

REPORT

April 2016

# Downtown Waxhaw Parking Study

Prepared for:



Prepared by:

**Kimley»Horn**



# Downtown Waxhaw Parking Study

## Introduction

### *Purpose*

The purpose of the Downtown Waxhaw Parking Study is to review the existing parking supply, demand, and usage in the Downtown Waxhaw area and determine the need for additional parking. With the upcoming significant redevelopment of the study area, Kimley-Horn will collect, analyze, and summarize data, develop a five-year parking demand model, develop strategies to manage parking demand, and make recommendations for various parking arrangements based on meetings with Waxhaw community leaders and our study findings.

### *Scope of Services*

Kimley-Horn has broken down this study into seven tasks:

- Task 1—Kickoff and Project Management
- Task 2—Data Collection
- Task 3—Analyze and Summarize Data
- Task 4—Develop Five-Year Projection of Parking Demand
- Task 5—Present Data Collection Findings to Waxhaw Stakeholders
- Task 6—Document “Informal” Shared Parking Agreements and Recommend Shared Parking Opportunities
- Task 7—Prepare Final Report

In Task 1, Kimley-Horn participated in a kickoff meeting with the Town. In this meeting, we reviewed the study area, confirmed when data will be collected, reviewed data needs to be developed, and discussed the project schedule. Kimley-Horn also solicited the help of an advisory group to work with us.

While we had not originally planned to conduct a survey, we collectively agreed to survey the community to get a feel for the general feelings of the downtown parking area, as well as some of the challenges faced by patrons, visitors and employees. We incorporate the results and the findings in this report.

In Tasks 2 and 3, Kimley-Horn collected parking data in on- and off-street parking areas. We first counted all of the available spaces, then collected occupancy parking information during two peak times (11 AM-1 PM and 5-7 PM) on two Thursdays and one Saturday. We also recorded ADA spaces and turnover data. After this data was collected, Kimley-Horn summarized the data and reviewed our findings. There are various tables within this report that demonstrates our findings.

In Task 4, Kimley-Horn requested future development of the area in the next five years and developed a five-year plan for parking demand. After these plans were received and we created our plan, we presented it to Waxhaw stakeholders, per Task 5. Meeting with these stakeholders and business owners allowed Kimley-Horn to document any “informal” shared parking arrangements and identify additional possible ones. Task 6 is where our team contacted these businesses and recommended these shared parking agreements.

Finally, our team prepared this final report of all our data, findings, and recommendations.



# Downtown Waxhaw Parking Study

## Executive Summary

### Parking Survey

- 68% of respondents in the parking survey visited the study area more than 2-4 times a week
- 40% of the respondents were regular visitors of Waxhaw
- Most respondents visited Downtown to attend an event/festival or to visit a dining establishment
- The majority of the respondents drive to Downtown Waxhaw
- More than 70% of the respondents said it took less than five minutes to find parking
- 60% of the respondents found parking that was close to their destination in a reasonable amount of time
- The most challenging time to find available public parking was between 11 AM-1 PM and 5 PM-7 PM
- More than 88% of the people said less than three blocks was a reasonable distance to walk from their parking space to their destination
- The three most identified management strategies to address parking were:
  - Infrastructure enhancements
  - Additional parking supply
  - Shared parking opportunities

### Parking Utilization

An 11 block grid in the downtown area was formed for the study area. This area covered most of the surrounding blocks in the downtown area, especially in the North and South Main Street areas. The data was collected on a weekday (two different Thursdays) and for one weekend day (Saturday). The study area timeframes were from 11 AM-1 PM on both Thursdays and the same time period on Saturday. In addition, we collected data from 5 PM-7 PM on the two Thursdays. A summary of the observations are as follows:

		12/17/15		2/4/16		3/5/2016
		Occupancy (% Spaces)				
Quadrant	# of Spaces	11 AM-1 PM	5-7 PM	11 AM-1 PM	5-7 PM	11 AM-1 PM
1	43	35%	28%	21%	26%	12%
2	47	44%	52%	45%	21%	32%
3	24	0%	0%	21%	21%	21%
4	62	22%	16%	33%	14%	13%
5	25	44%	32%	64%	44%	56%
6	24	48%	27%	75%	25%	79%
7	23	57%	52%	65%	35%	78%
8	54	23%	23%	26%	30%	56%
9	44	70%	43%	77%	39%	86%
10	85	45%	48%	51%	42%	54%
11	30	10%	20%	0%	0%	7%
<b>Totals</b>		<b>36%</b>	<b>31%</b>	<b>42%</b>	<b>28%</b>	<b>43%</b>



## Downtown Waxhaw Parking Study

The overall peak hours for parking in the downtown study area was the 11 AM-1 PM time period on each of the study days. The highest actual date and time was the Saturday, March 5<sup>th</sup> from 11 AM-1 PM, at 43%. There was not a difference between the observations that occurred on Thursday, February 4<sup>th</sup> at 11 AM-1 PM at 42%.

The highest overall individual observation on a percentage basis was quadrant 9, between Caldwell and South Main; this was consistent on all three observation days. The highest nominal counts were in quadrant 10, where Maxwell's Tavern is located. Both of these readings make sense as these areas have the highest concentration of retail activities, especially during these time slots.

The overall highest individual late afternoon observation, in the 5-7 PM time slot was on Thursday, December 17<sup>th</sup>.

Parking experts consider an overall rule of thumb of 85% or more occupancy on a consistent basis is not an adequate supply of parking.

Each of the observations demonstrates an adequate supply of parking during the year. While there were only three days' worth of observations taken (and this would not be considered statistically significant), we believe it is representative of the current parking supply available and parking demand required.

### *Special Events*

- The Town of Waxhaw sponsors approximately 20 events, which include a variety of well-planned events. The estimated total number attending these events is more than 200,000 people.
- With the limited parking that exists in the downtown area, even the smallest of these events can put a major strain on the current parking and traffic areas, as well as impacting the downtown merchants.
- The Town bears the loss of approximately \$80K to sponsor these events. While sponsorships and concession cover the sources of revenue, Waxhaw is forced to acquire parking to support the larger events and provide transportation.
- Many municipalities have moved to charging for parking for these types of events. This source of revenue could be substantial (over \$200K) if you were to charge for only the events over 5,000 patrons.
- More shared parking arrangements like the proposal from the Woman's Club to have some additional parking will lessen the burden to some extent. A long range plan to have a special events facility, train some additional traffic control officers, and implement parking fees should be considered.

### *Safety and Parking Configurations Parking Options*

After visiting the Town, the South Main Street area is a particular safety concern.

Kimley-Horn performed a limited parking layout review along South Main Street between the South Broad Street and South Providence Street intersections. Parking along the north side of South Main Street is typically drive-in angled parking spaces interspersed with landscaping islands containing trees or vegetation. Parking along the south side of South Main Street is typically parallel parking spaces directly serving local business.



## Downtown Waxhaw Parking Study

According to the Waxhaw Unified Development Ordinance, parking spaces are required to meet the following minimum dimensional requirements:

- On-street parallel parking: 8' x 21'
- Back-in reverse-angled parking: 9' x 13'
- Drive-in 45-degree angled parking: 9' x 17'
- Drive-in 60-degree angled parking: 9' x 18'
- 90-degree parking: 9' x 18'
- Compact parking: 8' x 16'

Option	Total	Net
Existing	64	+0
A	74	+10
B	48	-16

Later in the report are the details that explain each of these options, with advantages and disadvantages listed. The one that provides the most spaces is a 90-degree parking option. Recent studies done by the Town should be reviewed especially as it relates to this issue.

More specifically, the Transportation Alternatives Program Grant that the Town received will go a long way to assisting this very issue.

### *Enforcement*

The foundation of a good parking system is enforcement. Successful parking management systems want parking enforcement and fines to be at an appropriate level so that the parking systems work as they are intended; drivers respect special space designations such as loading zones, adhere to time limits, move cars for street sweeping, pay when there are parking charges, and pay fines when they are levied. Enforcement activity should be planned in coordination with time limits and meter rules. While Waxhaw doesn't have official enforcement in place today, it should be something to consider in the near future. It is better to get a system in place before the inevitable growth of Waxhaw.

### *Time Limits*

One additional consideration for Waxhaw would be to implement and uphold time limits for certain parking spots. It is found that spaces that should have a high turnover due to their convenience are occupied by all day parkers and time limits could be imposed. This will free up the best spaces for multiple short duration parking patrons. These spaces could be in front of Maxwell's Tavern or on Main Street where people should not be able to park all day.

### *Five Year Model*

Our original intent for this section was to build a demand model going forward of the next five years. Given the findings from our demand and utilization study, Waxhaw is far below the utilization thresholds that would create the demand for additional parking. In fact, the rule of thumb for maximum capacity utilization is the 85-90% threshold at peak periods consistently. While some of the individual observations approached these numbers, the overall system had a high of 43%. That means that demand would have to double in five years from where we are today.



