3 | Existing Conditions

Prior to determining the overall parking demand in a study area, it is important to understand the existing parking supply and how it operates. A thorough inventory of the existing parking supply was conducted in August 2012. Parking data was collected on a typical weekday (Wednesday, August 15, 2012) and a weekday evening (Friday, August 3, 2012), to identify occupancy, duration, and turnover. Figure 3.1 shows the existing parking facilities within the study area (on- and off-street). In addition, the following sections document the parking inventory and existing conditions of parking within the Downtown study area.

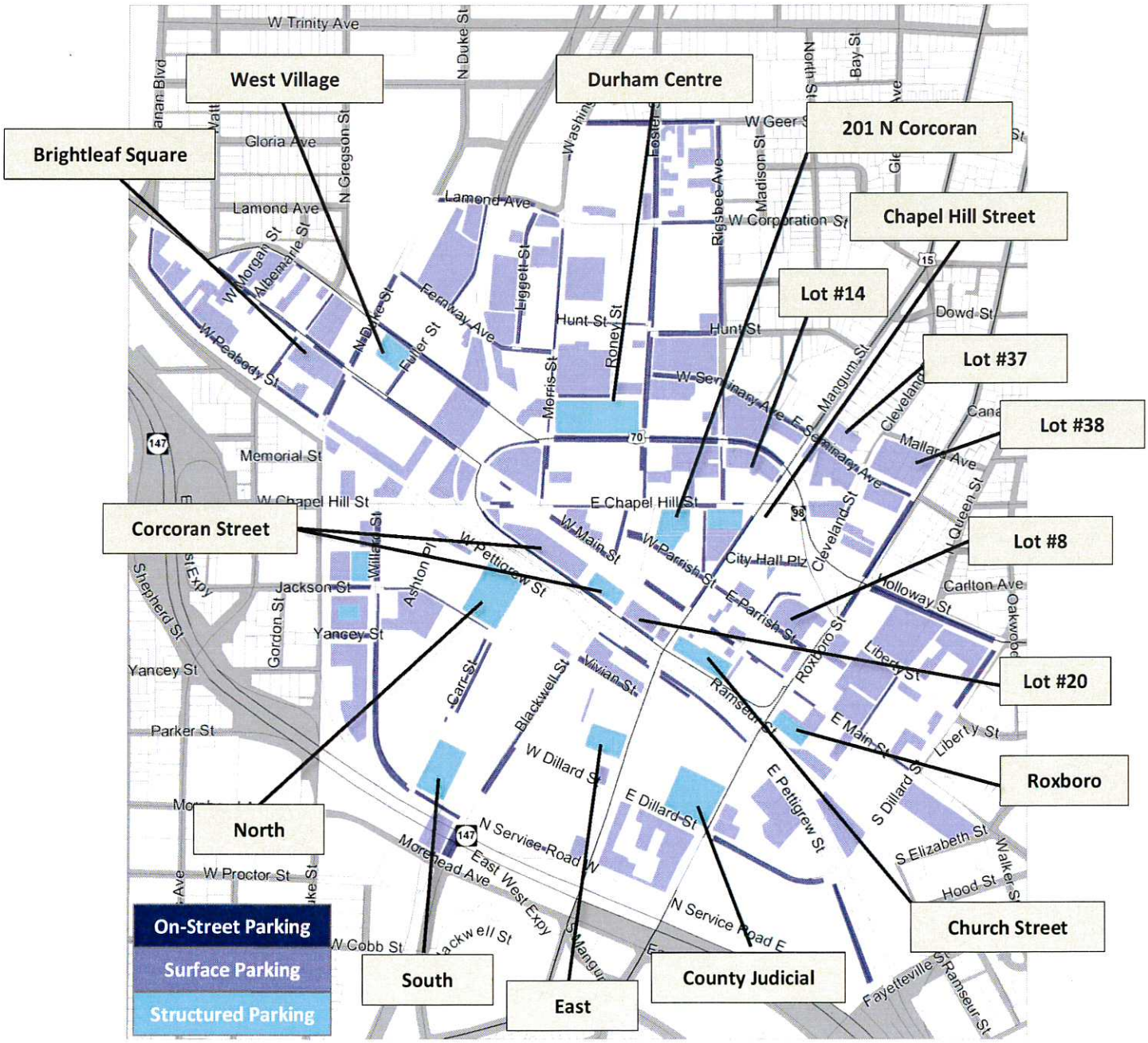

Figure 3.1 – Downtown Study Area Parking Facilities

Existing Parking Inventory

Based on field observations and data provided by the City, it was determined that there are approximately 15,581 spaces within the Downtown study area. In order to quantify the existing parking supply in its entirety, the following parking types were noted.

