2019 weekday peak occurred during the 12:00 PM – 3:00 PM collection at approximately 39% for the overall study area. The January 2019 weekend peak occurred during the 9:00 AM – 12:00 PM collection at approximately 41% for the overall study area.
- Both weekday and weekend peak parking occupancies decreased from May 2018 to January 2019. This is likely attributable to the shoulder season versus off-season collections periods.
- Both weekday and weekend utilization were observed to be stable throughout the day, remaining below 50% for the overall study area and fluctuating four percentage points or less per hour.
- There was a 12 percentage-point decrease in the number of facilities with observed weekday occupancies between 75 and 84 percent, and a 22-percentage point decrease for weekends.
- All categories of parking supplies within the Barrio neighborhood (on-street, public off-street, and private parking) continued a pattern of consistent underutilization. On-Street parking in this area peaked during the weekend 6:00 AM – 9:00 AM collection at approximately 51 percent occupied.
- The Village, specifically within the areas of State Street and Roosevelt Street at their intersections with Carlsbad Village Drive, as identified in the Areas of Interest section, is an area to continue to monitor. This area was observed to have the greatest parking demands. Although several individual facilities were observed at or above effective capacity, the area overall is not yet exceeding the 85 percent threshold, and available public parking supplies were available within a comfortable walking distance of all individual facilities at or above 85 percent utilization
- Outside the Master Plan area and areas east and west of the track did not provide considerable additional insights into parking demands. As anticipated, the area west of

the railroad tracks was observed to have slightly heightened occupancies relative to the areas east of the tracks. The area west of the track, however, did not exceed effective capacity and available public parking supplies were available within a comfortable walking distance of all individual facilities at or above 85 percent utilization.

- Average duration of stay between May 2018 and January 2019 decreased by 24 percentage points in the cohort of vehicles parked 2 hours or less, indicating the average time vehicles are parking increased. The longest durations were observed in the Barrio neighborhood, with 82 percent of observed on-street vehicles in this area parked for more than two hours, compared to only 25 percent in the Village. This indicates a higher frequency of utilizing on-street parking supplies for personal vehicle storage in the Barrio neighborhood when compared to other portions of the study area.

Figure 1: Data Collection Study Area



Parking Data Collection Methodology

The intent of this 2019 round of data collection and analysis is to effectively compare any parking changes within the last three years during a typical weekday and weekend. As such, the parking data collection in 2019 was conducted in January to capture true off-peak conditions within the study area. In 2016 and 2018, the data was collected in May, which represented the shoulder season. A peak season count was conducted separately from this analysis and will be discussed under a separate report once the 2019 peak season data collection is completed. Parking inventory, occupancy, and duration data was collected throughout the study area to determine and evaluate parking demands.

The data was collected in the same manner as was done in 2016, with the use of License Plate Recognition (LPR) technology. The mobile LPR equipment uses a dual camera configuration, placed on the roof of the data collection vehicle. The vehicle drives continuous loops through each collection area, counting the number of vehicles parking off-street and on-street. Data was collected for all accessible off-street and on-street parking facilities shown in ***Figure 1*** on the previous page.

Data was collected between the hours of 6:00 AM – 9:00 PM for the entire study area, with an additional run between 9:00 PM – 11:00 PM to capture additional on-street and off-street occupancies, as well as duration, in the Barrio Area.

Parking Inventory Changes

Though this study compares shoulder and off-season parking data, parking inventory changes are reported since the most recent data collection, which occurred during the peak season in August 2018. Since August, the inventory has slightly increased through the addition of 39 new public on-street spaces. **Table 1** below provides detail on the inventory changes.

For prior inventory changes, please refer to the May 2018 and August 2018 parking data collection comparison memorandums.

During the July 2016 data collection, the PMP study area consisted of 11,657 on-street and off-street parking spaces. In August 2018, the same study area decreased by 2 percent resulting in a total of 11,462 spaces (explained in previous analyses). For the January 2019 collection, the parking supply within the study area remained increased slightly to 11,501 spaces. See **Table 2** for further details.

Table 1: Annual Parking Inventory Comparison

PARKING TYPE	2016 (SPACES)	2018 (SPACES)	2019 (SPACES)
NCTD Transit Lots	511	541	541
Public Off-Street	730	703	703
On-Street	4,971	4,971	4,813
Private Off-Street	5,445	5,247	5,444
Study Area	11,657	11,462	11,501

Parking Occupancy Comparison

One critical metric utilized in analyzing parking data is occupancy, which is a measurement of how much a facility is being used at a given time. Occupancy can be used to indicate the parking efficiency associated with each facility. When analyzing parking occupancy, the primary industry accepted threshold for identifying demand constraints for a system is when occupancies reach 85% – 90% consistently. When occupancies for a parking system reach this level of occupancy, parking efficiency starts to deteriorate, and changes need to be implemented to maintain efficiency of the system. The 10% – 15% remaining capacity accounts for those vehicles leaving a space and the few spaces that are scattered throughout the system or a facility that one might have to circle to find. For the purposes of this analysis, the critical threshold of 85 percent was used to determine how well the parking in the study area is operating.

During January 2019, the study area observed a weekday peak at 12:00 PM – 3:00 PM with an occupancy of 39 percent and a weekend peak at 9:00 AM – 12:00 PM with an occupancy of 41 percent. ***Table 3*** compares the peak times and occupancies, based on average occupancies for the entire system for each parking facility type, on the days surveyed in May 2016 and 2018 as well as January 2019.

The January 2019 data collection reveals that parking demand in the overall study area is down compared to shoulder season counts in May of 2016 and 2018. The time of day that the study area peaks, however, fluctuates with peaks varying from the early morning to early afternoon timeframe, but remaining within normal business hours.

Table 2: Annual Shoulder/Off-Season Peak Parking Occupancies by Facility Type

PARKING TYPE	2016 WEEKDAY (12PM – 3PM)	2016 WEEKEND (6AM – 9AM)	2018 WEEKDAY (9AM – 12PM)	2018 WEEKEND (12PM – 3PM)	2019 WEEKDAY (12PM – 3PM)	2019 WEEKEND (9AM – 12PM)
On-Street	42%	50%	60%	72%	42%	47%
Public Off-Street	40%	24%	68%	76%	49%	52%
Private Off-Street	31%	32%	40%	38%	31%	34%
NCTD Transit Lots	74%	21%	63%	43%	76%	43%
Study Area	46%	49%	51%	56%	39%	41%

Figure 2 on the following page shows the weekday occupancy trends between May 2016, May 2018, and January 2019, with weekend trends depicted in ***Figure 3***.

Figure 2: Weekday Shoulder/Off-Season Parking Occupancy Trends

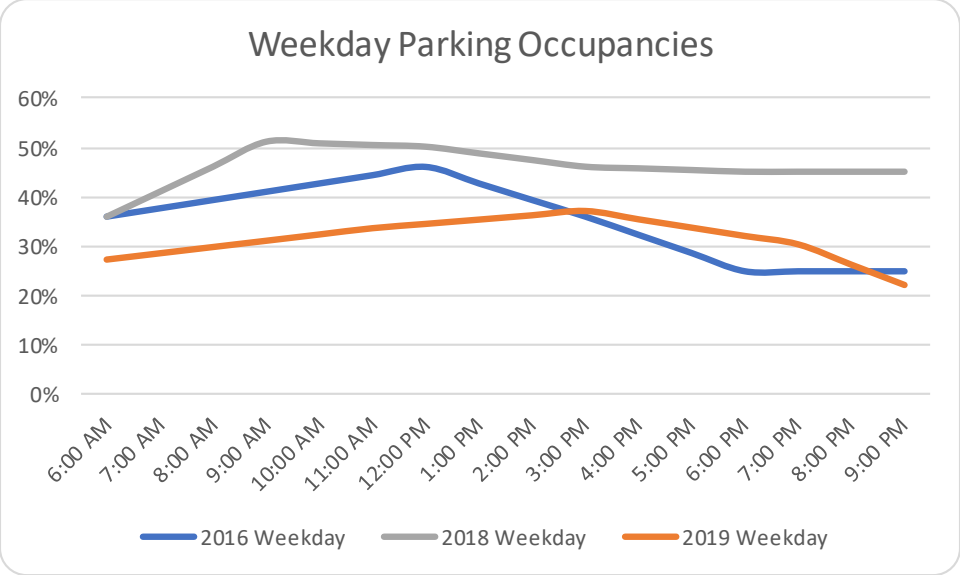
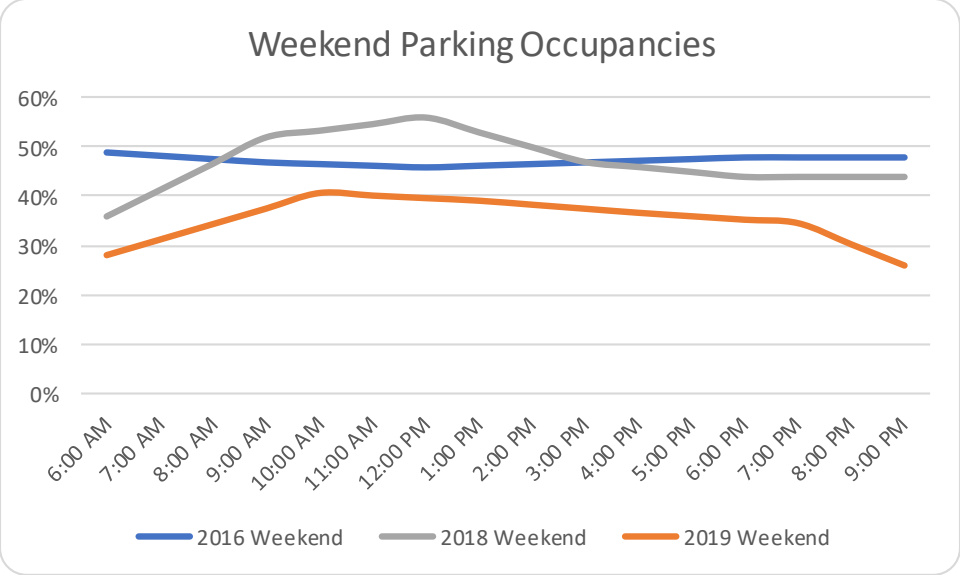


Figure 3: Weekend Shoulder/Off-Season Parking Occupancy Trends



The figures above illustrate the occupancy trends throughout the day for the May 2016, May 2018, and January 2019 weekday and weekend data. The intent of this figure is to show that

while study area occupancies have fluctuated since 2016, they have consistently remained below 60 percent during the shoulder and off seasons. Although the 2019 data resulted in reduced occupancies overall, the general trends show weekday and weekend peak occupancies each shifting only one time period from 2018 to 2019.