## Downtown Waxhaw Parking Study

Parking Garage Budget		
Number of Parking Spaces	1,000	
Estimated cost per space	\$15,000	
Construction cost		\$15,000
Land acquisition		\$ -
<b>TOTAL CONSTRUCTION COST</b>		<b>\$15,000</b>
Professional services including architecture/engineering, survey, soil report and testing, P.E. inspection, legal services (estimated at 12% of construction cost)		\$18,000
<b>TOTAL DEVELOPMENT COST</b>		<b>\$16,800</b>
FINANCING COSTS		
Issue and other fees (4% of total project cost)		\$672,000
Debt service reserves (10% of total project cost minus reserve fund)		\$1,680,000
Financing Cost Subtotal		\$2,352,000
<b>TOTAL PROJECT COST</b>		<b>\$19,152,000</b>
LOAN CALCULATION		
Principal		\$20,000,000
Interest rate	4%	
Term (years)	30	
Annual Debt Service		\$1,156,602
<b>Debt Service Cost per space</b>		<b>\$1,156.60</b>

*\*Notes: Annual inflation on the construction costs and interest earned on construction budget (12 month construction period and 5% investment rate) have not been included in order to simplify this project budget.*

It is most common for people to conclude that the answer to adding more parking is to build a garage. As you can see from the chart, this is a budget for a 1,000 space garage with its fully loaded costs. You would have to charge or recoup \$1,156 per space just to cover the debt service alone. Then add another \$800 to \$1,100 per space to cover the operating expenses. Therefore, while building vertical to save surface area and create more parking, caution should be exercised before committing to build garage parking. Most municipalities use their on-street paid parking revenue resources to assist in paying for a parking garage.

# Parking Survey



Downtown Waxhaw Parking Study



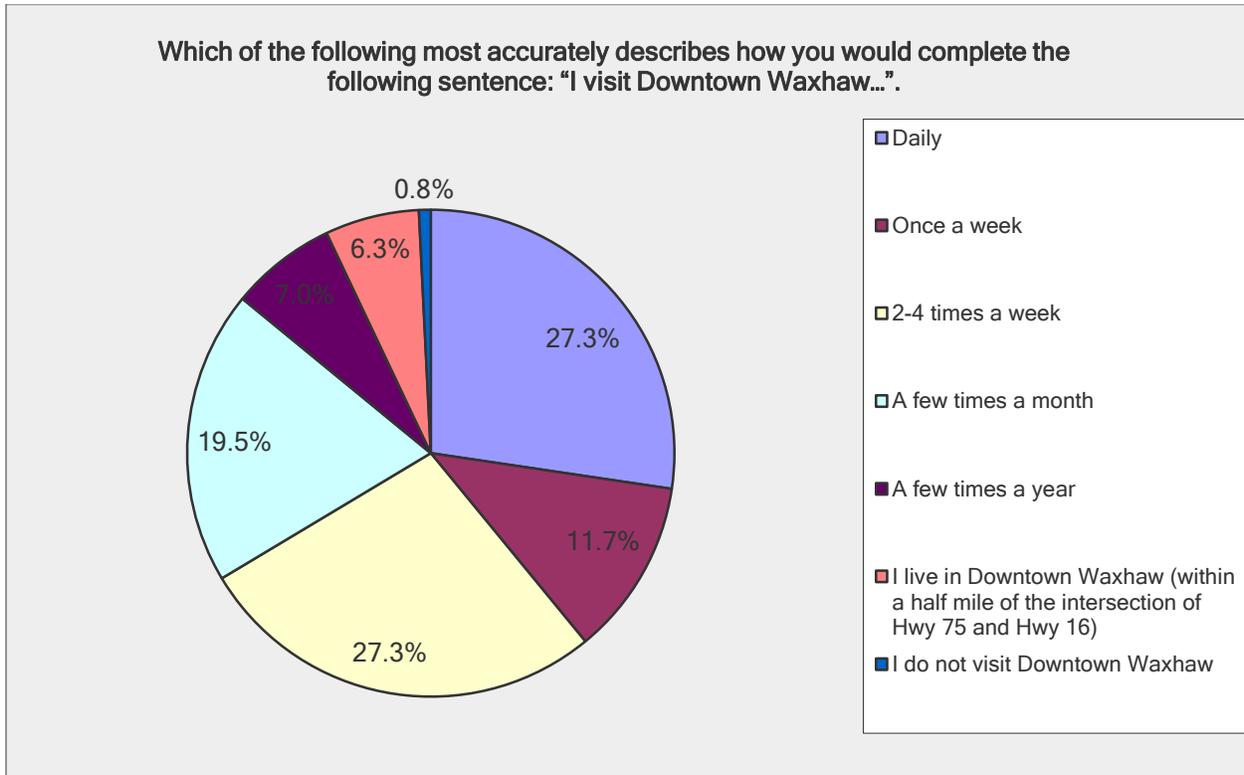
# Downtown Waxhaw Parking Study

## Parking Survey

**Question 1:** Which of the following most accurately describes how you would complete the following sentence: "I visit Downtown Waxhaw..."

Answer Options	Response Percent	Response Count
Daily	27.3%	35
Once a week	11.7%	15
2-4 times a week	27.3%	35
A few times a month	19.5%	25
A few times a year	7.0%	9
I live in Downtown Waxhaw*	6.3%	8
I do not visit Downtown Waxhaw	0.8%	1
<b>Answered question</b>		<b>128</b>
<b>Skipped question</b>		<b>0</b>

\*within a half mile of the intersection of Hwy 75 and Hwy 16



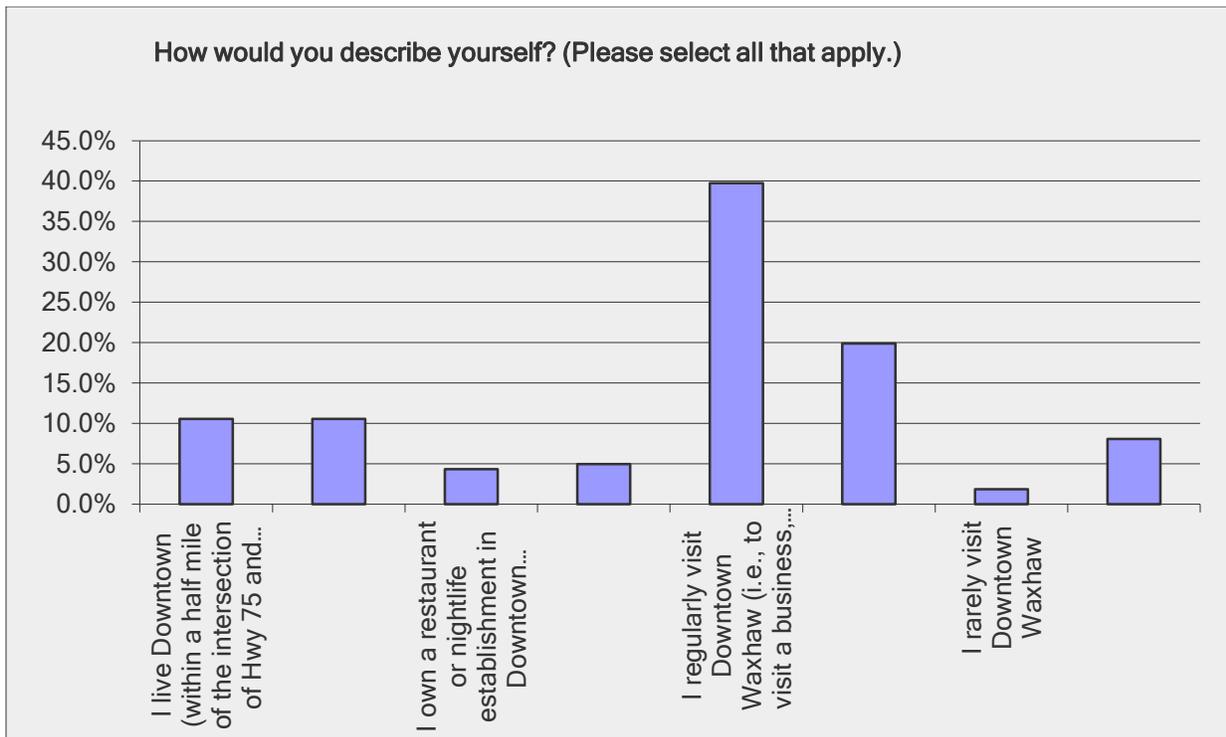


## Downtown Waxhaw Parking Study

**Question 2:** How would you describe yourself? (Please select all that apply)

Answer Options	Response Percent	Response Count
I live Downtown*	10.6%	17
I own a retail business in Downtown Waxhaw	10.6%	17
I own a restaurant or nightlife establishment in Downtown Waxhaw	4.3%	7
I own property in Downtown Waxhaw	5.0%	8
I regularly visit Downtown Waxhaw (i.e., to visit a business, attend an event or festival)	39.8%	64
I am an occasional visitor to Downtown Waxhaw	19.9%	32
I rarely visit Downtown Waxhaw	1.9%	3
Other (please explain)	8.1%	13
<b>Answered question</b>		<b>161</b>
<b>Skipped question</b>		<b>1</b>

\*within a half mile of the intersection of Hwy 75 and Hwy 16





## Downtown Waxhaw Parking Study

**Question 3:** What do you do when you visit Downtown Waxhaw? (Please select all that apply)

Answer Options	Response Percent	Response Count
I work in Downtown Waxhaw	7.0%	29
I live in Downtown Waxhaw*	2.7%	11
Visit a restaurant, café, or other dining establishment	24.7%	102
Visit a bar, brewery, or pub	10.4%	43
Shop and/or visit retail establishments	17.7%	73
Visit a professional business (i.e., attorney, realtor, insurance agent)	4.4%	18
Visit a service business (i.e., bank, hair or nail salon)	8.5%	35
Visit an arts or entertainment venue (i.e., theatre, performing arts venue)	2.7%	11
Attend an event or festival	19.1%	79
Other (please explain)	2.9%	12
<b>Answered question</b>		<b>413</b>
<b>Skipped question</b>		<b>2</b>