- On-street
- Public off-street (surface)
- Public off-street (structured)
- Private off-street (surface)
- Private off-street (structured)

Table 3.1 – Downtown Existing Parking Inventory

Parking Type	# of Spaces	% of Inventory
On-street	1,505	10%
Public off-street (surface)	859	6%
Public off-street (structured)	5,209	33%
Private off-street (surface)	6,612	42%
Private off-street (structured)	1,396	9%
Total	**15,581**	**100%**

The parking inventory identified characteristics of the parking supply for each parking type. For on-street unmarked spaces, the total number of available parking spaces was documented, along with time restrictions. For on-street marked and off-street spaces, the total number of parking spaces was documented, along with the type of parking space (handicapped, restricted, or public), the orientation of the parking space (perpendicular, parallel, or angled) and time restrictions. Table 3.1 summarizes the total number of parking spaces by parking type within the Downtown study area. While there are over 15,000 parking spaces in the study area, approximately 51% are privately owned and offer limited public parking. The sections following the table further define the parking types.

On-Street

On-street parking represents available public parking along streets in neighborhoods and commercial areas (all parking of this type is parallel). For the Downtown study area, this category included unmarked and marked spaces. Although unmarked areas do not have a defined parking space count, they were included in the inventory because they do contribute to the Downtown study area parking supply. On-street unmarked spaces were estimated by measuring the length of unobstructed curb parking per block and dividing that length by an average parking space length of 25 feet. This calculation excludes areas adjacent to driveways, intersections, and other obstructions, such as fire hydrants. On-street parking, with 1,505 spaces, represents 10% of the total parking supply.

Public Off-Street

Public off-street spaces consist of those found in surface lots or parking structures that are owned by the City or County. Public off-street surface facilities include those lots listed in Table 3.2. Lot 37 and Lot 38 are owned by the City, but dedicated to employee parking. Public off-street structured facilities include those listed in Table 3.3. The North and South garages located in the American Tobacco District are City/County contracted facilities. The Roxboro garage is owned by the County and used for County employee parking. Public surface lot parking, with 859 spaces, represents 14% of the public off-street parking supply and 6% of the total parking supply. Public parking garages account for 5,209 spaces, representing 86% of the public off-street parking supply and 33% of the total parking supply. Overall, public off-street parking represents 39% of the total parking supply in the Downtown study area.

Table 3.2 – Downtown Public Surface Parking Inventory

Surface Lot	# of Spaces
Lot 4	24
Lot 5 – City Hall Annex	67
Lot 8	91
Marriott Lot	88
Lot 12 – Blackwell St/NC 147	62
Lot 14	102
Lot 20	76
Manning Place	21
Lot 29	48
Lot 32	10
Lot 37[1]	54
Lot 38[1]	164
Lot 40	52
Total	**859**

[1] *City employee parking*

Table 3.3 – Downtown Public Structured Parking Inventory

Garage	# of Spaces
Corcoran Street	554
Church Street	409
Chapel Hill Street	360
Durham Centre	719
County Courthouse	879
Roxboro[2]	89
North[3]	1,320
South[3]	879
Total	**5,209**

[2] *County employee parking*

[3] *City/County contracted parking*

Private Off-Street

Private off-street spaces, serving a variety of uses and not owned by the City, make up the remainder of the parking supply within the study area. Private off-street surface lots are scattered throughout the study area and total 6,612 spaces, representing 83% of the private off-street parking supply and 42% of the total supply. Private structured parking includes the NC Mutual Life garage, BB&T garage, West Village garage, 201 N Corcoran Deck, and the East garage accounting for 1,396 spaces and 17% of the private off-street parking supply and 9% of the total parking supply. Refer to Table 3.4 for a summary of private off-street structured parking inventory. Overall, private off-street parking represents 51% of the parking supply in the Downtown study area and provide limited public parking.