In ***Table 3*** on page 14, parking occupancies for May 2016, May 2018, and January 2019 weekday and weekend data are broken down by facility type and provided for the study area as a whole. Comparing the entire study area year over year for the shoulder (May) and off seasons (January), occupancies are generally down from 2018 shoulder season levels, except in the NCTD transit lots. However, the 2019 off season occupancies have fluctuated considerably from 2016, spiking in 2018, and then returning to levels similar to those observed in 2016.

Although the January 2019 results show the study area having plenty of parking supply available during the weekday and weekend peaks (12:00 PM – 3:00PM and 9:00 AM – 12:00 PM, respectively), some facilities are either approaching and/or exceeding the effective capacity threshold. ***Figure 4***, which illustrates January 2019 weekday data collected, consists of several on-street and private off-street facilities with occupancies approaching and/or exceeding the 85 percent effective capacity threshold (represented by the red color) mainly in the Village area (i.e., generally along the State Street corridor and north of Carlsbad Village Drive). ***Figure 5***, which illustrates the January 2019 weekend data collected, shows on-street facilities throughout the Beach areas (i.e., west of the railroad tracks and north of Oak Avenue), as well as the general area of State Street and Carlsbad Village Drive as experiencing occupancies approaching and/or exceeding this threshold. During the 2019 weekend collection, several private off-street facilities in the Beach area experienced occupancies over 75 percent which are still underutilized, but over time that may change if vehicles are unable to find an available space on an adjacent street or in a nearby facility that is exceeding the 85 percent effective capacity.

The overall decline in occupancies in the study area is likely due to the timing of the data collection, with January representing the off-season versus previous May shoulder-season collections. However, as was the case in May 2016 and 2018, the parking supply overall remains underutilized.

Figure 4: 2019 January Weekday Peak Parking Occupancy (12:00 PM – 3:00 PM)

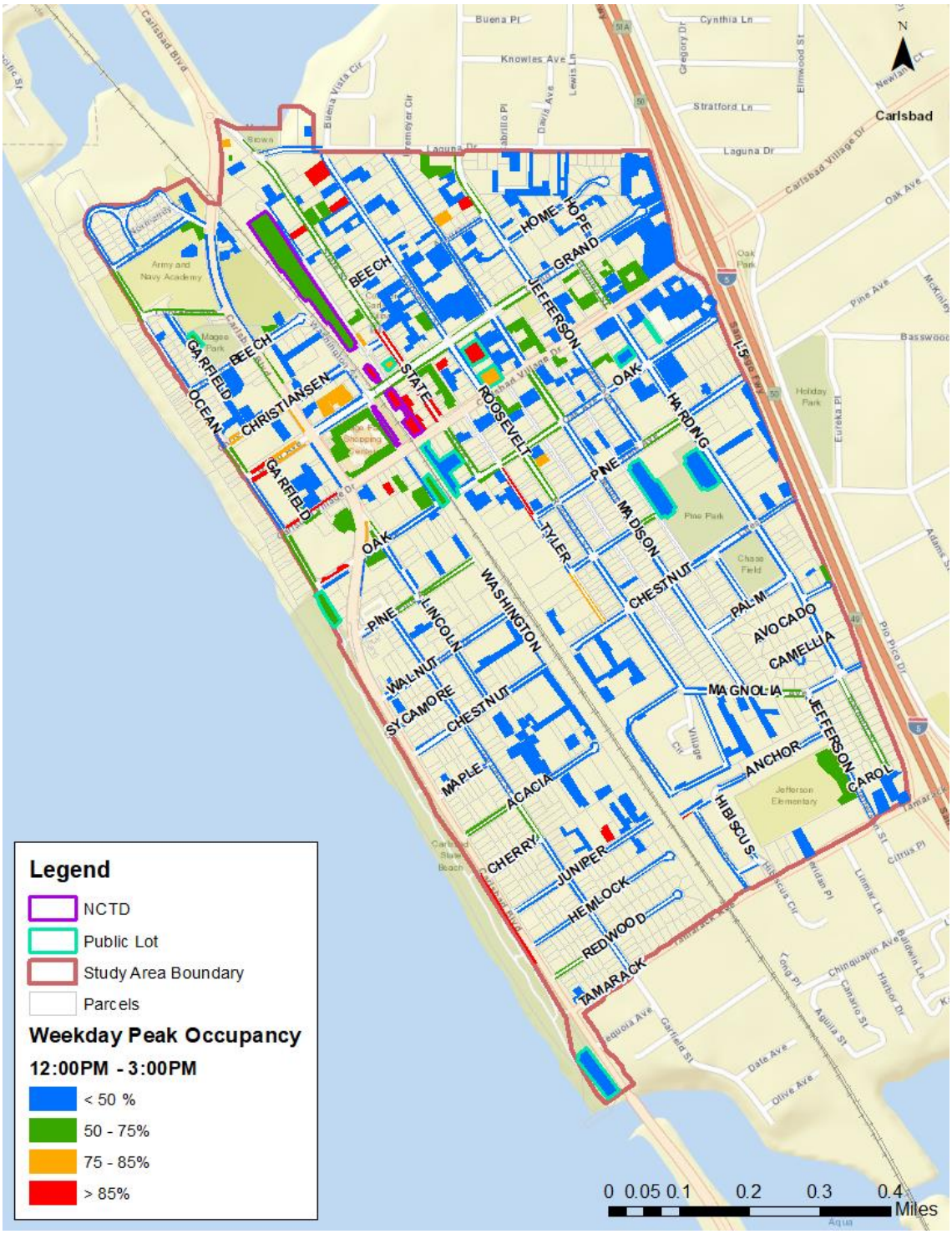
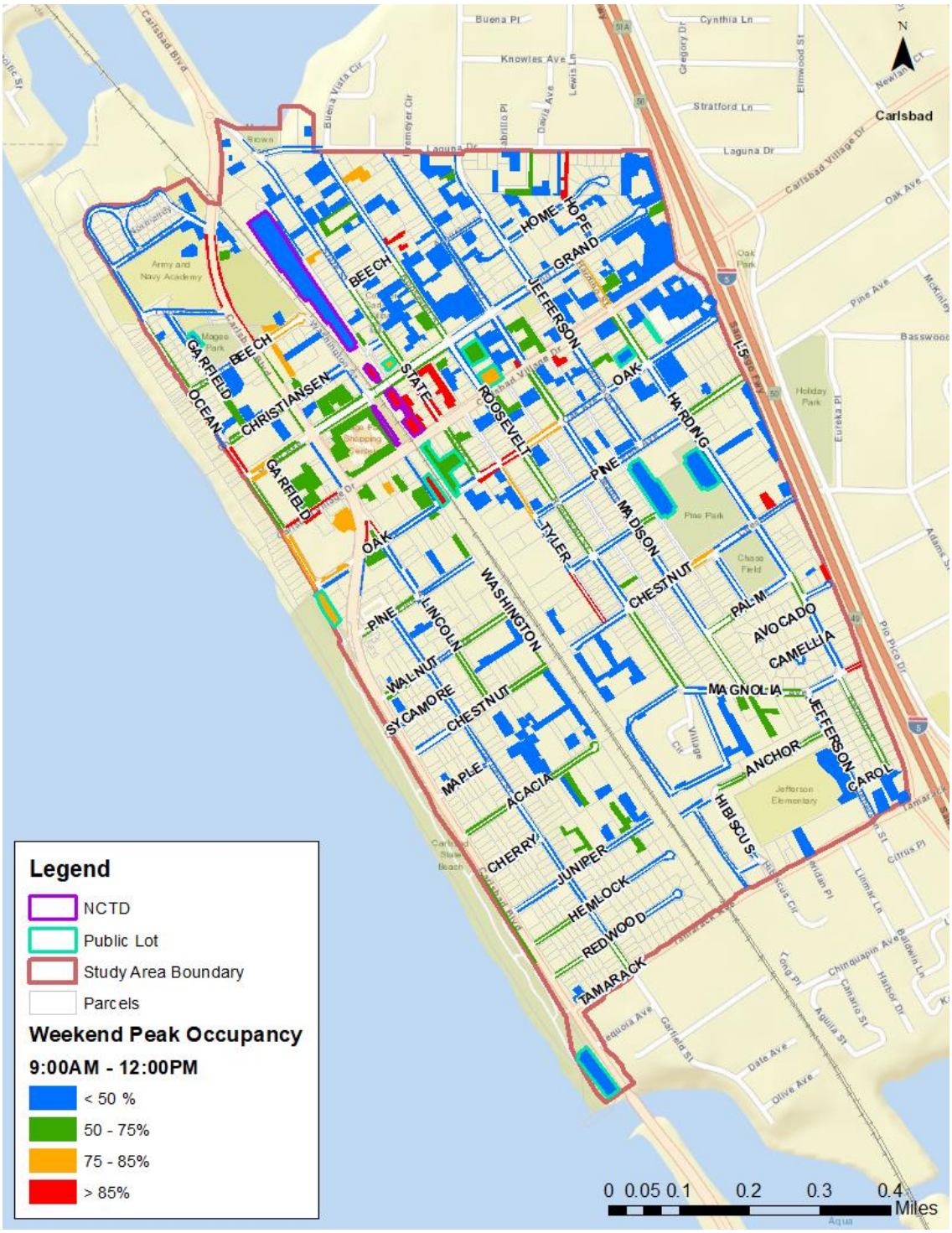


Figure 5: 2019 January Weekend Peak Parking Occupancy (9:00 AM – 12:00 PM)



Parking Thresholds

As stated previously, occupancy data is a metric widely used to evaluate the effectiveness of a parking system. At 85 percent occupied, a parking system is considered to be at effective capacity and changes need to be implemented to make more parking available for people. Conversely, underutilized parking is also not desirable as it indicates that the parking is inconvenient. A typical "sweet spot" for parking occupancy is 75 percent. At this level, the area is active and lively, but people can find available parking. Additionally, facilities at the 75 percent threshold are ones that should be observed from year to year for occupancy changes. Additional demand in these facilities can easily tip these facilities into the 85 percent threshold. While 75 percent occupancy is desirable, it must be actively maintained through annual observations and management.

This section of this document examines the facilities that are operating (1) at an acceptable level of 75 percent and up to an occupancy of 84 percent, (2) at or above the 85 percent effective capacity, or (3) below 75 percent, or at an occupancy considered underutilized. This section also presents options for future growth or shared parking opportunities.

75 Percent Threshold

In January 2019, 8 facilities representing only 1% of the system's parking supply (92 spaces) were observed to operate in the 75 to 84 percent range during the weekday. Of these, 2 facilities were observed within this range in 2018 as well.

Figure 6 illustrates the location of the facilities with occupancies between 75 percent and 84 percent for May 2018 and January 2019. As the map shows, most of these parking facilities are located in the Village. This is expected since this part of the study area is mostly commercial and will have higher daytime demand than the more residential parts of the study area.