\*within a half mile of the intersection of Hwy 75 and Hwy 16

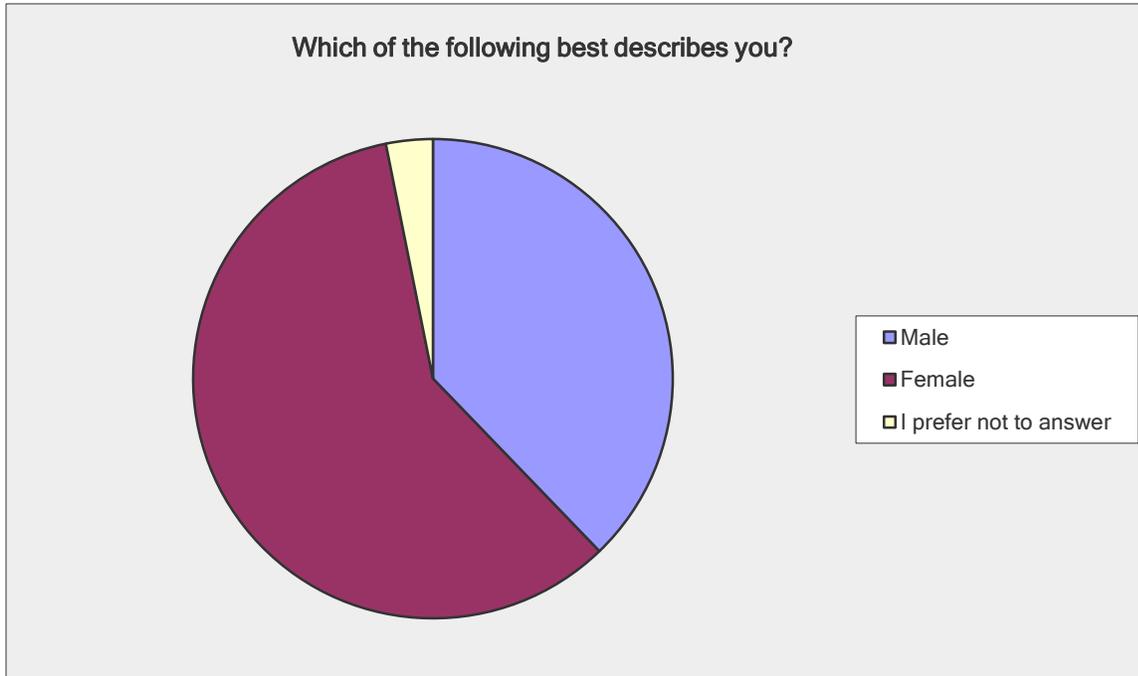




## Downtown Waxhaw Parking Study

**Question 4:** Which of the following best describes you?

Answer Options	Response Percent	Response Count
Male	37.8%	48
Female	59.1%	75
I prefer not to answer	3.1%	4
<b>Answered question</b>		<b>127</b>
<b>Skipped question</b>		<b>1</b>

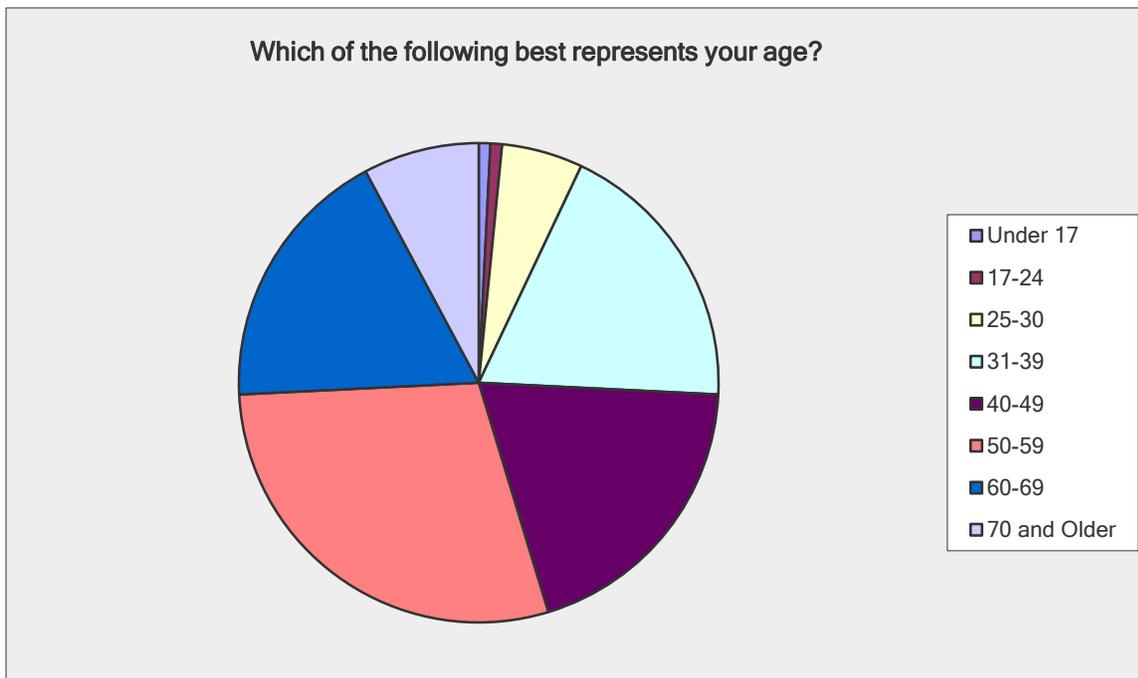




## Downtown Waxhaw Parking Study

**Question 5:** Which of the following best represents your age?

Answer Options	Response Percent	Response Count
Under 17	0.8%	1
17-24	0.8%	1
25-30	5.5%	7
31-39	18.8%	24
40-49	19.5%	25
50-59	28.9%	37
60-69	18.0%	23
70 and Older	8.1%	13
<b>Answered question</b>		<b>128</b>
<b>Skipped question</b>		<b>0</b>

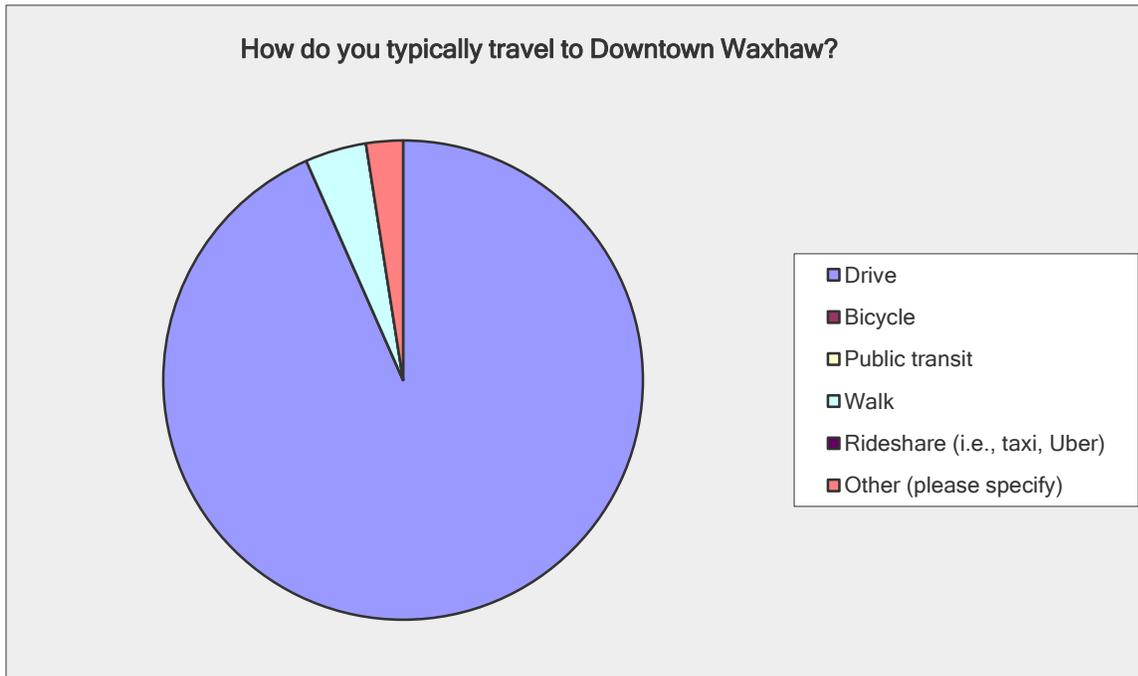




## Downtown Waxhaw Parking Study

**Question 6:** How do you typically travel to Downtown Waxhaw?

Answer Options	Response Percent	Response Count
Drive	93.4%	113
Bicycle	0.0%	0
Public Transit	0.0%	0
Walk	4.1%	5
Rideshare (i.e., taxi, uber)	0.0%	0
Other (please specify)	2.5%	3
<b>Answered question</b>		<b>121</b>
<b>Skipped question</b>		<b>8</b>