Table 3.4 – Downtown Private Structured Parking Inventory

Garage	# of Spaces
NC Mutual Life	107
BB&T	28
West Village	399
201 N Corcoran Deck	238
East	624
Total	**1,396**

Data Collection

When analyzing existing parking conditions, it is important to understand the nature of the actual parking demands within the study area. Parking occupancy data can help determine peak usage periods, trends for usage, and hot spots that are utilized more than others. Parking duration and turnover data can help determine

the actual effectiveness and usage of the parking supply, as well as the effectiveness of time restrictions. The following sections describe the data collection efforts for this study and specifically focus on the following:

- Occupancy: The number or percentage of vehicles occupying parking spaces in a particular facility (on- and off-street) at a particular point in time.
- Duration: The length of time a given vehicle remains in the same parking space.
- Turnover: The number of different vehicles that park in the same parking space during a specified period of time.

Parking occupancy and duration data was collected throughout the study area to capture a typical weekday and weekend evening condition, in addition to an event condition. The typical weekday data was collected hourly between 9:00 AM and 9:00 PM on Wednesday, August 15, 2012 and Thursday, August 30, 2012. Special Event data was collected hourly between 5:00 PM and 10:00 PM on Friday, August 3, 2012 and Tuesday, August 21, 2012. While occupancy data was collected for all on- and off-street spaces within the study area, duration data was collected for select areas within the study area. Duration data was collected on Tuesday, October 23, 2012.

A comprehensive database was created with the data collected as a means to map and analyze the utilization assessment. The following sections describe and illustrate existing conditions inclusive of occupancy, duration, and turnover.

Data Collection Results

Occupancy

Occupancy was evaluated for a typical weekday and typical weekend day to provide an understanding of the occupancy rates and their relationship within the study area. The occupancy data presented in this section is expressed in a range of percent occupied and color coded. The occupancy ranges used, associated color, and definition of each range is shown below.

0 – 50%	→	Facility operating under capacity
50 – 75%	→	Facility well utilized
75 – 90%	→	Facility approaching perceived capacity
90% +	→	Facility is perceived to be over capacity

Typically, a parking system is considered at capacity when occupancy approaches 85 - 90% of capacity. The 10 – 15% excess supply keeps the time required to find a parking space within reason and promotes a perception of adequate parking. When parking occupancy exceeds these levels, there may be delays and frustration in finding a space and patrons may be forced to use a space that is too far from their destination or does not offer a comfortable walking environment. This margin also allows for: 1) the activity of vehicles moving in and out of parking stalls during busy periods, 2) surges in short-term parking activity, and 3) the temporary loss of spaces due to improperly parked vehicles, weather conditions, construction activity, etc.

Weekday Occupancy

Figure 3.2 shows the study area occupancy for a weekday afternoon (2:00 – 3:00 PM). This time period represents the peak occupancy for the Downtown study area. Although this time period does not necessarily correspond to the peak occupancy for each individual facility, it does provide an illustration of the relationship between all of the facilities during the peak period.

Figure 3.3 shows occupancy for a weekday late afternoon (4:00 – 5:00 PM). In this timeframe, the majority of public parking in the study area is still operating close to capacity, with the exception of a few off-street lots scattered through the study area. The on-street parking within the Downtown study area remains fairly well utilized, as during this timeframe visitors are starting to come to the study area for after work activities.

Figure 3.4 shows the study area occupancy for a weekday evening (7:00 – 8:00 PM). The majority of parking is underutilized, with the exception of on-street parking. In general, the off-street lots that are experiencing higher occupancy levels are serving commercial (primarily restaurant) uses.