During the weekend, the number of facilities with occupancies between 75 percent and 84 percent dropped to 20 facilities comprising 494 spaces, or 4 percent of the overall parking system's supply. ***Figure 7*** provides a comparative summary of the number of facilities and spaces for shoulder/off season periods of data collection from 2016 to 2019 for both weekdays and weekends.

Similar to the May 2018 weekend peak, the facilities experiencing occupancies between 75 percent and 84 percent during the January 2019 weekend peak were not concentrated in one specific area, rather they were spread out throughout the study area. ***Figure 8*** illustrates the facilities with occupancies between 75 percent and 84 percent for the weekend collections.

Three facilities were observed to operate within the 75 to 84 percent occupancy range in both May 2018 and January 2019. These included two public lots and one block of on-street parking along Beech Street between the railroad tracks and Carlsbad Boulevard, all located within the Village.

Figure 7: Weekday Peak Parking Facilities 75 to 84 Percent Occupancy
Peak Hours: 2018 (12 PM – 3PM) & 2019 (12 PM – 3 PM)

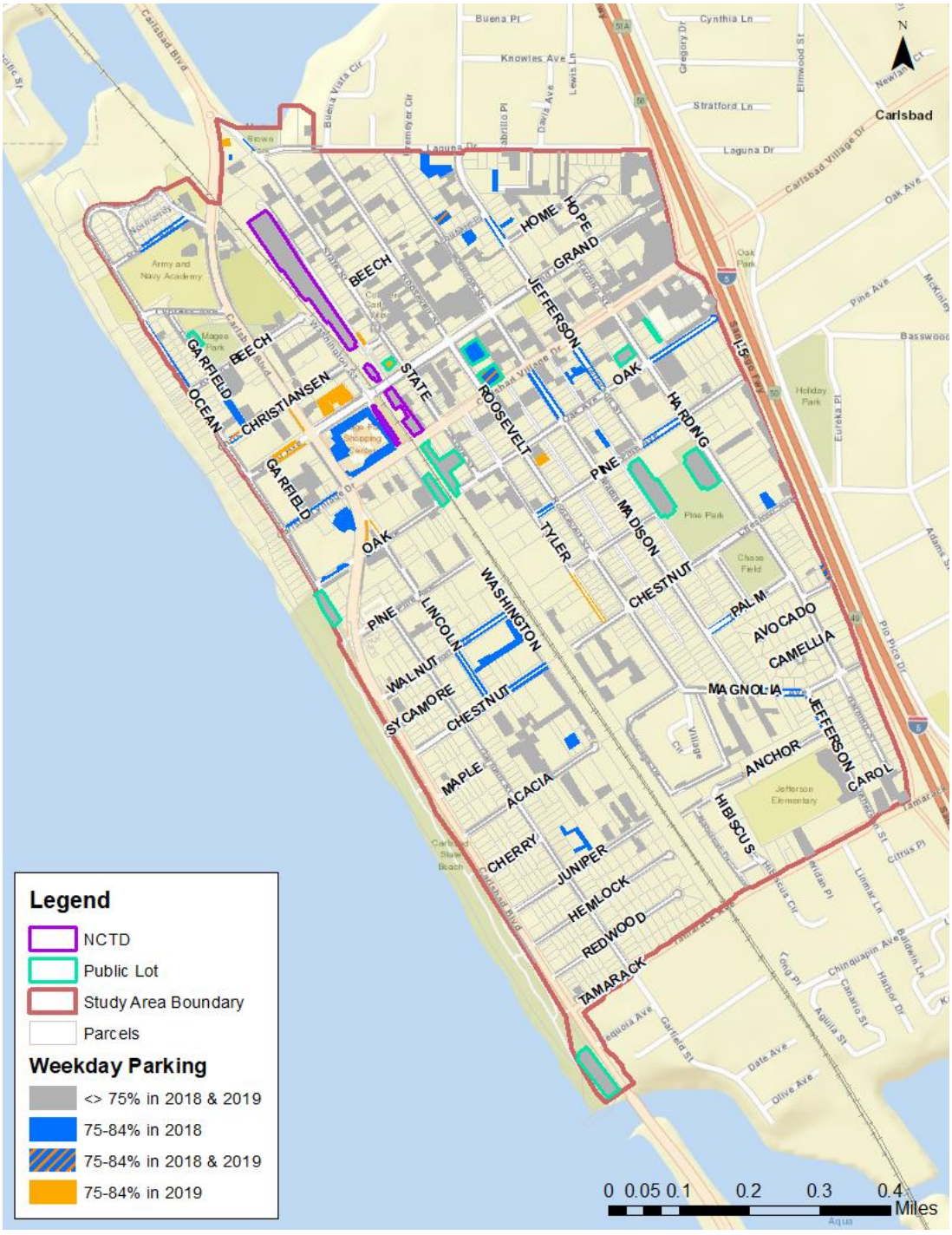


Figure 6: Number of Parking Facilities 75 to 84 Percent Occupancy per Year

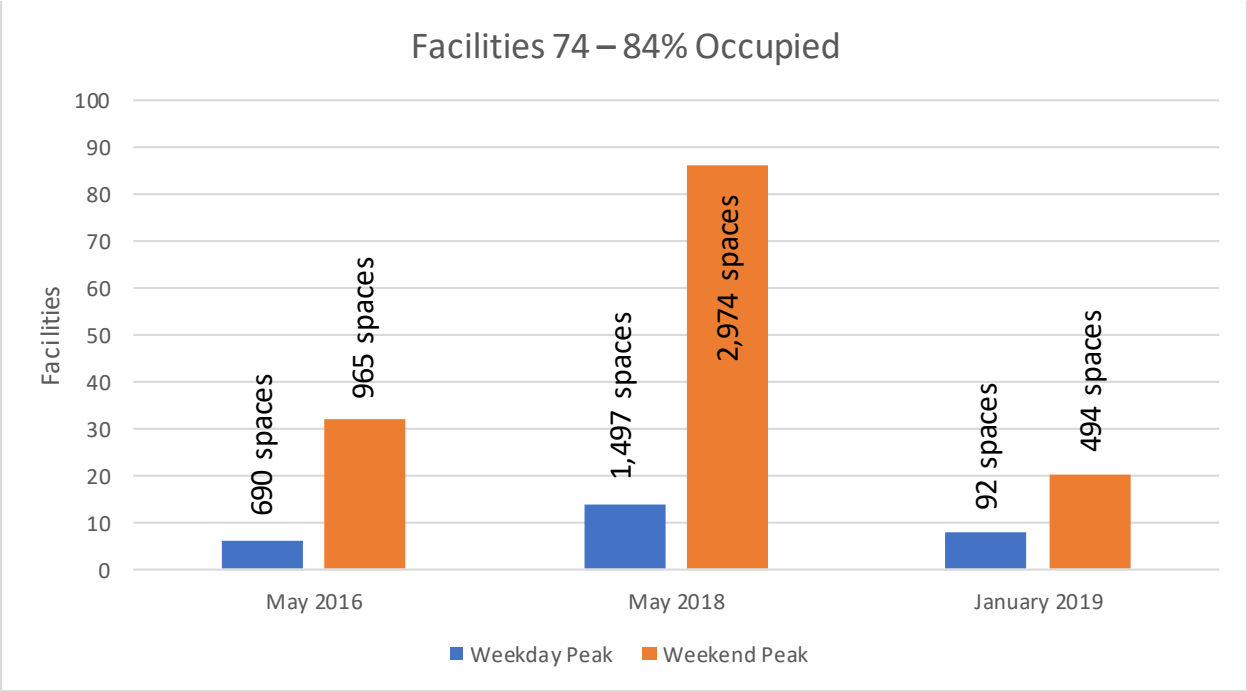
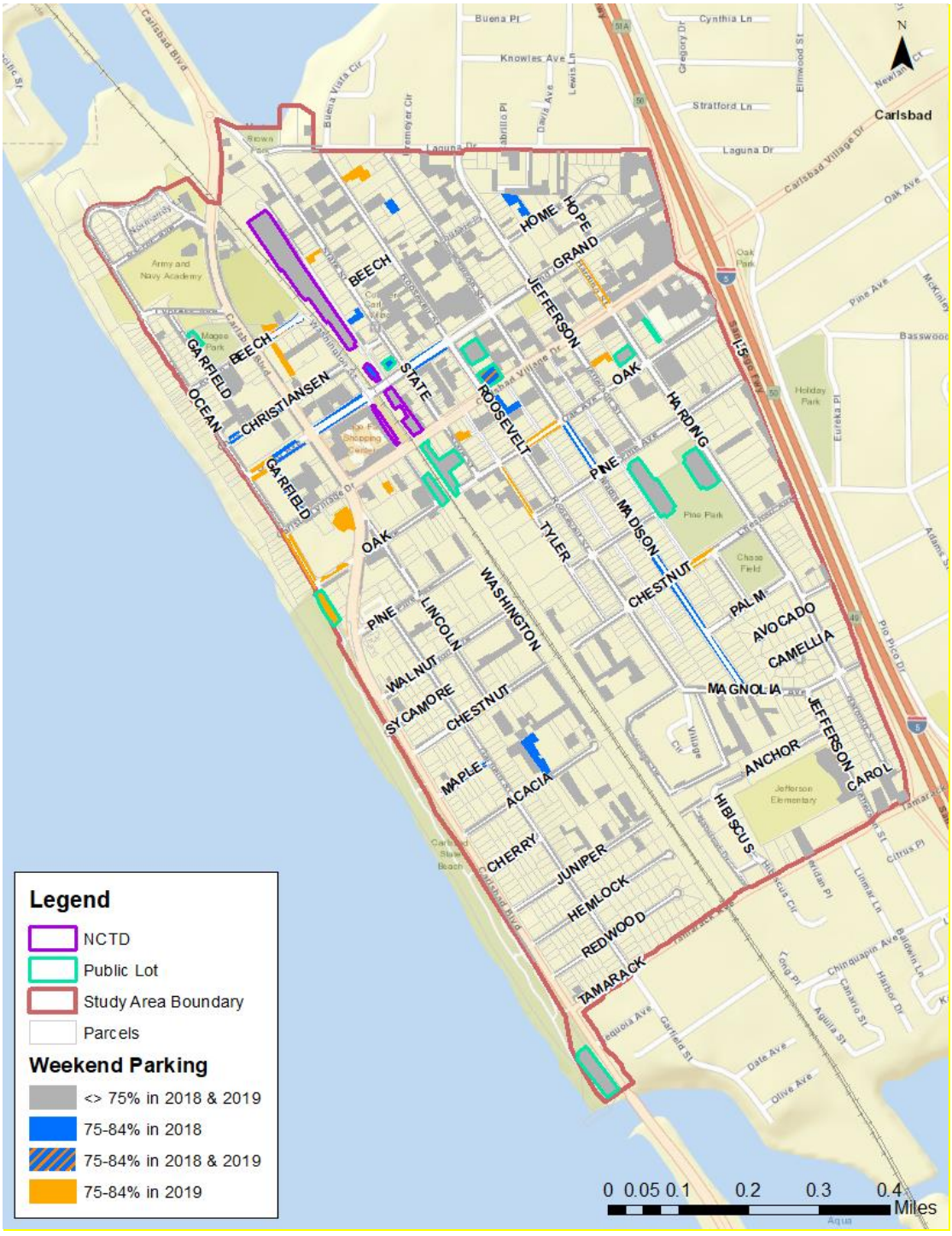


Figure 8: Weekend Peak Parking Facilities 75 to 84 Percent Occupancy
Peak Hours: 2018 (3 PM – 6 PM) & 2019 (9AM – 12 PM)



85 Percent Threshold

During the weekday peak (12:00 PM – 3:00 PM) in January 2019, nine facilities were observed to operate at or above 85 percent occupied throughout the day. These facilities represent approximately 1 percent of the parking supply (100 of the 11,501 spaces), which is down from the 2018 shoulder season, which saw 24 facilities having occupancies 85 percent or greater. During the weekend peak (9:00 AM – 12:00 PM) in January 2019, only four percent of the spaces within the study area, or 468 spaces were observed to operate at or above 85 percent occupied. ***Figure 9*** provides a comparative summary of parking facilities observed to have occupancies at or above 85 percent during the weekday and weekend peaks and across all survey areas.