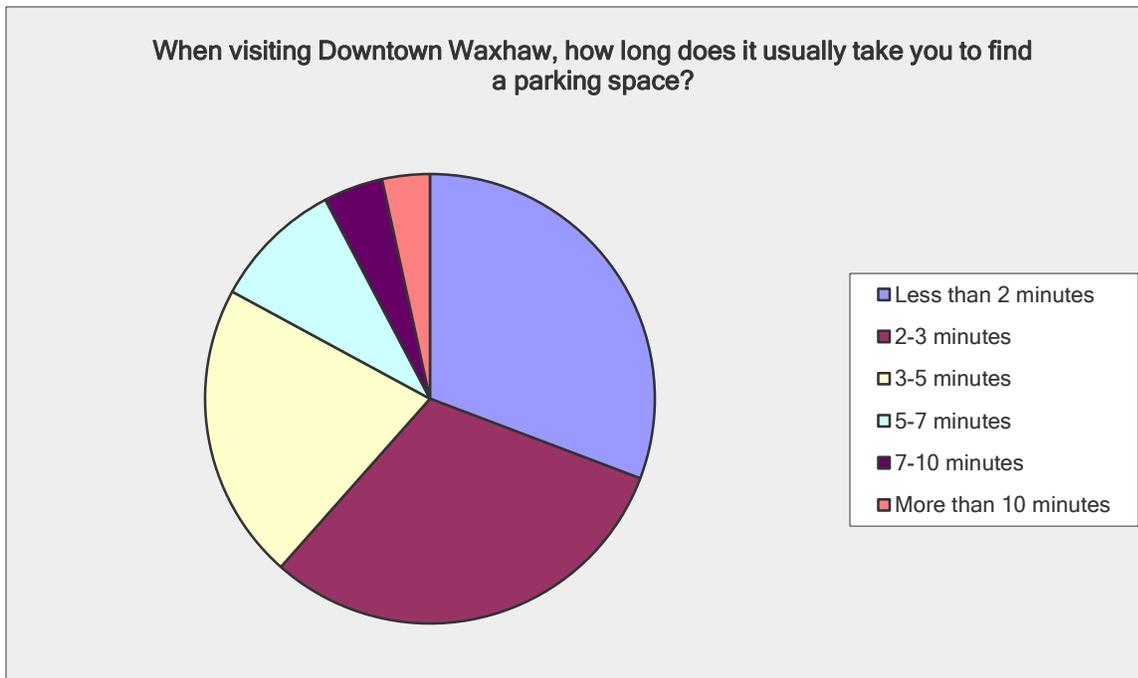




## Downtown Waxhaw Parking Study

**Question 7:** When visiting Downtown Waxhaw, how long does it usually take you to find a parking space?

Answer Options	Response Percent	Response Count
Less than 2 minutes	26.7%	36
2-3 minutes	26.7%	36
3-5 minutes	18.5%	25
5-7 minutes	8.1%	11
7-10 minutes	3.7%	5
More than 10 minutes	3.0%	4
Additional comments		18
<b>Answered question</b>		<b>135</b>
<b>Skipped question</b>		<b>11</b>

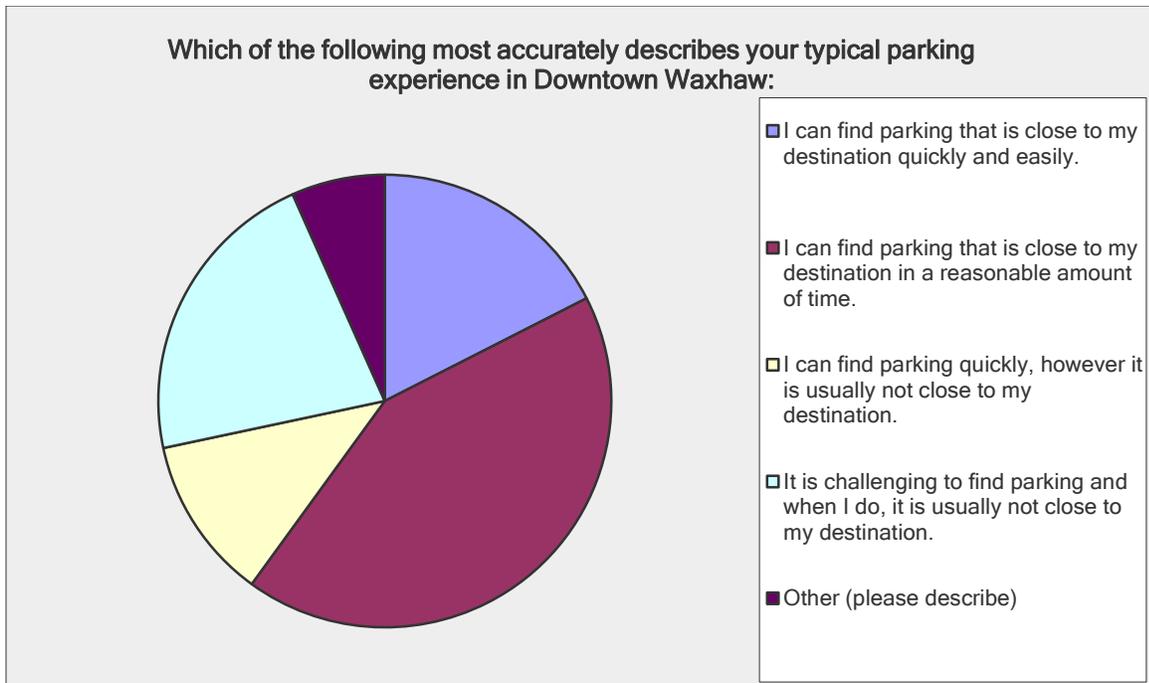




## Downtown Waxhaw Parking Study

**Question 8:** Which of the following most accurately describes your typical parking experience in Downtown Waxhaw?

Answer Options	Response Percent	Response Count
I can find parking that is close to my destination	17.5%	21
I can find parking that is close to my destination in a reasonable amount of time	42.5%	51
I can find parking quickly, however it is usually not close to my destination	11.7%	14
It is challenging to find parking and when I do, it is usually not close to my destination	21.7%	26
Other (please describe)	6.7%	8
<b>Answered question</b>		<b>120</b>
<b>Skipped question</b>		<b>9</b>

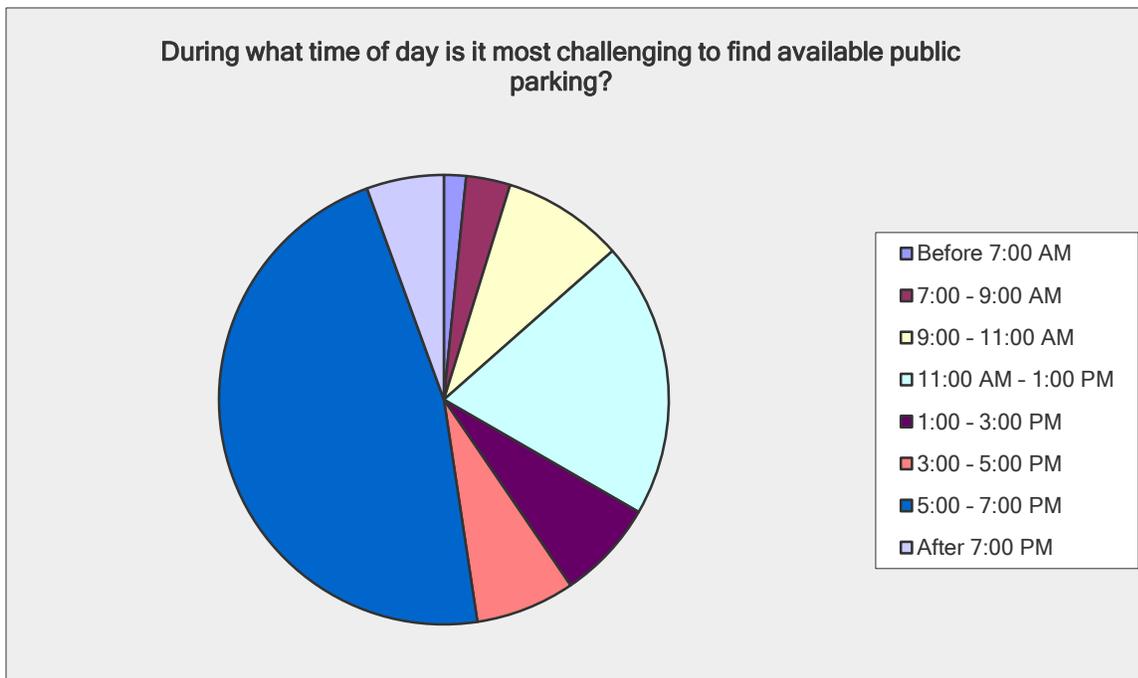




## Downtown Waxhaw Parking Study

**Question 9:** During What time of day is it most challenging to find available public parking?

Answer Options	Response Percent	Response Count
Before 7:00 AM	1.6%	2
7:00 – 9:00 AM	3.2%	4
9:00 – 11:00 AM	8.7%	11
11:00 AM – 1:00 PM	19.8%	25
1:00 – 3:00 PM	7.1%	9
3:00 – 5:00 PM	7.1%	9
5:00 – 7:00 PM	46.8%	59
After 7:00 PM	5.6%	7
<b>Answered question</b>		<b>126</b>
<b>Skipped question</b>		<b>15</b>