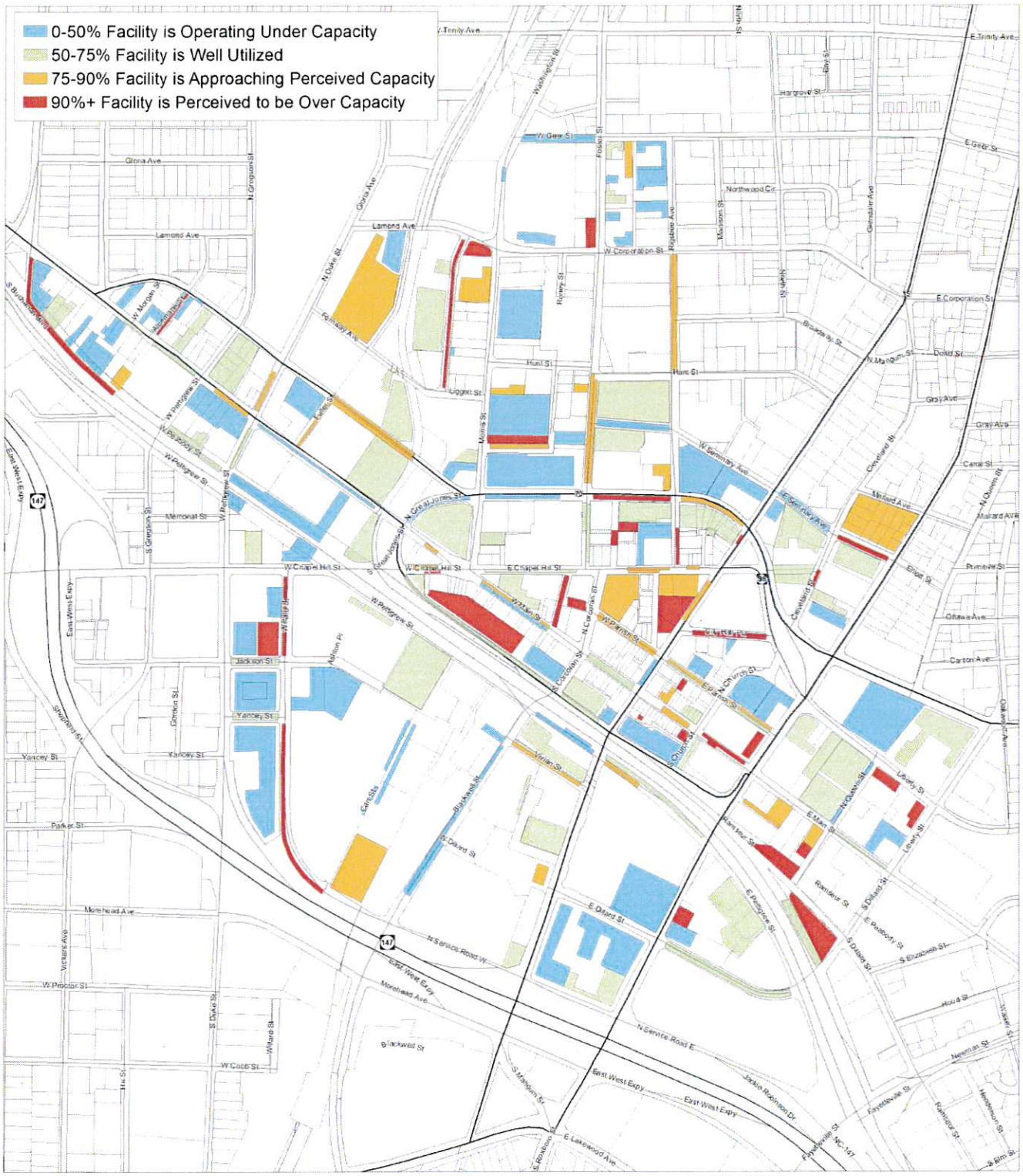

Figure 3.2 – Weekday Peak Occupancy (2:00 PM – 3:00 PM)