The parking facilities consisting of these spaces are shown in ***Figures 10*** and ***11***. The map indicates that in January 2019 parking facilities experiencing demands at or above 85 percent during the weekday peak are generally located in the Village east of the railroad tracks. In general, the number of spaces declined considerably between the shoulder and off seasons. Of the nine facilities that were observed with occupancies at or above 85 percent during the January weekday peak (**Figure 10**), five were private lots, one was an NCTD public lot located on the north side of Grand Avenue between Washington Street and State Street, and three were blocks of on-street parking on Oak Avenue between Ocean Street and Lincoln Street and Tyler Street between Oak Avenue and Pine Avenue, as well as the southern block face Anchor from the railroad tracks to Nautical Drive.

The data represented in ***Figure 11***, shows a decrease in facilities with occupancies greater than 85 percent during the January 2019 weekend peak (12:00 PM – 3:00 PM) compared to the May 2018 weekend peak (6:00 AM – 9:00 AM) with 14 facilities observed with utilizations at or above 85 percent. These include five blocks of on-street parking throughout the Village, two blocks of on-street parking in the Barrio, and one block outside the Master Plan areas on Carlsbad Village Drive at its intersection with Ocean Street.

Figure 9: Number of Parking Facilities ≥85 Percent Occupancy per Year

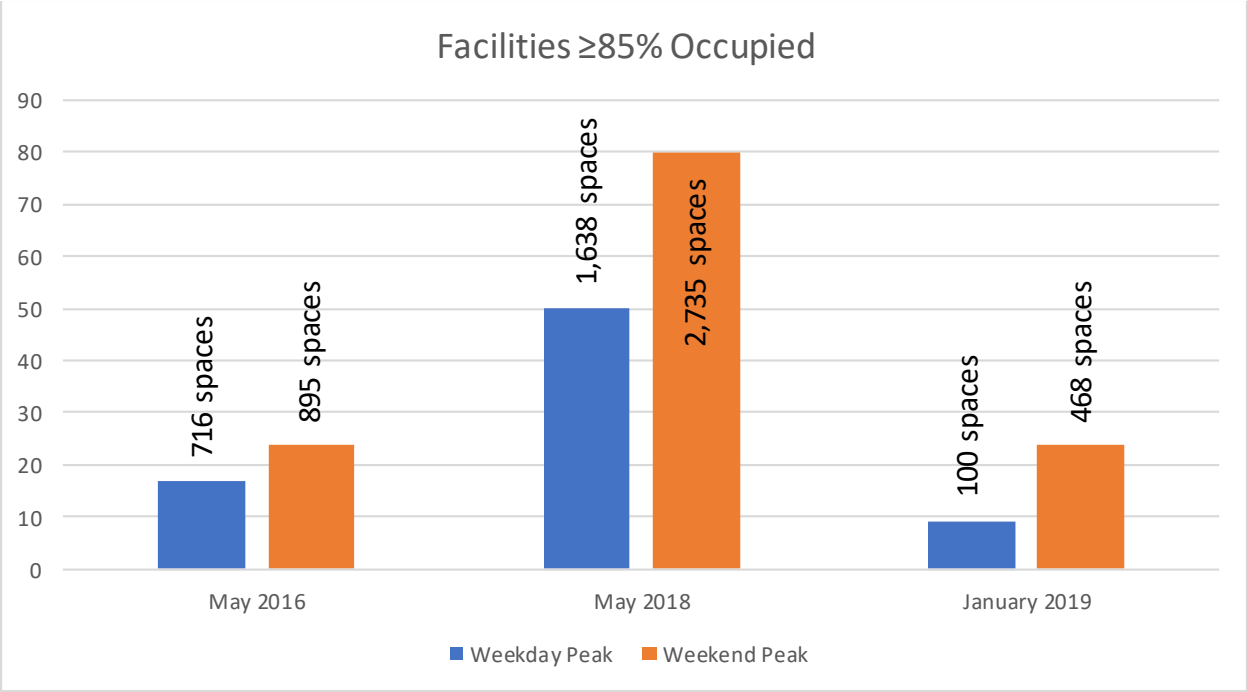


Figure 10: Weekday Peak Parking Facilities 85 Percent Occupancy or Greater

Peak Hours: 2018 (12 PM – 3PM) & 2019 (12 PM – 3 PM)

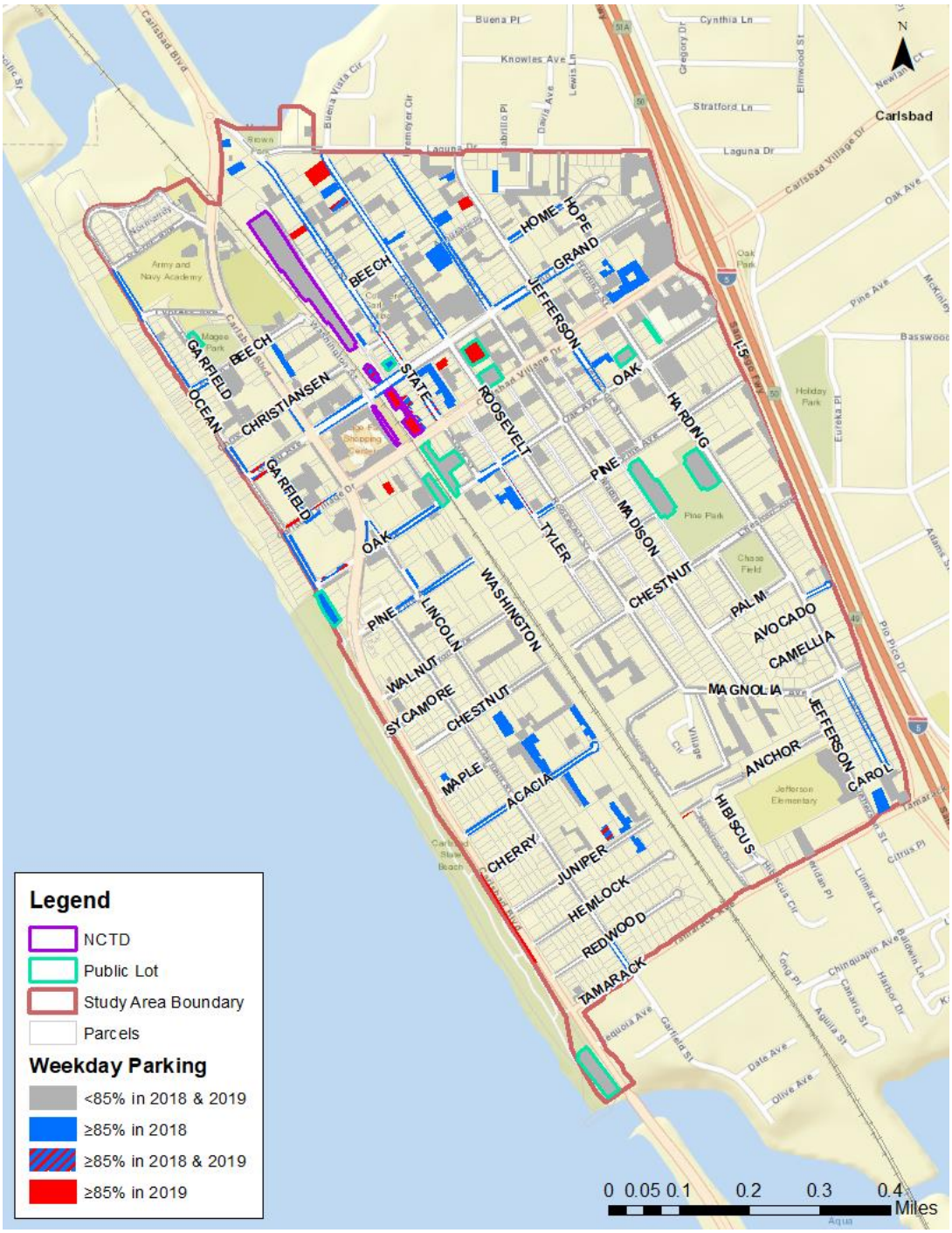
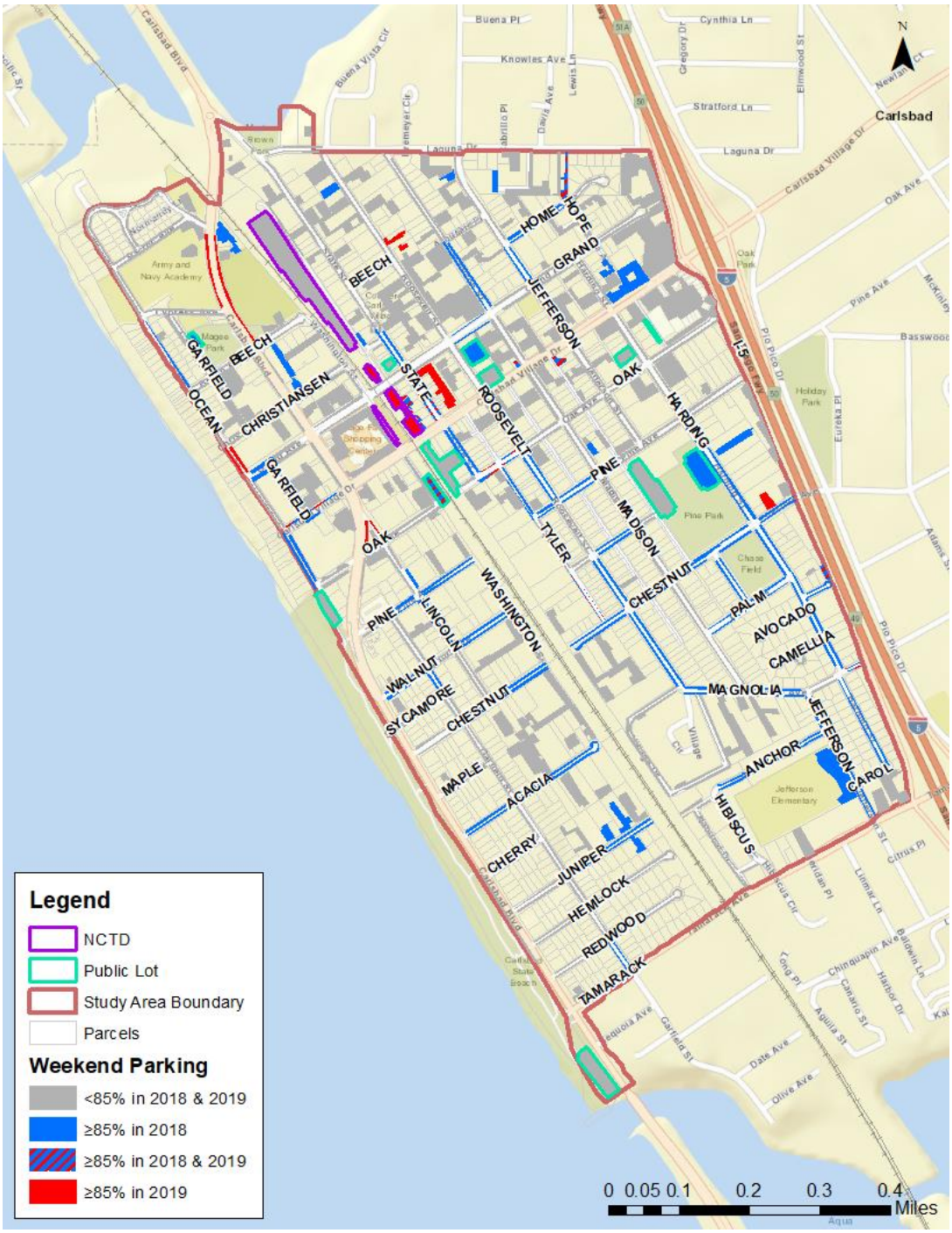