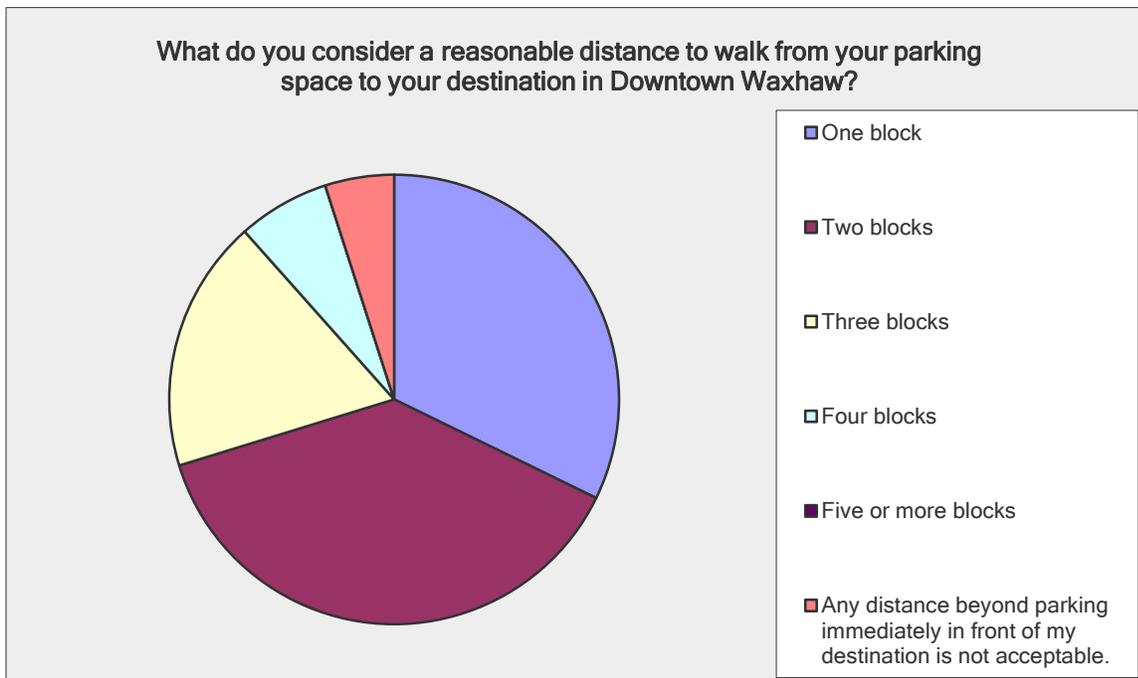




## Downtown Waxhaw Parking Study

**Question 10:** What do you consider a reasonable distance to walk from your parking space to your destination in Downtown Waxhaw?

Answer Options	Response Percent	Response Count
One block	32.2%	39
Two blocks	38.0%	46
Three blocks	18.2%	22
Four blocks	6.6%	8
Five or more blocks	0.0%	0
Any distance beyond parking immediately in front of my destination is not acceptable	5.0%	6
<b>Answered question</b>		<b>121</b>
<b>Skipped question</b>		<b>8</b>

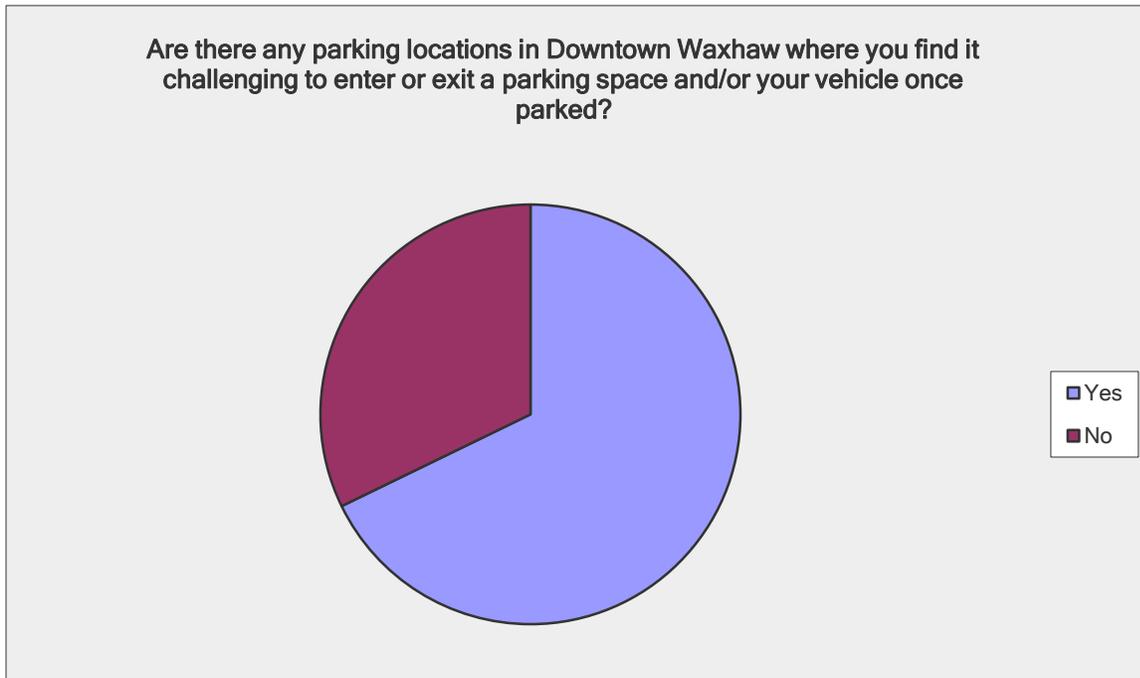




## Downtown Waxhaw Parking Study

**Question 11:** Are there any parking locations in Downtown Waxhaw where you find it challenging to enter or exit a parking space and/or your vehicle once parked?

Answer Options	Response Percent	Response Count
Yes	67.8%	80
No	32.2%	38
If yes, please explain		70
<b>Answered question</b>		<b>118</b>
<b>Skipped question</b>		<b>10</b>





## Downtown Waxhaw Parking Study

**Question 12:** Are there any locations in Downtown Waxhaw where you find it challenging to navigate as a bicyclist or pedestrian?

Answer Options	Response Percent	Response Count
Yes	27.7%	31
No	72.3%	81
If yes, please explain		27
<b>Answered question</b>		<b>112</b>
<b>Skipped question</b>		<b>16</b>

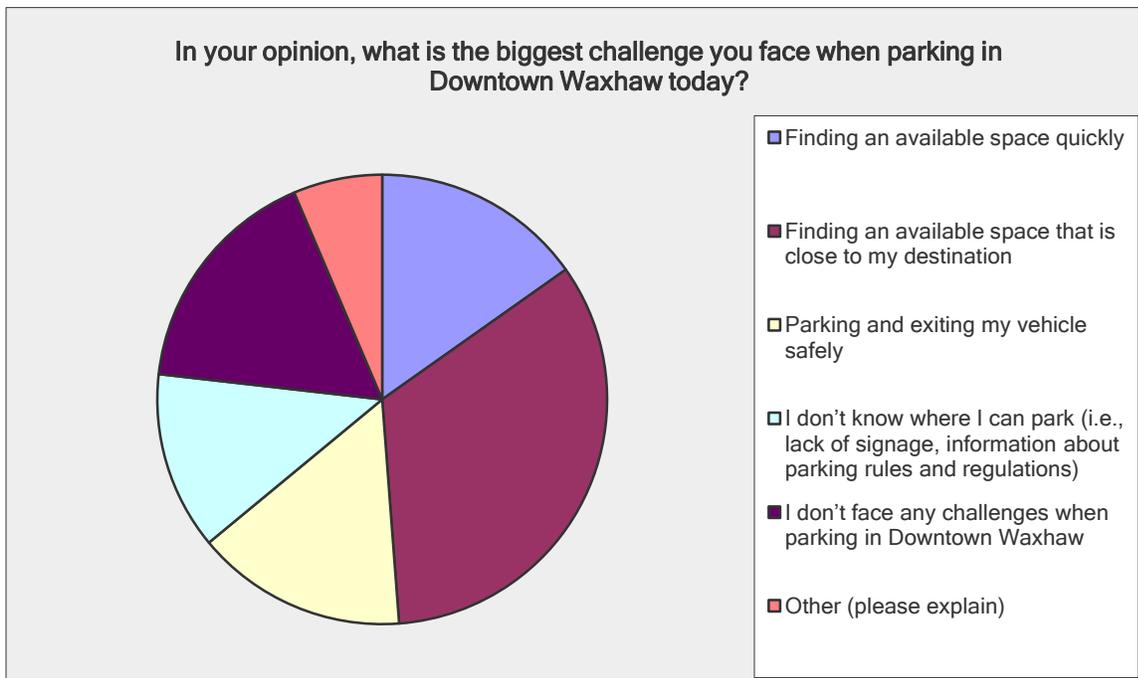




## Downtown Waxhaw Parking Study

**Question 13:** In your opinion, what is the biggest challenge you face when parking in Downtown Waxhaw today?

Answer Options	Response Percent	Response Count
Finding an available space quickly	15.2%	19
Finding an available space close to my destination	33.6%	42
Parking and exiting my vehicle safely	15.2%	19
I don't know where I can park (i.e., lack of signage, information about parking rules and regulations)	12.8%	16
I don't face any challenges when parking in Downtown Waxhaw	16.8%	21
Other (please explain)	6.4%	8
<b>Answered question</b>		<b>125</b>
<b>Skipped question</b>		<b>9</b>





## Downtown Waxhaw Parking Study

**Question 14:** Towns and Main Streets use a variety of parking management strategies to balance the parking and access needs of residents, visitors, and business owners. Please indicate which of the following parking management options you think should be considered for the Downtown Waxhaw. (Please select all that apply.)