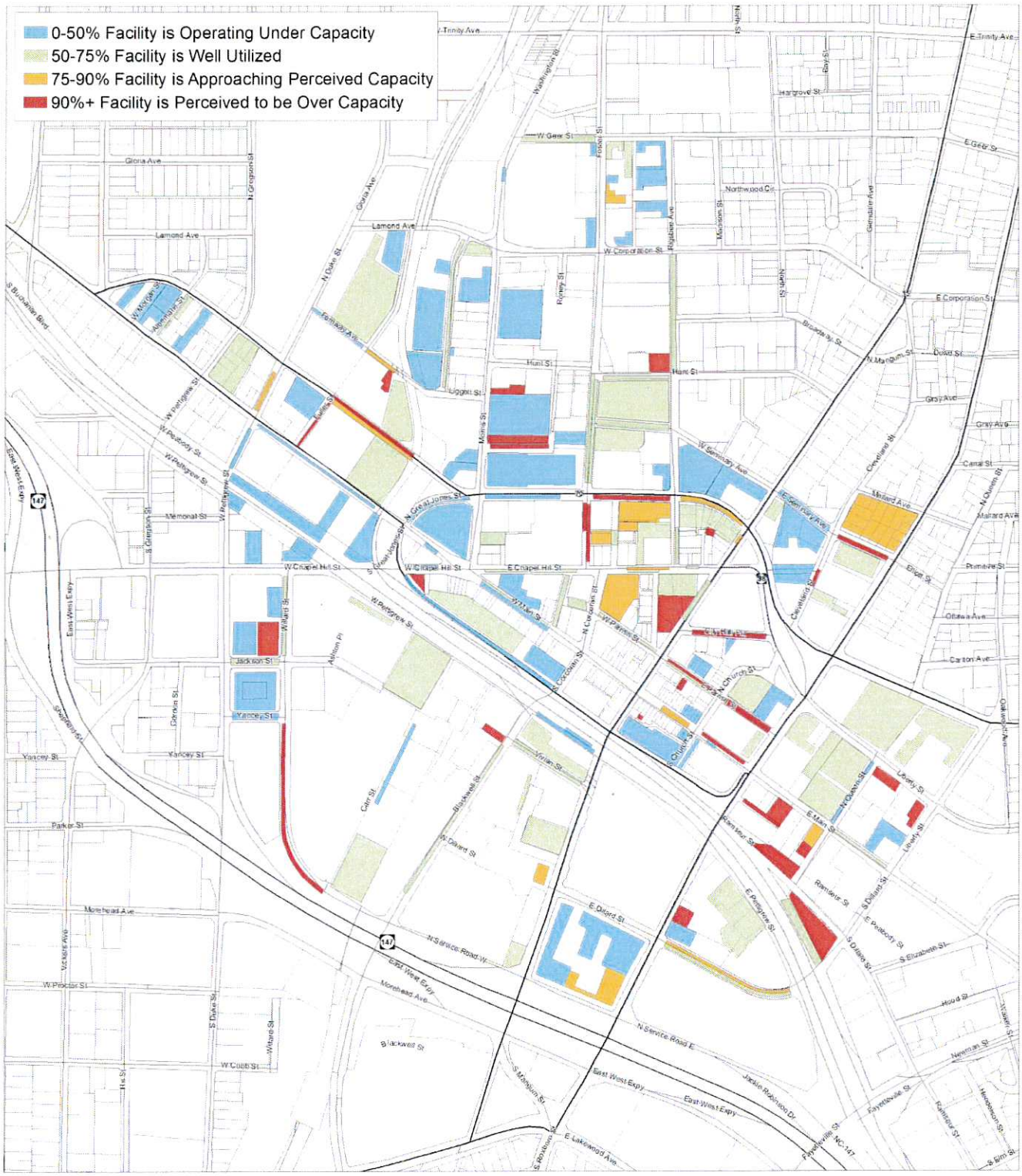

Figure 3.3 – Weekday Late Afternoon Occupancy (4:00 PM – 5:00 PM)