Figure 11: Weekend Parking Peak Facilities 85 Percent Occupancy or Greater

Peak Hours: 2018 (3 PM – 6 PM) & 2019 (9 AM – 12 PM)



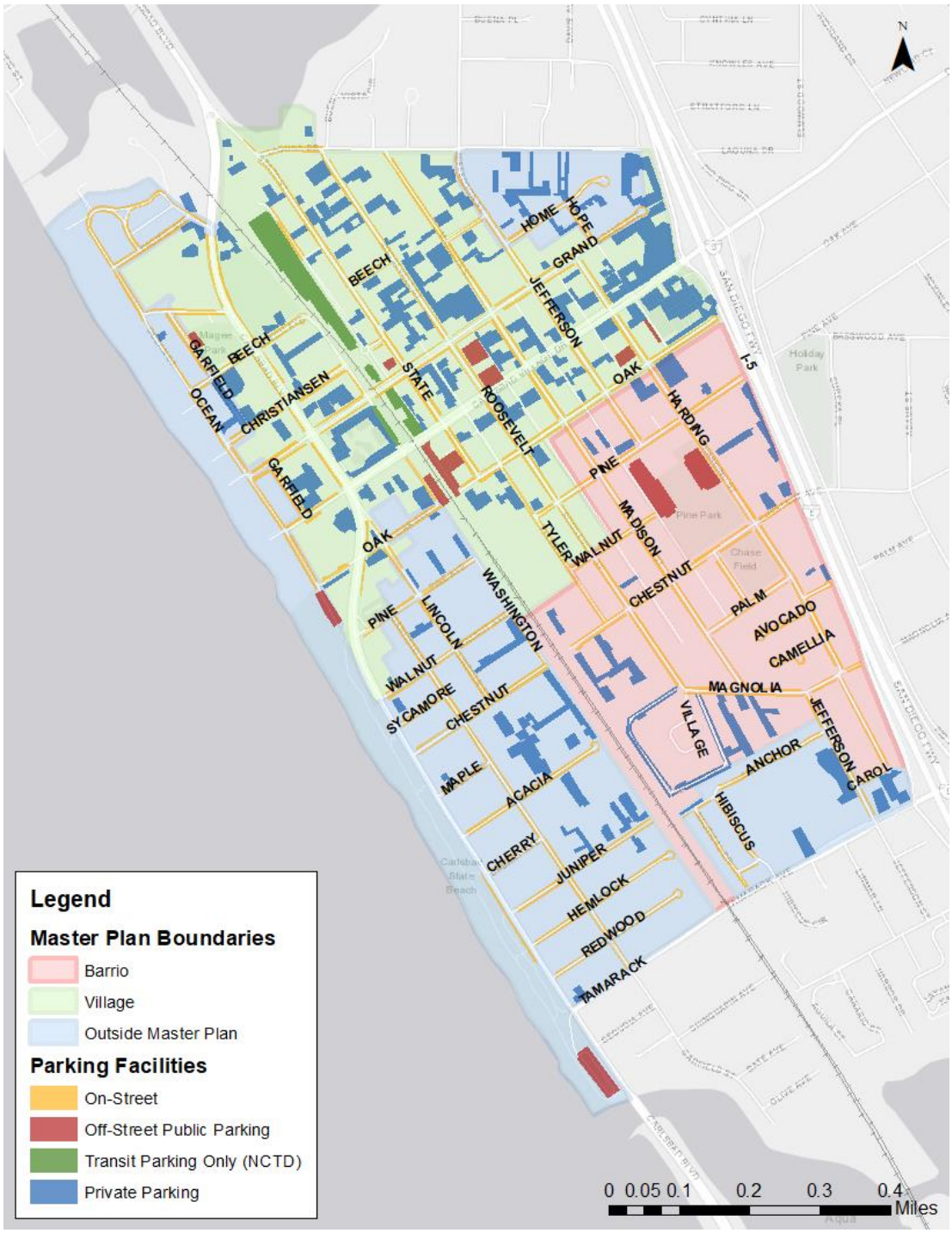
Sub-Area Analyses

The previous section reviewed the January 2019 data and findings for the study area as a whole in comparison to 2016 and 2018 May data. However, the study area is comprised of four sub-areas that have differing characteristics and should be reviewed separately to highlight specific trends and challenges unique to each area.

- The Barrio area, as defined by the Village and Barrio Master Plan
- The Village area, also as defined by the Village and Barrio Master Plan
- "Outside Master Plan" areas, which encompass primarily the beach neighborhoods south and west of the master plan but also residential areas south of the Barrio around Jefferson Elementary School and east of the Village in the neighborhood bordered generally by Grand Avenue, Jefferson Street, and Laguna Drive
- Areas east and west of the railroad tracks, which include and portions of other sub-areas

Figure 12 illustrates the boundaries of the Village and Barrio Master Plan and the Outside Master Plan sub-areas and ***Figure 13,*** on page 29, highlights the areas east and west of the railroad tracks. Separating the data in these sub-area boundaries allows the data to be analyzed in a way that focuses on facilities that have a higher impact on that specific area. This analysis can also be helpful for making parking management decisions as different strategies may have to be implemented differently or at different times in each sub-area, depending on what the data indicates.

Figure 12: Village and Barrio Master Plan Boundaries



Barrio Area

The Barrio area is located in the southeast portion of the study area, generally bounded by Interstate 5 to the east, the railroad corridor to the west, Oak Avenue to the north and Tamarack Avenue to the south. This area is mainly residential; however, there are a few local businesses along Roosevelt and Tyler Streets to the northwest. The Pine Avenue Park, Community Center and Gardens are located within the center of this area. Parking within the Barrio contains mainly public on-street and private off-street, with the exception of two public off-street facilities at Pine Avenue Park. ***Table 4*** below, compares the January 2019 average parking occupancies throughout the day for each facility type within this area.

Table 4: January 2019 Parking Occupancies by Facility Type Master Plan Barrio Area

PARKING TYPE	DAY	6 AM – 9 AM	9 AM –12 PM	12 PM – 3 PM	3 PM – 6 PM	6 PM – 9 PM	9 PM – 11 PM
On-Street	Weekday	29%	32%	33%	40%	39%	42%
	Weekend	51%	43%	39%	46%	46%	48%
Public Off-Street	Weekday	8%	24%	39%	26%	4%	4%
	Weekend	6%	32%	32%	19%	8%	8%
Private Off-Street	Weekday	48%	36%	23%	26%	43%	43%
	Weekend	37%	26%	25%	27%	36%	37%

The results in ***Table 4*** show occupancies for on-street facilities within the Barrio at or below 50 percent throughout the weekday and majority of the weekend periods surveyed, peaking at 51 percent during the weekend 6:00 AM – 9:00 AM observations. Occupancies for on-street facilities within the Barrio area were consistently underutilized for all time periods across weekday and weekend days.

Given that there is high concentration of residential properties in this area, on-street facilities generally reflect increased demand during hours after and before work hours, which is shown during the 6:00 AM – 9:00 AM and 9:00 PM – 11:00 PM counts. During the January 2019 observations, all categories of parking supplies were underutilized during all collection periods. Most notable is the decrease in weekend occupancy observed during the 12:00 PM – 3:00 PM period on the weekend as compared to May 2018. In May, on-street facilities were observed at 88 percent occupied during this time, representing a 49-point decrease in on-street parking demand in this area during this time on the weekend. A nearly similar decrease in parking demand occurred during the weekend 9:00 AM to 3:00 PM time frame for public off-street

parking at Pine Avenue Park. The 72 percent occupancy observed in May 2018 dropped to 32 percent in January 2019, a 40-point decline.

Village Area

The Village area is located north of the Barrio area predominately between Interstate 5 west to the east, the Pacific Ocean to the west, Laguna Drive to the north and Oak Avenue and Walnut Avenue to the south. However, there are several "pockets" within these boundaries that will be analyzed in the next section. Refer to ***Figure 12*** on page 24 for the Village area boundary. This area consists of various land uses, such as apartments, general retail, offices, restaurants, and single-family homes. ***Table 5*** below, compares the January 2019 average parking occupancies throughout the day for each facility type within this area.