Answer Options	Response Percent	Response Count
Implementation of time-limited parking (i.e., parking customer moves his/her vehicle after a certain amount of time has passed)	7.6%	16
Increased bicycle parking	4.3%	9
Investment in alternative modes (i.e., public transit)	5.2%	11
Infrastructure improvements to enhance the pedestrian experience	21.3%	45
Build additional parking supply	30.8%	65
Identify opportunities for shared parking (i.e., use of existing private parking supply for public use)	15.2%	32
I do not have difficulty parking in this area and don't think that parking management is needed	9.5%	20
Other (please explain)	6.2%	13
<b>Answered question</b>		<b>211</b>
<b>Skipped question</b>		<b>10</b>





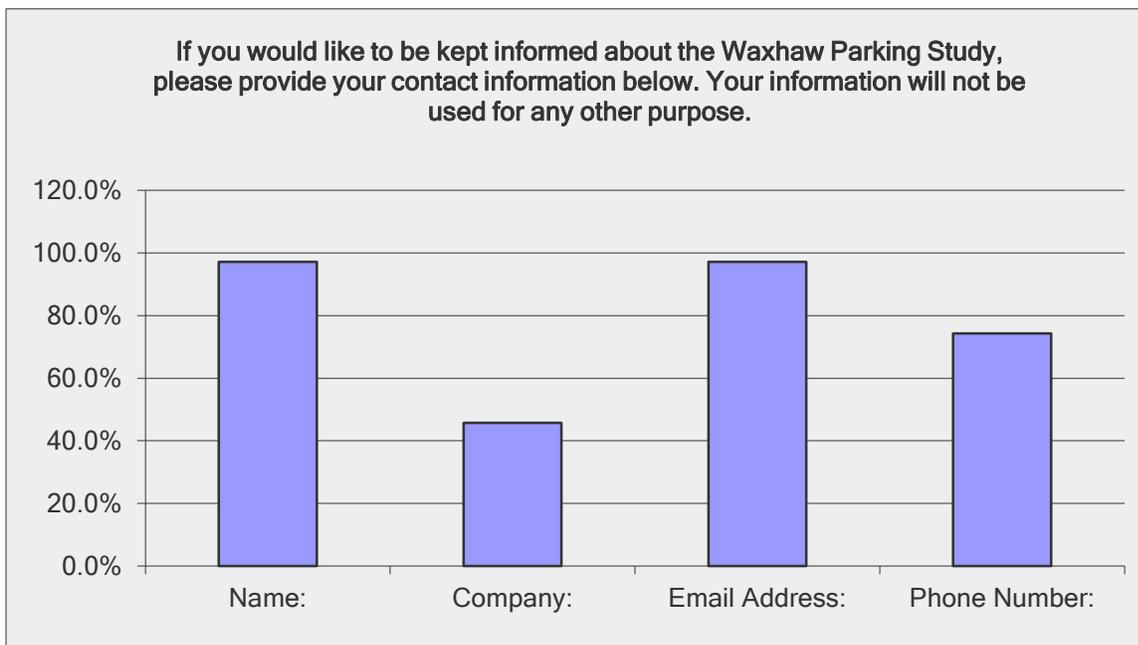
## Downtown Waxhaw Parking Study

**Question 15:** Do you have any other questions or comments about parking in Downtown Waxhaw?

Answer Options	Response Count
	28
<b>Answered question</b>	<b>28</b>

**Question 16:** If you would like to be kept informed about the Waxhaw Parking Study, please provide your contact information below. Your information will not be used for any other purpose.

Answer Options	Response Percent	Response Count
Name:	97.1%	34
Company:	45.7%	16
Email Address:	97.1%	34
Phone Number:	74.3%	26
<b>Answered question</b>		<b>35</b>



# Parking Study Area



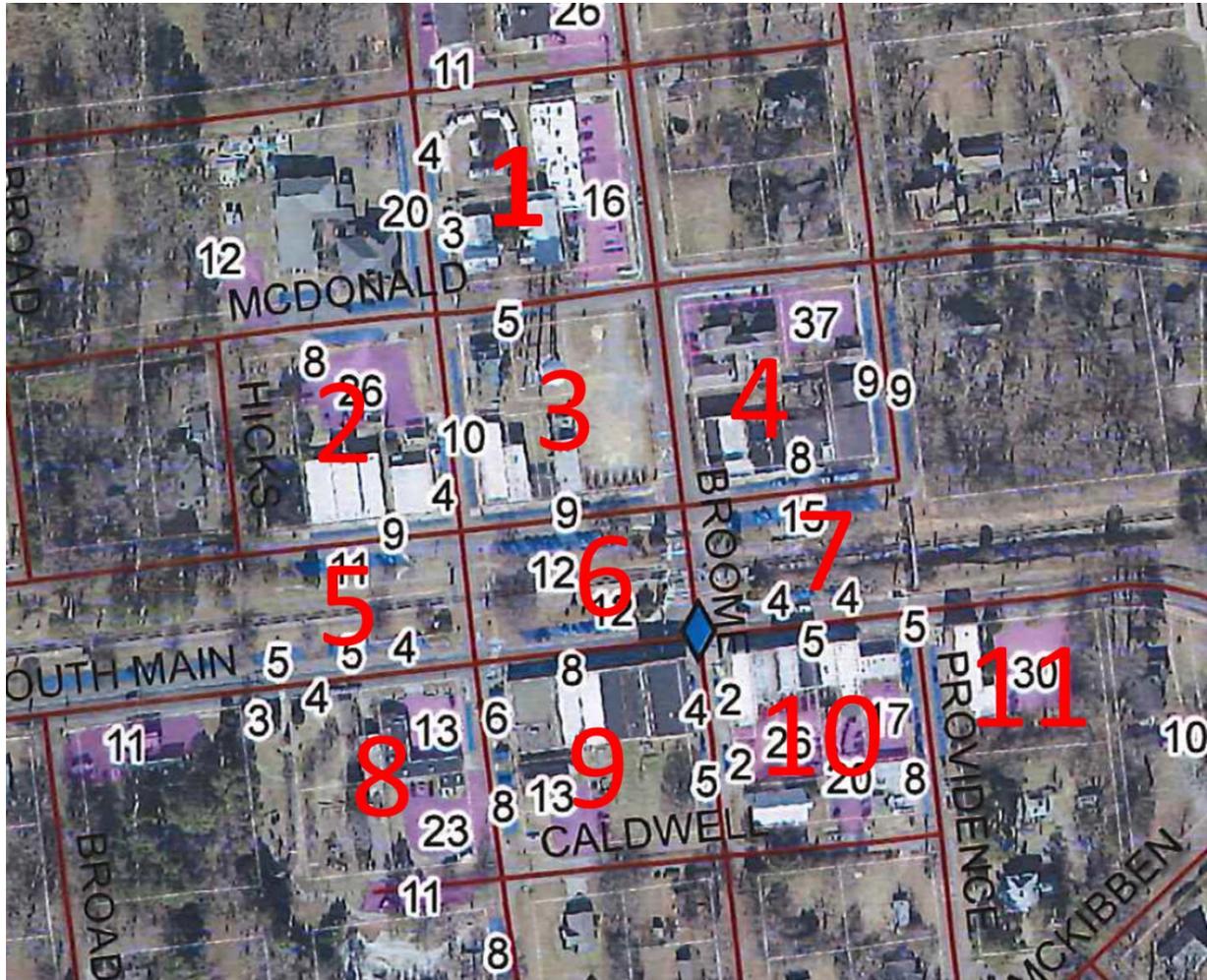
Downtown Waxhaw Parking Study



# Downtown Waxhaw Parking Study

## Parking Study Area

Figure 1



The study area as defined by the Town of Waxhaw focused on these 11 quadrants. The red numbers highlight the boundaries of these quadrants and the black numbers within identify the actual spaces that are present within each one. A summary view of the spaces by quadrant looks like this:



## Downtown Waxhaw Parking Study

**Table 1**

Quadrant	Capacity	% of Total	Quadrant	Capacity	% of Total
<b>1</b>	20		<b>7</b>	15	
	4			4	
	3			4	
	16			<b>Total</b>	<b>23</b>
<b>Total</b>	<b>43</b>	<b>10.41%</b>	<b>8</b>	3	
<b>2</b>	8			4	
	26			13	
	9			23	
	4			11	
<b>Total</b>	<b>47</b>	<b>11.38%</b>	<b>Total</b>	<b>54</b>	<b>13.08%</b>
<b>3</b>	5		<b>9</b>	8	
	10			6	
	9			8	
<b>Total</b>	<b>24</b>	<b>5.81%</b>		13	
<b>4</b>	37			5	
	9		4		
	9		<b>Total</b>	<b>44</b>	<b>10.65%</b>
	8		<b>10</b>	5	
<b>Total</b>	<b>63</b>	<b>15.25%</b>		5	
<b>5</b>	11			2	
	5			2	
	5			26	
	4		20		
<b>Total</b>	<b>25</b>	<b>6.05%</b>	17		
<b>6</b>	12		8		
<b>Total</b>	<b>12</b>	<b>2.91%</b>	<b>Total</b>	<b>85</b>	<b>20.58%</b>
			<b>11</b>	30	
			<b>Total</b>	<b>30</b>	<b>7.26%</b>
<b>Overall Spaces</b>				<b>413</b>	

The graph above indicates that almost 21% of the spaces are in quadrant 10—the Maxwell's Tavern area. The majority of these spaces (about 75%) are in surface lots behind the retail establishments. Quadrant two has a surface lot consisting of 26 spaces, which is one of the lots consumed by Bike Depot for their group rides. The cyclists get there quite early and occupy the spaces closest to Bike Depot. This also impacts the other retail shops that share this surface lot, since there are not many parking spaces available for their customers. The cyclists stay in these spaces for an extended amount of time and it is recommended that an arrangement be made to establish high turnover parking in this lot. The compromise would encourage the cyclists to park in areas off the North Main Street area and not in the 26 spaces in the lot behind the retail on North Main Street. Additional consideration and arrangements could even be made with the church nearby.