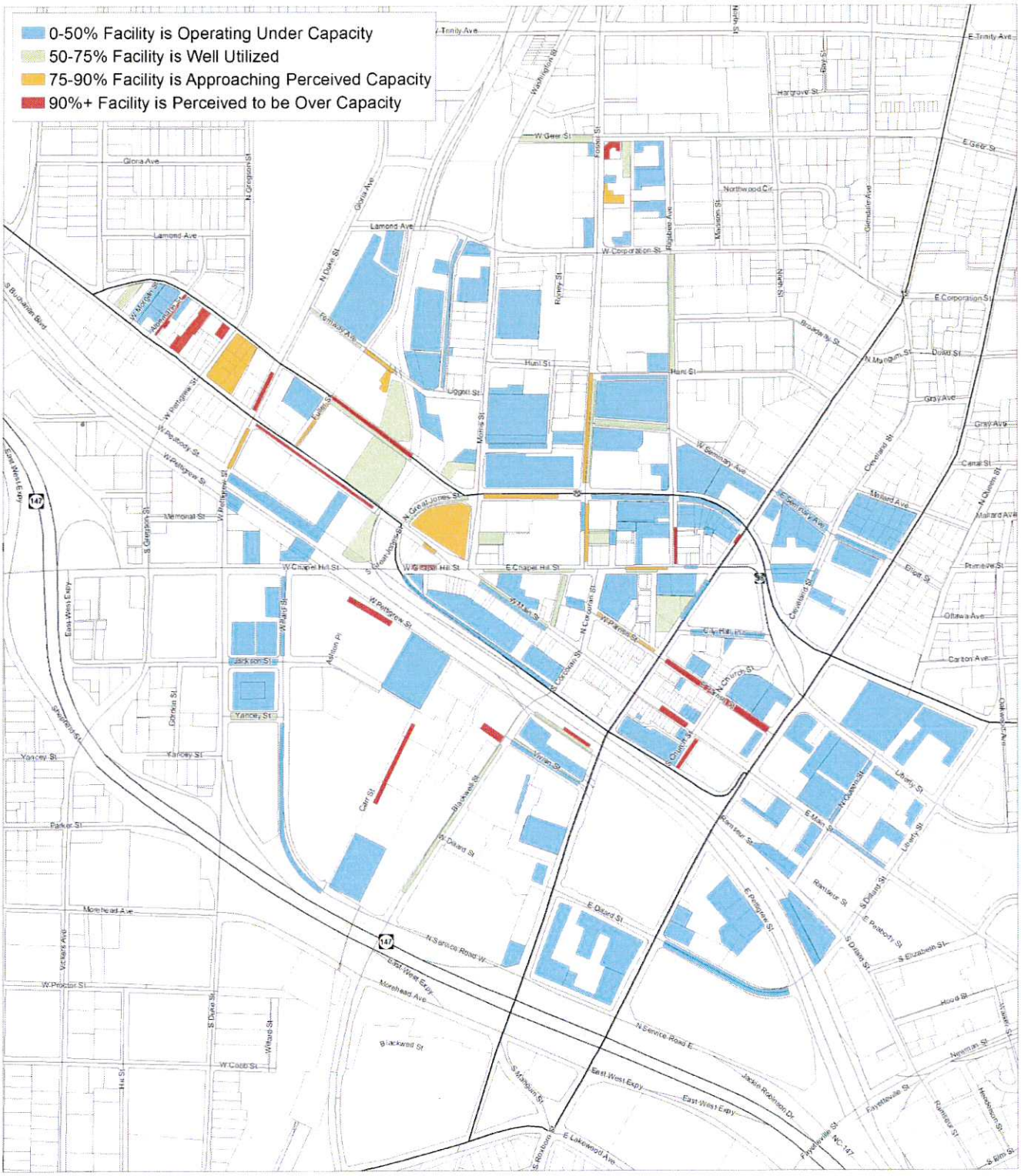

Figure 3.4 – Weekday Evening Occupancy (7:00 PM – 8:00 PM)

Weekend Event Occupancy

Figure 3.5 shows the study area occupancy for a weekend evening (8:00 – 9:00 PM) during a special event. This data was collected Friday, August 3, 2012. The Durham Bulls baseball team had a home game that evening that was concurrent with an event at the Durham Performing Arts Center (DPAC). As would be expected, the garages surrounding the Durham Bulls Athletic Park (DBAP) and DPAC were at capacity. The on-street parking in the area also was heavily utilized. The off-street lots and garages on the periphery of this area were underutilized.