Table 5: January 2019 Parking Occupancies by Facility Type Master Plan Village Area

PARKING TYPE	DAY	6 AM – 9 AM	9 AM – 12 PM	12 PM – 3 PM	3 PM – 6 PM	6 PM – 9 PM
On-Street	Weekday	30%	40%	49%	46%	26%
	Weekend	17%	51%	38%	37%	31%
Public Off-Street	Weekday	17%	42%	66%	59%	52%
	Weekend	15%	68%	68%	77%	69%
Private Off-Street	Weekday	16%	27%	37%	34%	24%
	Weekend	20%	37%	37%	35%	32%
NCTD Transit Lots	Weekday	55%	66%	76%	70%	36%
	Weekend	16%	43%	43%	43%	55%

Table 5 occupancy results shows the Village Area experiencing higher demand for off-street public facilities than the Barrio Area. On-street parking occupancies reach a peak of 51% on weekends at 9:00 AM – 12:00 PM. Occupancies are the highest in public off-street facilities, with occupancies reaching approximately 77 percent on weekends between 3:00 PM – 6:00 PM. Although public off-street facilities have relatively high occupancies, they still fall below the 85 percent effective capacity threshold.

Outside Master Plan Areas

Areas "outside" the master plan consists of predominately beach neighborhoods, with several residential areas north of the Village and south of the Barrio areas. The beach portion of this area is primarily bounded by the Pacific Ocean to the west, the railroad corridor to the east, Ocean Street to the north, and Tamarack Avenue to the south. Uses here include a mix of residences, some businesses, and Army and Navy Academy facilities. The residential area north of the Village is generally east of Jefferson Street and north of Grand Avenue. The area south of the Barrio borders Tamarack Avenue and is centered around Jefferson Elementary School. Please refer to ***Figure 12*** for more detailed boundary information.

Table 6 below compares the January 2019 average parking occupancies throughout the day for each facility type within this area.

Table 6: January 2019 Weekday and Weekend Parking Occupancies by Facility Type

Outside Master Plan Areas (Predominately Beach Area)

PARKING TYPE	DAY	6 AM – 9 AM	9 AM – 12 PM	12 PM – 3 PM	3 PM – 6 PM	6 PM – 9 PM
On-Street	Weekday	36%	37%	36%	30%	28%
	Weekend	40%	45%	51%	30%	27%
Public Off-Street	Weekday	20%	25%	30%	21%	9%
	Weekend	26%	46%	46%	70%	10%
Private Off-Street	Weekday	23%	23%	21%	30%	41%
	Weekend	34%	31%	31%	37%	37%

Table 6 illustrates a notable trend in this area, where parking occupancies in the private off-street facilities increase throughout the day while on-street facilities decrease. Further, occupancies in public off-street facilities generally decline throughout the day on the weekday observations from 9:00 AM on, but increase throughout the day on weekends before a sharp decline after 6:00 PM. Occupancies are the highest in public off-street facilities, spiking with occupancies of 70% on weekends between 3:00 PM – 6:00 PM before dropping to 10 percent between 6:00 PM – 9:00 PM. Although public off-street facilities have relatively high occupancies, they are not sustained, and they still fall below the 85 percent effective capacity threshold.

Areas East and West of the Railroad Tracks

The railroad tracks analysis consists of comparing occupancy data for both on and off-street parking facilities east and west of the railroad tracks. East of the tracks consists of Village and Barrio areas, while west of the tracks is predominately beach and a portion of the Village neighborhood. A map of the boundary area used in the comparison analysis is shown in ***Figure 13*** on the following page.

East of the Tracks Analysis

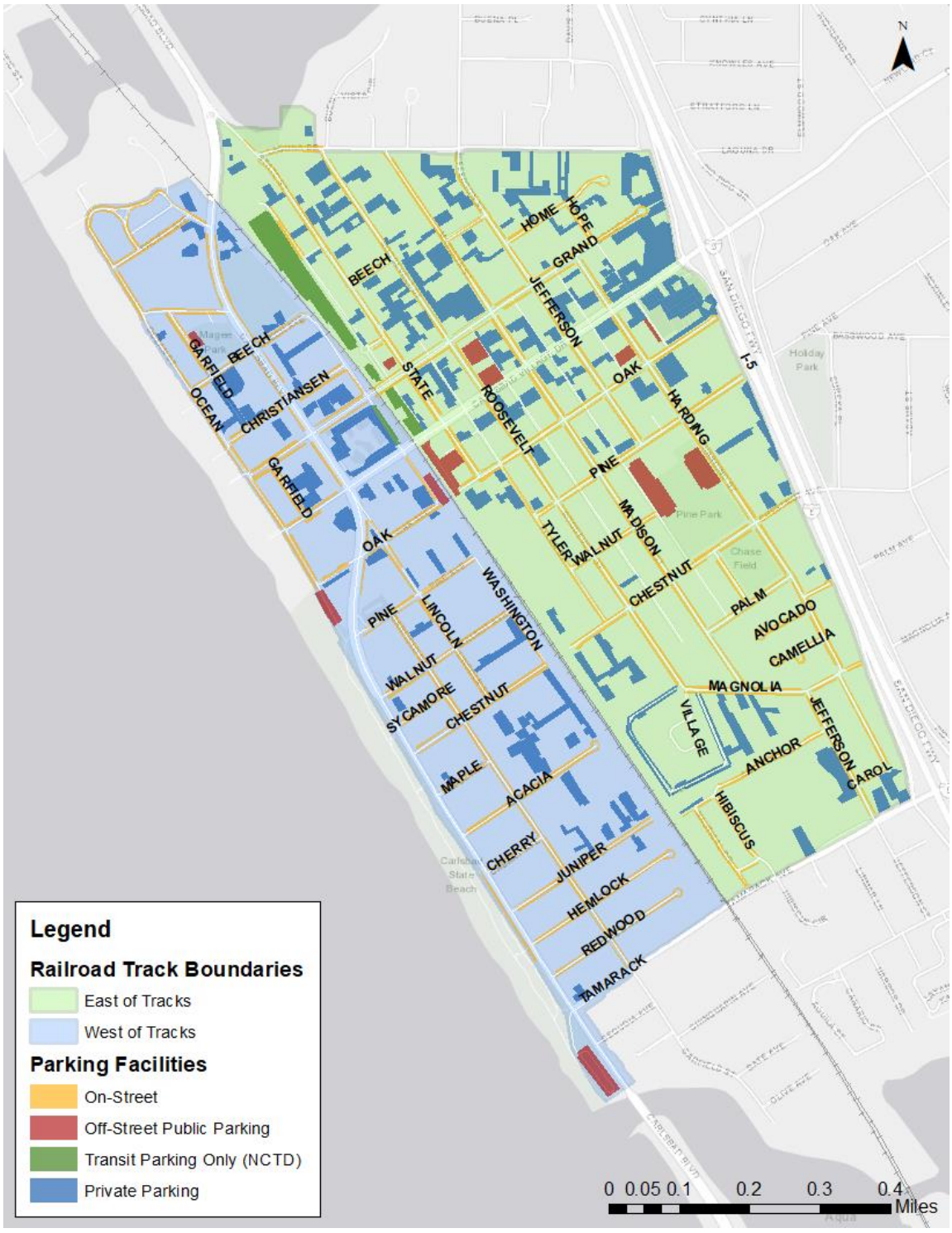
In ***Table 7*** below, weekday average occupancies east of the tracks generally increased for each facility type through 12:00 PM – 3:00 PM, and then decreased, sometimes sharply, in the 3:00 PM – 6:00 PM timeframe. During weekend observations occupancies were somewhat erratic but held steady or slightly declined past 6:00 PM. Throughout all collection periods, however, all facility types were underutilized. The greatest occupancies were observed in the public off-street facilities during the 3:00 PM – 6:00 PM weekend collections.

Table 7: August 2018 Parking Occupancies by Facility Type East of the Tracks

PARKING TYPE	DAY	6 AM – 9 AM	9 AM – 12 PM	12 PM – 3 PM	3 PM – 6 PM	6 PM – 9 PM	9 PM – 11 PM (BARRIO ONLY)
On-Street	Weekday	30%	35%	39%	41%	27%	42%
	Weekend	33%	44%	31%	38%	35%	48%
Public Off-Street	Weekday	11%	33%	55%	44%	35%	4%
	Weekend	7%	52%	52%	53%	46%	8%
Private Off-Street	Weekday	22%	28%	32%	31%	29%	43%
	Weekend	25%	32%	32%	28%	30%	37%
NCTD Transit Lots	Weekday	57%	67%	77%	71%	35%	N/A
	Weekend	15%	41%	41%	41%	53%	N/A

The land uses of the area such as restaurants, offices, apartments, general retail and single-family homes may play a factor in the increasing occupancies throughout the day in the Village and Barrio areas. The parking system as a whole is underutilized for both weekdays and weekends, with peak occupancies well below the 85 percent effective capacity threshold.

Figure 13: Areas East and West of the Railroad Tracks



West of the Tracks Analysis

Table 8 compares average occupancy trends by facility type for both January 2019 weekday and weekend data.

Table 8: January 2019 Parking Occupancies by Facility Type West of the Tracks

PARKING TYPE	DAY	6 AM – 9 AM	9 AM – 12 PM	12 PM – 3 PM	3 PM – 6 PM	6 PM – 9 PM
On-Street	Weekday	35%	40%	43%	35%	36%
	Weekend	35%	50%	61%	34%	31%
Public Off-Street	Weekday	24%	31%	37%	29%	11%
	Weekend	32%	52%	52%	68%	16%
Private Off-Street	Weekday	20%	26%	30%	34%	33%
	Weekend	28%	37%	37%	45%	40%

In ***Table 8***, public parking, whether on-street and public off-street, experienced the highest parking demands of all facilities west of the railroad. Public off-street parking saw peak occupancies reach 68 percent during the 3:00 PM – 6:00 PM weekend collection, while on-street parking facilities saw parking occupancies peak at 61 percent during the 12:00 PM – 3:00 PM weekend collection. Weekday occupancies for all facility types remained at or below 40 percent.

Similar to the "Outside Master Plan" analysis, the area West of the Tracks is predominately beach which is likely why this area experienced greater public on-street and off-street parking demands. Although a few facilities did experience occupancies at or above the 85 percent threshold during peak conditions, there are existing publicly availably facilities that have the availability to accommodate any spill over demands and still provide a comfortable walking distance to the beach areas and surrounding destinations.

Areas of Interest

Given the localized nature of parking demands, subdividing the study area for analysis based on broad neighborhood boundaries may provide diluted insights that may not reflect the experiences of a localized area. While these subareas will continue to be considered during the analysis for each biannual update, moving forward, this report will specifically address areas of

interest as identified in analysis of the previous period's update and as identified in current study area analysis, as appropriate. Data for the entire study is maintained, and a macro level analysis based on larger areas may still be performed, if necessary.

Based on the study area analysis of peak weekday and weekend occupancies, the area centered on State Street and Grand Avenue with a quarter mile radius has been identified as an area of interest for monitoring due to concentration of highly utilized parking facilities within this zone. **Figure 14** provides a more detailed look at this portion of the study area during the weekday peak (12:00 PM – 3:00 PM) with the weekend peak (9:00 AM – 12:00 PM) shown in **Figure 15**. The black boundary overlay represents a 1,320-foot buffer from the center of this intersection. At approximately one quarter of a mile, 1,320 feet is considered a comfortable walking distance for the average person.