The challenge for Bike Depot is that each and every rider is truly a customer, and making it too inconvenient for the riders could affect their participation in the sponsored group rides. A balance between the high turnover spaces compared to the extended parking by the cyclists needs to be discussed. Quadrant 11 is the Woman's Club parking lot. This facility currently is being negotiated as a shared parking space with the Town.

# Parking Utilization Analysis



Downtown Waxhaw Parking Study



## Downtown Waxhaw Parking Study

### Parking Utilization Analysis

#### *Data Collection and Methodology*

The traditional method of collecting parking occupancy data is conducting field counts based on an inventory of the total number of spaces. To measure parking occupancy, field workers tend to have two approaches. The first is to count the occupied spaces and the second is to divide the spaces occupied by the total number of spaces.

The study area also is divided into quadrants or block faces that can be covered within an hour. Waxhaw's parking study area certainly matched our ability to conduct the data collection in the timeframe and resources we had available for this study.

Data was collected on a weekday, Thursday, and Saturday in the downtown study area in Figure 1. The data was collected including all the public spaces in the study area. To determine occupancy, all of the data was collected manually with notations made as to whether or not a space was occupied by a vehicle. On Thursday, December 17, Thursday, February 4, and Saturday, March 5 a total of 461 parking spaces were observed over the 11 quadrant map. The study hours on both of these days were from 11 AM–1 PM and again at 5 PM–7 PM. These time frames were identified by the Town as the peak periods.

#### *Parking Occupancy*

Parking occupancy refers to the accumulation of parking over the course of the day. Occupancy during the peak periods is the primary measure of parking usage and the need for additional parking. Occupancy rates at or close to 100 percent are considered undesirable because motorists must hunt for available parking and/or may be tempted to violate parking rules. In addition, occupancy at 100 percent does not allow flexibility for special circumstances or events. Thus, when evaluating parking we look at the "effective" supply instead of the full supply. The effective supply is the maximum number of parking spaces that can realistically be used within a given system. An effective supply cushion helps protect against the inevitable loss of spaces resulting from temporary disturbances such as construction, wrongfully parked cars, etc. On-street parking tends to need a cushion of 10-15% depending on the block face and the surrounding retail shops. Smaller cushions are needed in surface lots or garages that have a monthly parking requirement.

Counts should be conducted on a block face basis, separating public from private parking. In addition to the number of spaces and the actual utilization, it is good practice to classify the spaces by their characteristics, such as size and configuration, and use regulations, such as time limits, parking fees, disabled parking, loading zones, overnight parking prohibitions, street cleaning requirements, pricing, user group restrictions (e.g., school drop-off), dedications to user groups or individuals, signage, and availability, for public parking overall. While many of these considerations are not relevant, as the community grows parking should be viewed and segmented this way.

The process for field counts for on-street parking should be and was conducted on a block face by block face basis. On-street parking curb parking is easy to count if spaces are marked, which the case in this study was. The off-street spaces typically are a more challenging to count, because they are in a parking garage, limiting physical counts. However, for this study these off-street facilities were not parking garages, but gravel surface lots. Some of them used wheel stops to encourage people to park in a structured manner. These facilities typically are not parked efficiently due to the lack of blocked out parking spaces, since they do not include marked spaces as the lines don't last very long.



## Downtown Waxhaw Parking Study

### *Day of Week*

Another aspect of parking occupancy data collection is the day of the week collected. Retail-oriented parking shows very different day of week patterns, with slightly higher occupancies on the weekends. Retail uses, on the other hand show different day-of-the-week patterns, with slightly higher occupancies on weekdays. Office uses have the greatest accumulation on weekdays. Some uses may require that a particular day of the week be studied. For example, parking at churches need to occur on Sunday, while synagogues should be studied on Saturday. The study times for Waxhaw were conducted at a time consistent with the retail peak periods in the downtown area.

Special event parking has very unique considerations and be studied with special attention. As with the case in Waxhaw, most of the events that occur in the Town tend to occur at times that impact traditional retail peak periods. In fact, some retailers choose not to try and compete with these special events and close down operations.

### *Time of Day*

During the day, the more frequently the data is collected, the more patterns are established. Retail-oriented parking areas have a peak period at around noon, but also during the dinner hour. In the Town of Waxhaw, the two time periods of the day that we sampled best reflected the retail patterns of the patrons to the downtown area. It is heavily influenced by the two restaurants, Maxwell's Tavern and Black Chicken, in the area.

### *Parking Duration*

While taking counts with these dimensions in mind, "day of week" and "time of day" tells about the peak period. What these data points don't do is provide the end user with the length of time that someone parked. Parking duration is related to parking occupancy and accumulation, because longer parking durations mean more parking is occupied per unit of time for a given number of parkers. Another key understanding that duration indicates is how well the most convenient and popular spaces are being used.

Parking duration is heavily influenced by the activity that is the reason patrons make the trip. Finding the parking turnover is a means to find productivity of the most convenient spaces. On-street parking should always have a higher turnover than garage or surface parking. If it is found that spaces that should have higher turnover due to their convenience are occupied by the all-day parkers, then parking management measures, such as time limits or pricing, controls the demand to free up the spaces for the people that truly have the need for shorter duration parking.

Turnover data also may suggest that some unmanaged spaces are being used for vehicle storage. The final data element of interest to the various user groups that park in certain spaces is to reveal the difference between retail parkers, retail employees, restaurant goers, office employee, and residents. These combined attributes will enable Waxhaw to craft parking management strategies.



# Downtown Waxhaw Parking Study

Figure 2: December 2015: 11 AM-1 PM





# Downtown Waxhaw Parking Study

Figure 3: December 2015: 5–7 PM





## Downtown Waxhaw Parking Study

**Table 2:** December 17, 2015  
**Occupancy: (# Spaces)**

Quadrant	Capacity	11 AM–1 PM	Percent	5–7 PM	Percent
1	20	6	30%	5	25%
	4	0	0%	0	0%
	3	3	100%	2	67%
	16	6	38%	5	31%
2	8	0	0%	0	0%
	26	16	62%	7	27%
	9	3	33%	2	22%
	4	2	50%	1	25%
3	10	4	40%	3	30%
	5	0	0%	0	0%
4	37	7	19%	5	14%
	9	2	22%	1	11%
	9	3	33%	1	11%
	8	2	25%	3	38%
5	9	3	33%	2	22%
	11	7	64%	3	27%
	5	0	0%	2	40%
	5	2	40%	2	40%
6	4	3	75%	2	50%
	9	0	0%	0	0%
	12	4	33%	4	33%
7	12	12	100%	5	42%
	15	8	53%	6	40%
	4	3	75%	2	50%
8	4	2	50%	4	100%
	3	0	0%	0	0%
	4	1	25%	0	0%
	13	6	46%	7	54%
	23	6	26%	5	22%
	11	0	0%	0	0%
9	8	1	13%	2	25%
	8	8	100%	5	63%
	6	6	100%	2	33%
	8	7	88%	5	63%
	13	5	38%	6	46%
	5	2	40%	1	20%
10	4	3	75%	0	0%
	5	2	40%	5	100%
	5	2	40%	5	100%
	2	2	100%	0	0%
	2	2	100%	0	0%
	26	9	35%	12	46%
	20	9	45%	9	45%
17	7	41%	6	35%	
11	8	5	63%	4	50%
11	30	3	10%	6	20%



# Downtown Waxhaw Parking Study

**Table 3:** December 17, 2015  
**Occupancy (% Spaces)**

Quadrant	11 AM–1 PM	5–7 PM
1	35%	28%
2	44%	52%
3	0%	0%
4	22%	16%
5	44%	32%
6	48%	27%
7	57%	52%
8	23%	23%
9	70%	43%
10	45%	48%
11	10%	20%
<b>Totals</b>	<b>36%</b>	<b>31%</b>