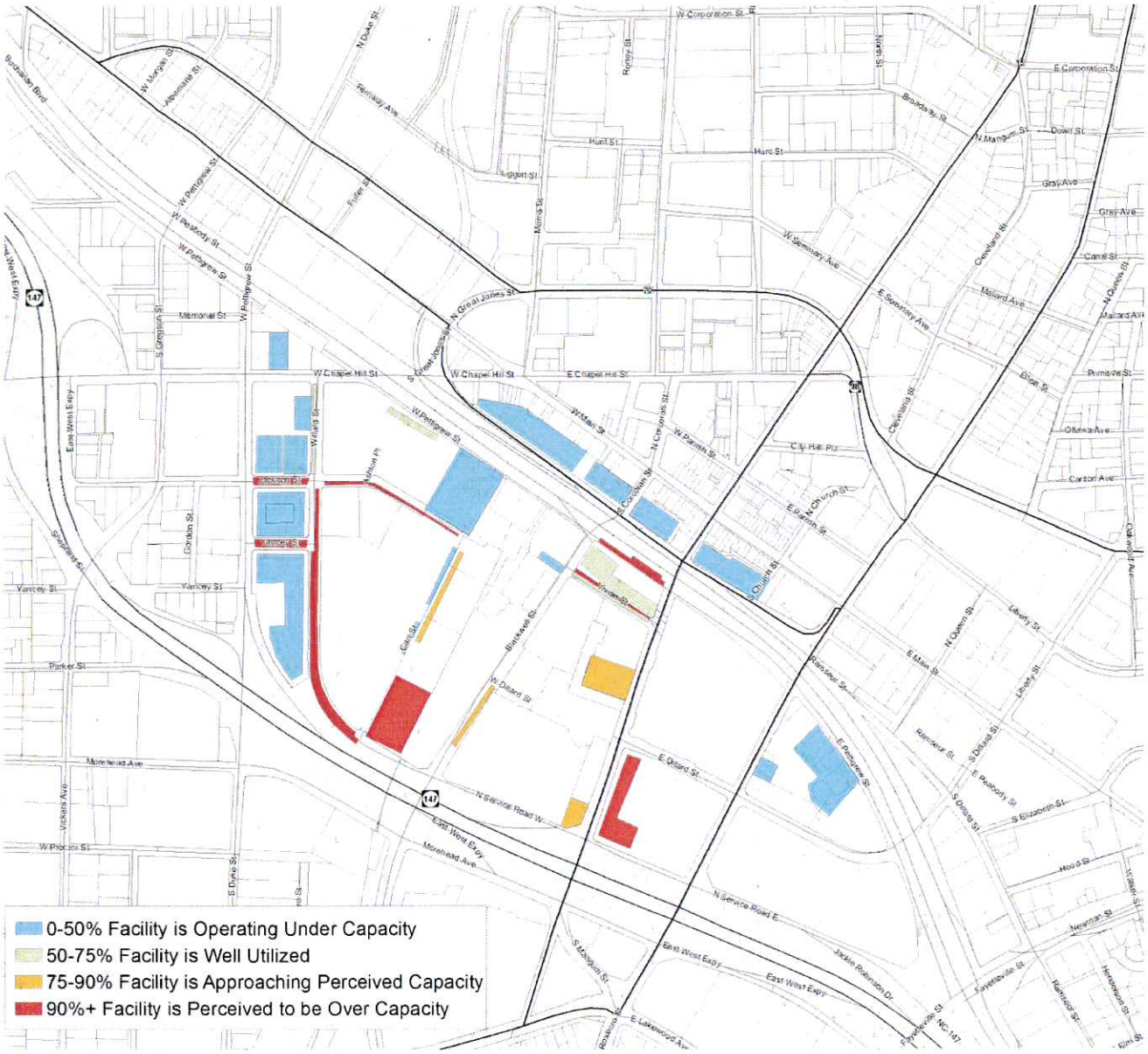

Figure 3.5 – Weekend Evening (Special Event) Occupancy (8:00 PM – 9:00 PM)

The occupancy figures yield the following general observations for the study area.

- Typically, the highest occupancy levels were identified in the on- and off-street facilities within the core of the Downtown study area, with the exception of the weekday evening condition where data collection was focused in the American Tobacco District.
- On-street parking in the Downtown study area experiences consistent use throughout the day with the highest utilization during the evenings.
- The majority of the public and private off-street parking supply operates below capacity during non-event evenings.

Duration

Duration data was collected for 46 on-street spaces along West Main Street and for 29 on-street spaces along Chapel Hill Street. These areas were selected, as they are within the core of the study area. Duration data was collected on a Tuesday, between the hours of 10:00 AM and 4:00 PM to capture a typical weekday condition.

As outlined in Table 3.5, there were 237 duration observations for the 75 on-street spaces. The overwhelming majority of vehicles (77%) were parked for one hour or less, while approximately 23% of vehicles parked for more than one hour. While the data suggests that a majority of visitors obey the posted time limits (30 minutes and 1hr), there are a fair percentage of users that occupy parking spaces for longer than posted time restrictions. It is likely that a portion of users that exceed the posted time limit could be attributed to those requiring accessible parking, thus skewing the results of the data collected. In North Carolina, those that park in designated spaces with an appropriate placard are not required to obey posted time limits. However, with the introduction of paid parking, those that park in designated spaces with an appropriate placard are not required to obey posted time limits, but are required to pay for the space for their entire duration. It is likely that this would reduce the average duration and increase turnover in the areas in which paid parking is implemented.