Figure 14: Weekday Peak Parking Area of Interest

Figure 15: Weekend Peak Parking Area of Interest

These two maps show the overall study area provides a greater concentration of demand within this zone. However, **Table 9** provides a closer analysis of parking within this area by facility type and demonstrates that there remains an abundance of available parking. As demonstrated in the table, private parking supplies were 40 percent utilized during weekend peak conditions in January 2019 and due to their abundance attracted the greatest quantity of vehicles.

Table 9: January 2019 Parking Occupancies by Facility Type for Area of Interest

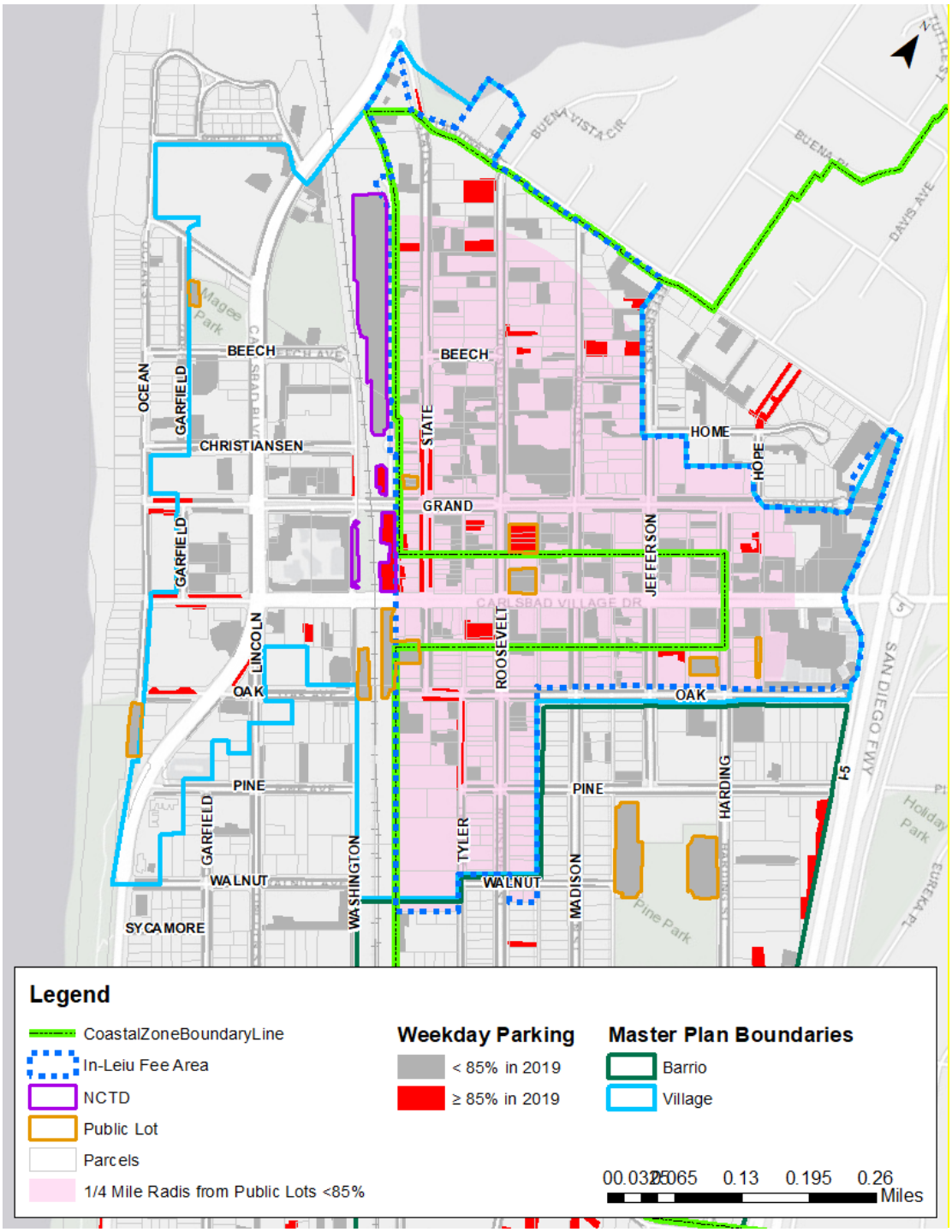
PARKING TYPE	SUPPLY	WEEKDAY PEAK	WEEKEND PEAK
On-Street	1,347	663 Vehicles 49% Occupied	730 Vehicles 54% Occupied
Private Off-Street	2,138	799 Vehicles 37% Occupied	861 Vehicles 40% Occupied
Public Off-Street	274	184 Vehicles 67% Occupied	198 Vehicles 72% Occupied
NCTD Transit Lots	541	413 Vehicles 76% Occupied	231 Vehicles 43% Occupied

While this area does provide the greatest concentration of individual facilities experiencing utilization rates at or above the 85 percent threshold, there are available parking supplies within a comfortable walking distance. However, given the concentration of heightened demand within this area of interest, this area should continue to be monitored to ensure parking supplies remain available within tolerable walking distances. Should demand in this area for a particular type of parking exceed effective capacity, and appropriate alternative parking options are not available within a reasonable distance, parking management strategies such as those discussed in the Parking Management Plan may help to reduce or redistribute parking demands.

In-Lieu Fee Program Areas

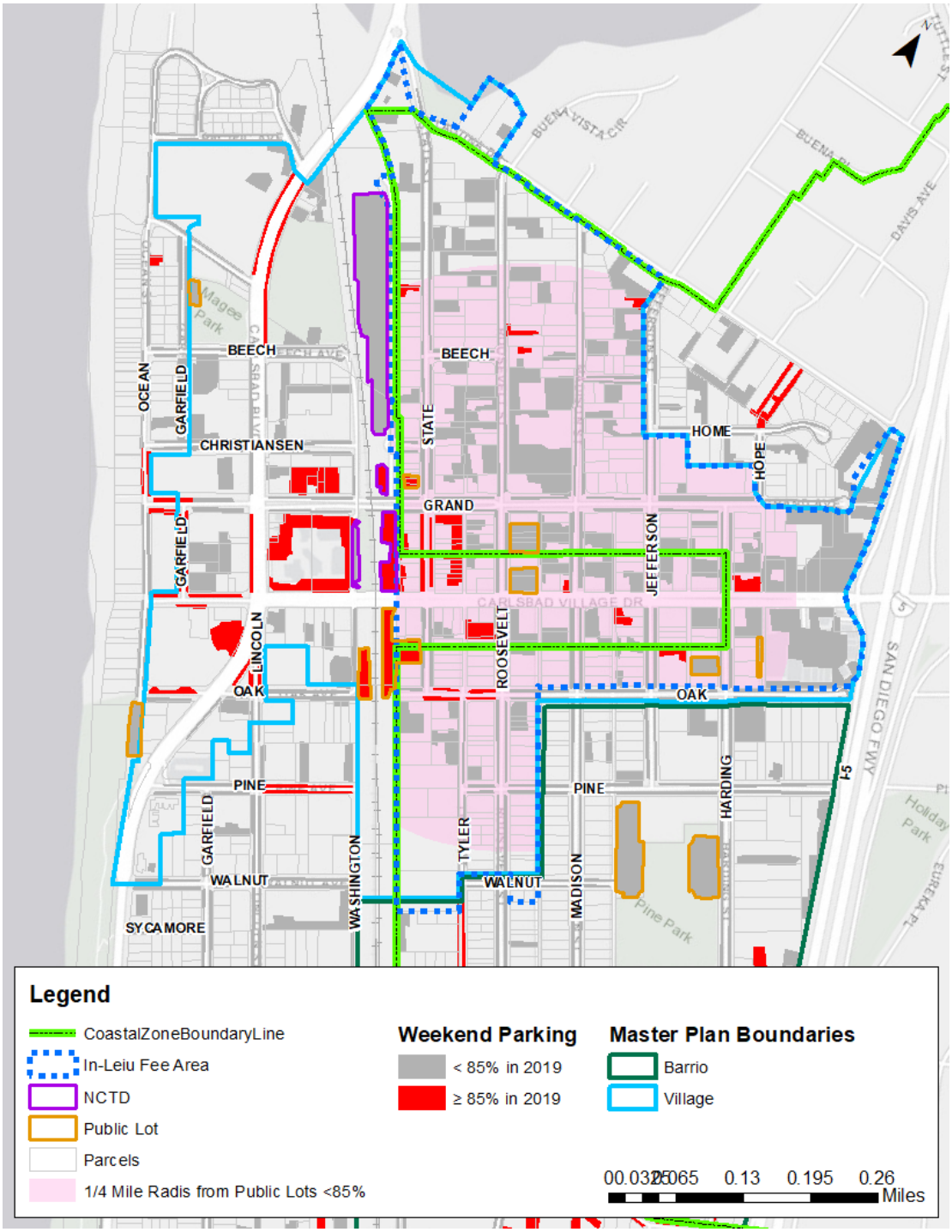
The Village and Barrio Master Plan's Parking In-Lieu Fee Program allows developers to pay for the construction of parking spaces that are not provided on-site, which can be used for shared or leased parking or other mobility improvements that reduce parking demand. Non-residential uses eligible to participate in the program may satisfy up to 100 percent of their parking requirement through payment of a fee. Participation is subject to requirements and findings, including a provision where the uses must be within a defined area of the master plan and must be within a quarter mile of an off-street public parking lot with an occupancy under 85 percent. ***Figures 16*** and ***17*** provide information to help determine eligibility and show that most parcels in the in-lieu fee area are within a quarter-mile of a public lot with peak utilization under 85% with the exception of several parcels on the north edge of the in-lieu fee area along Laguna Drive and State Street and the eastern boundary near the Interstate 5 and Carlsbad Village Drive interchange. Complete information on the Parking In-Lieu Fee Program may be found in Section 2.6.6 and Table 2-4 of the Village and Barrio Master Plan. Further, eligibility to participate in the Parking In-Lieu Fee Program shall be verified with the city's Planning Division.

Figure 16: Parking In-Lieu Fee Program Information – January 2019 Weekday Parking



Note: Eligibility to participate in the Parking In-Lieu Fee Program shall be verified with the city's Planning Division.

Figure 17: Parking In-Lieu Fee Program Information – January 2019 Weekend Parking



Note: Eligibility to participate in the Parking In-Lieu Fee Program shall be verified with the city's Planning Division.

Average Parking Duration Comparison

Along with the occupancy data, the LPR technology also facilitates analysis of how long vehicles are parked in the study area. This data, known as *duration*, was analyzed for the on-street parking facilities. A duration of 2 hours or less is considered *short-term* parking. Comparing the May 2016 and May 2018 data to the January 2019 data, the average duration for the study area shows 41 percent of users parking for 2 hours or less in January 2019, a decreased of 24 points from May 2018.

In the Barrio only, in May 2016, 15 percent of patrons parked for more than 10 hours. In 2018, 27 percent of patrons parked for more than 10 hours in the Barrio, an increase of 12 percent in long-term parkers. During the January 2019 collections, no vehicles were observed in the Barrio, or any other part of the study area, to be parked in the same location for more than 8 hours.

The length-of-stay data for the May 2016, May 2018, and January 2019 study areas for on-street facilities and by neighborhood is shown in ***Figures 18, 19, and 20.***

Figure 18: Comparison by Year of Average Duration for On-Street Facilities

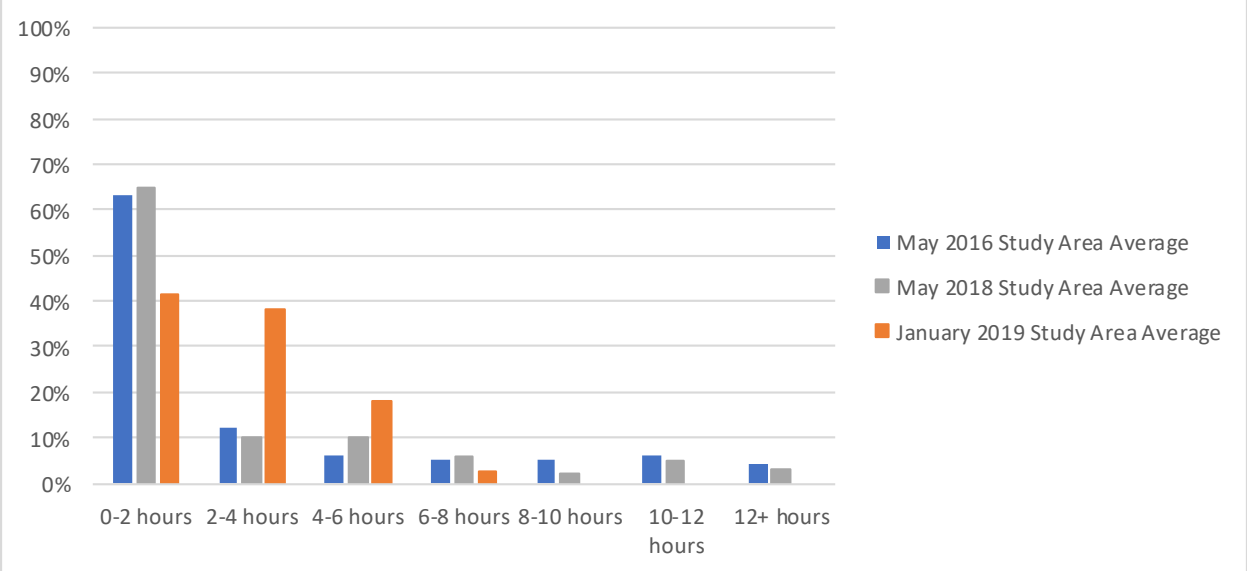


Figure 19: May 2018 Average Duration for On-Street Facilities by Area

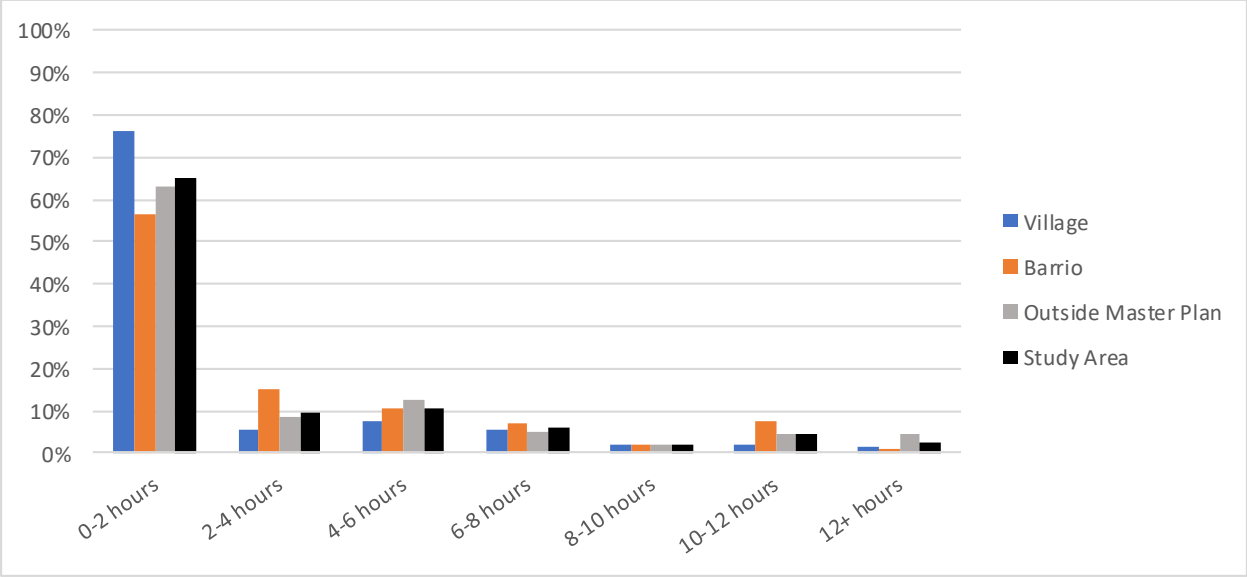
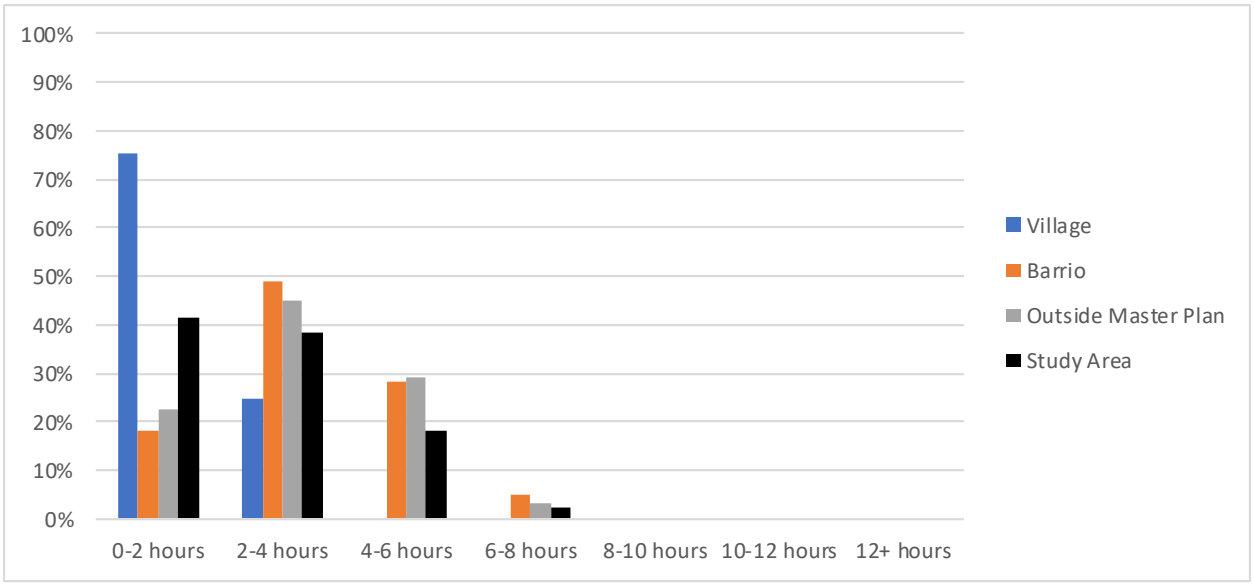


Figure 20: January 2019 Average Duration for On-Street Facilities by Area



Conclusions

The January 2019 results show the peak to be during the weekend at 9:00 AM – 12:00 PM with an observed occupancy of 41 percent; a 15-point decrease from the May 2018 peak (56 percent at 12:00 PM – 3:00 PM). The weekday data also shows a decrease of 12 points with a peak occupancy of 39 percent, compared to 51 percent in May 2018.

The duration analysis indicates that in 2019 there was a decrease in long-term on-street parkers in the Barrio area, as indicated on page 37. Durations, overall, have become longer on average but durations over 8 hours were far less frequent, indicating a lower frequency for storage of personal vehicles on-street than in previous collections for the shoulder-season.

After comparing the January 2019 to May 2018 weekday peak data for facilities with occupancies between 75 and 84 percent, the 2019 data experienced a decrease of 12 points from 13 percent of total parking spaces within the overall parking system to only 1 percent. During the January 2019 weekend peak, 4 percent of spaces within the parking system (in a total of 20 facilities comprising of 468 spaces) experienced occupancies between 75 and 84 percent. This is a decrease of 22 points compared to the May 2018 weekend peak data. Even though these facilities have not reached the 85 percent threshold, they should be monitored for additional increases in demand.

The January 2019 peak data for both weekday and weekend were analyzed and compared to the May 2018 weekday and weekend peak data for occupancies greater than 85 percent. The

2019 weekday data resulted in nine facilities (1 percent of total spaces comprising of __ spaces) with occupancies over 85 percent, down 13 points compared to the May 2018 data. As for the weekend data, 2019 experienced 24 facilities at or above 85 percent occupied, representing 468 of the 11,501 total spaces, which is a 20-point decrease (from 24 percent to four percent) compared to May 2018. For the facilities that have reached or exceeded the 85 percent threshold, parking management strategies as outlined in the 2017 Parking Management Plan may be considered to redistribute parking demands for a more balanced experience for parking patrons. However, despite these localized pockets of demand, there were no areas without available supply in close proximity and within a comfortable walking distance at any time during January 2019 observations.

Along with the effective capacity threshold analysis, the sub-area analysis resulted in their own, yet similar conclusions after analyzing the data based on the various boundaries. The "Outside Master Plan" areas experienced the greatest demands in public off-street facilities during the weekend 3:00 PM – 6:00 PM observations, and least demand in on-street facilities weekdays. In the Village area, some facilities observed higher occupancies than others, with some reaching and exceeding the 85 percent threshold. Although, these higher occupancy, "more attractive" facilities may frustrate the search for available parking, the overall parking system within the Village area is underutilized and parking is available within a comfortable walking distance of all destinations.

Similar to the Village area, the East and West of the tracks analysis showed select public facilities experiencing higher demands; however, overall parking remains underutilized with parking supplies available within a comfortable walking distance of all destinations.

The comparison of the data collected for May 2016 and 2018 and January 2019 suggests a stable demand for parking in the study area. This trend will be monitored during the 2019 peak season and 2020 off-peak season with additional parking management strategies considered to manage high-demand areas as necessary and when appropriate.