Table 3.5 – Downtown Duration

Facility	0-1 hour	1-2 hours	2-3 hours	3-4 hours	4-5 hours	5-6 hours	Total
West Main Street	113	26	6	0	1	5	151
Chapel Hill Street	70	13	2	0	0	1	86
Total Observations	**183**	**39**	**8**	**0**	**1**	**6**	**237**
Percent	**77%**	**16%**	**3%**	**0%**	**1%**	**3%**	**100%**

Turnover

Turnover data was collected for the same on-street spaces as described in the previous section. Turnover — defined as the total number of vehicles per space over a given time period — should be reviewed in conjunction with duration and occupancy to obtain a more complete and comprehensive understanding of the observed parking situation. Depending on the use, high or low turnover rates can be observed as good or bad. For example, in an employee parking area, one would expect low turnover rates, as vehicles are usually parked for long periods of time. Conversely, convenient customer parking spaces, such as those spaces observed in the Downtown study area, typically experience high turnover rates. In general, turnover rates can be influenced by many factors, including time restrictions, price, enforcement, land use, and location.

The average turnover is calculated by dividing the total number of vehicles observed within the data collection window of 10:00 AM – 4:00 PM divided by the average peak hourly occupancy for each hour time frame within the data collection window. Average on-street turnover is outlined in Table 3.6.

Table 3.6 – Downtown Average Turnover (10:00 PM – 4:00 PM)

Facility	Total Spaces Observed	Average Peak Occupancy	Total Vehicles Parked	Average Turnover[2] (vehicle/space)
West Main Street	46	37	148	4.05
Chapel Hill Street	29	18	85	4.72
Total	**75**	**55**	**233**	**4.24**

Analyzing the data slightly differently, one can determine the number of vehicles that turnover each hour within the area that was observed. Table 3.7 does this by outlining the number of vehicles that vacated their parking space between the given hour time period and the preceding hour time period. The 10:00 AM – 11:00 AM time frame is left blank, because data collection started within the 10-o'clock hour; therefore, data from the preceding time period is unavailable.

Table 3.7 – Downtown Hourly Turnover

Facility	10 – 11 AM	11 AM – 12 PM	12 – 1 PM	1 – 2 PM	2 - 3 PM	3 – 4 PM
West Main Street	-	16	20	26	34	23
Chapel Hill Street	-	8	14	13	21	12
Total	**-**	**24**	**34**	**39**	**55**	**35**

As shown in the table, at least 32% of on-street spaces (24 spaces) turnover each hour out of the 75 that were observed, with turnover increasing to over 70% of on-street spaces (55 spaces) towards the end of the observation period.

Finally, turnover data can be used to determine the average length of stay for those that visit the area observed. Average length of stay can be calculated by dividing the average turnover into the length of time in which data was collected (six hours). This is presented in Table 3.8.

[2] Average turnover over the 6 hour data collection period.

Table 3.8 – Downtown Average Length of Stay

Facility	Average Turnover (vehicle/space)	Duration of Data Collection (hours)	Average Length of Stay (hours)
West Main Street	4.05	6	1.48
Chapel Hill Street	4.72	6	1.27
Total	**4.24**	**6**	**1.42**

As previously noted, the time restriction limits for the on-street spaces where turnover data was collected is either 30 minutes or one hour. Comparing these restrictions to the average length of stay in the previous table suggests that the maximum time restriction for the on-street spaces is exceeded by approximately 25 minutes (0.42 hours). Similarly to duration, the average length of stay could be skewed as a result of those occupying accessible parking stalls for times that exceed the posted limits. Introduction of paid parking could result in a decrease in average length of stay, as those that occupy an accessible space for longer than the posted time limit would be required to pay for the time in which they occupy the space. This could prove to be cost prohibitive for those that take advantage of the current system.

It is evident from the duration, turnover, and length of stay data that posted time limits are violated by many that park Downtown. It is important that the City be consistent and intentional with enforcement of parking restrictions to encourage a Downtown environment that is vibrant. Furthermore, should paid on-street parking be implemented, the inability to enforce parking restrictions and encourage high turnover and reasonable lengths of stay, will result in a loss of revenue directly related to fees charged for parking.