**Figure 4:** February 2016: 11 AM–1 PM





# Downtown Waxhaw Parking Study

Figure 5: February 2016: 5-7 PM





## Downtown Waxhaw Parking Study

**Table 4:** February 4, 2016  
**Occupancy (# Spaces)**

Quadrant	Capacity	11 AM-1 PM	Percent	5-7 PM	Percent	ADA	11 AM-1 PM	5-7 PM
<b>1</b>	20	5	25%	5	25%			
	4	0	0%	0	0%			
	3	1	33%	1	33%			
	16	3	19%	5	31%	1	1	0
<b>2</b>	8	1	13%	0	0%			
	26	17	65%	8	31%			
	9	1	11%	2	22%	1	0	1
	4	2	50%	0	0%	1	1	0
<b>3</b>	5	1	20%	0	0%			
	10	3	30%	5	0%			
	9	1	11%	0	0%			
<b>4</b>	37	8	22%	5	14%			
	9	4	44%	3	33%			
	9	5	56%	0	0%			
	8	4	50%	1	13%	1	1	0
<b>5</b>	11	8	73%	3	27%	1	1	0
	5	0	0%	2	40%	1	0	0
	5	4	80%	2	40%			
	4	4	100%	4	100%			
<b>6</b>	12	7	58%	0	0%			
	12	11	92%	6	50%			
<b>7</b>	15	10	67%	4	27%			
	4	3	75%	1	25%			
	4	2	50%	3	75%			
<b>8</b>	3	1	33%	1	33%			
	4	0	0%	0	0%			
	13	5	38%	5	38%	1	0	0
	23	7	30%	2	9%			
	11	1	9%	8	73%			
<b>9</b>	8	8	100%	3	38%			
	6	6	100%	3	50%			
	8	7	88%	3	38%			
	13	8	62%	7	54%			
	5	2	40%	1	20%			
	4	3	75%	0	0%			
<b>10</b>	5	5	100%	4	80%			
	5	5	100%	4	80%			
	2	2	100%	1	50%			
	2	2	100%	1	50%			
	26	9	35%	9	35%			
	20	10	50%	11	55%			
	17	7	41%	2	12%			
	8	3	38%	4	50%			
<b>11</b>	30	0	0%	0	0%			



# Downtown Waxhaw Parking Study

**Table 5:** February 4, 2016  
**Occupancy (% Spaces)**

Quadrant	11 AM-1 PM	5-7 PM
1	21%	26%
2	45%	21%
3	21%	21%
4	33%	14%
5	64%	44%
6	75%	25%
7	65%	35%
8	26%	30%
9	77%	39%
10	51%	42%
11	0%	0%
<b>Totals</b>	<b>42%</b>	<b>28%</b>

**Figure 6:** March 2016: 11 AM-1 PM





## Downtown Waxhaw Parking Study

**Table 6:** March 5, 2016  
**Occupancy (# Spaces)**

Quadrant	Capacity	11 AM-1 PM	Percent	ADA	11 AM-1 PM
1	20	1	5%		
	4	2	50%		
	3	1	33%		
	16	1	6%	1	0
2	8	0	0%		
	26	10	38%		
	9	4	44%	1	1
	4	1	25%	1	0
3	5	0	0%		
	10	5	50%		
	9	0	0%		
4	37	2	5%		
	9	2	22%		
	9	2	22%		
	8	2	25%	1	0
5	11	4	36%	1	1
	5	1	20%	1	1
	5	5	100%		
	4	4	100%		
6	12	8	67%		
	12	11	92%		
7	15	10	67%		
	4	4	100%		
	4	4	100%		
8	3	1	33%		
	4	1	25%		
	13	8	62%	1	1
	23	14	61%		
	11	6	55%		
9	8	8	100%		
	6	6	100%		
	8	8	100%		
	13	9	69%		
	5	5	100%		
	4	2	50%		
10	5	5	100%		
	5	5	100%		
	2	2	100%		
	2	2	100%		
	26	6	23%		
	20	14	70%		
	17	4	24%		
	8	8	100%		
11	30	2	7%		



# Downtown Waxhaw Parking Study

**Table 7:** March 5, 2016  
Occupancy (% Spaces)

Quadrant	11 AM-1 PM
1	12%
2	32%
3	21%
4	13%
5	56%
6	79%
7	78%
8	56%
9	86%
10	54%
11	7%
<b>Totals</b>	<b>43%</b>

**Figure 7:** February 2016: ADA Parking





## Downtown Waxhaw Parking Study

### Parking Survey Findings

**Table 8:** Overall Survey Findings

		12/17/15		2/4/16		3/5/2016
		Occupancy (% Spaces)				
Quadrant	# of Spaces	11 AM-1 PM	5-7 PM	11 AM-1 PM	5-7 PM	11 AM-1 PM
1	43	35%	28%	21%	26%	12%
2	47	44%	52%	45%	21%	32%
3	24	0%	0%	21%	21%	21%
4	62	22%	16%	33%	14%	13%
5	25	44%	32%	64%	44%	56%
6	24	48%	27%	75%	25%	79%
7	23	57%	52%	65%	35%	78%
8	54	23%	23%	26%	30%	56%
9	44	70%	43%	77%	39%	86%
10	85	45%	48%	51%	42%	54%
11	30	10%	20%	0%	0%	7%
<b>Totals</b>	<b>461</b>	<b>36%</b>	<b>31%</b>	<b>42%</b>	<b>28%</b>	<b>43%</b>

The overall peak hours for parking in the downtown study area was the 11 AM-1 PM time period on each of the study days. The highest actual date and time was the Saturday, March 5<sup>th</sup> from 11 AM-1 PM, at 43%. There was not a difference between the observations that occurred on Thursday, February 4<sup>th</sup> at 11 AM-1 PM at 42%.

The highest overall individual observation on a percentage basis was quadrant 9, between Caldwell and South Main; this was consistent on all three observation days. The highest nominal counts were in quadrant 10, where Maxwells Tavern is located. Both of these readings make sense as these areas have the highest concentration of retail activities, especially during these time slots.

The overall highest individual late afternoon observation, in the 5-7 PM time slot was on Thursday, December 17<sup>th</sup>.

Parking experts consider an overall rule of thumb of 85% or more occupancy on a consistent basis is not an adequate supply of parking.

Each of the observations demonstrates an adequate supply of parking during the year. While there were only three days' worth of observations taken (and this would not be considered statistically significant), we believe it is representative of the current parking supply available and parking demand required.

# Special Events



Downtown Waxhaw Parking Study



## Downtown Waxhaw Parking Study

### Special Events

Events	Attend	Cars Estimated	Sponsorship	Concession /Booth Rev	Parking (expense for us)	Total Expenses	Net	Potential Revenue
<b>First Fridays</b>								
Most months	5,000	1,667						\$83,333
Easter Egg Hunt	2,000	667						
Halloween Trick or Treat	2,000	667						
<b>Art Kaleidoscope Spring Festival</b>			\$2,500	\$15,750	\$250	\$28,926	\$(10,676)	
Day 1	5,000	1,667						\$ 8,333
Day 2	5,000	1,667						\$8,333
<b>Memorial Day Patriotic Ceremony</b>	300					\$1,543	\$(1,543)	
<b>Jamming by the Tracks</b>	2,700	900				\$4,192	\$(4,192)	\$4,500
<b>July 4th Parade</b>	1,200	400	\$4,000		\$250	\$20,892	\$(16,892)	\$2,000
Beach Party	10,000	3,333		\$3,000			\$3,000	
Fireworks	3,000	1,000						
	20,000	6,667						\$33,333
<b>Patriotic Parade at the Military Wall</b>	300							
<b>Autumn Treasures Grill'n &amp; Chill'n BBQ Cookoff</b>	10,000	3,333	\$3,000	\$13,500	\$250	\$47,759	\$(31,259)	\$16,667
<b>Veterans Day Patriotic Ceremony</b>	10,000	3,333						\$16,667
<b>Holiday Festival of Lights</b>	300					\$1,272	\$(1,272)	
<b>GingerSnap 5K Race</b>	20,000	6,667	\$2,000		\$250	\$22,134	\$(20,134)	\$3,333
<b>Wreaths Across America</b>	5,000	1,667						\$8,333
<b>Christmas Parade</b>	300							
	10,000	3,333	\$1,500	\$3,000			\$4,500	\$16,667
<b>Total Current Events</b>	112,100	37,367	\$13,000	\$35,250	\$1,000	\$126,718	\$(78,468)	\$231,500
<b>Per Capita</b>	5,895	1,967					\$(1.43)	\$2.07



## Downtown Waxhaw Parking Study

The Town of Waxhaw currently supports the above set of approximately 20 events. They include a variety of types of events—everything from the enormously popular 4<sup>th</sup> of July events, which attracts almost 35,000 people, to the Wreaths Across America, which attracts about 300 people.

With limited public parking in the immediate downtown area, even the smallest of these events can put major strain on the parking system and impact the downtown business owners. The entire community is affected from the larger events that shut down the major roads into and away from the Waxhaw area.

A general rule of thumb to estimate the amount of cars per event is between 2.3-2.8 patrons per car. Using an average of 2.5 people per car means that events like fireworks that attract 20,000 people means that there are roughly 8,000 cars coming to the area. Even if we were to assume an average of three people per car, it would still mean almost 6,700 cars are coming to the area. Earlier we discussed the downtown area has about 415 spaces. However, this is very deceiving because events like the 4<sup>th</sup> of July Parade limits the parking on North and South Main Street, making a more dramatic impact to parking.

For all events the police are in an “all hands on deck” mode. With a town the size of Waxhaw, this puts strain on a limited staff. These events make for long days, stressful conditions, and a sizeable emotional burden on the entire staff. With limited staff, these resources are not able to cover all the parking lots and facilities as well as cover the traffic arteries. Therefore, some of the adjacent parking lots become less than efficient. Many other municipalities have trained traffic control officers to supplement the existing pool of police resources. While these traffic control officers don’t interrupt the jurisdictional authority of the police force, they offer a resource to assist in controlling the adjacent parking facilities, allowing the minimal amount of parking required to support the events. An additional option is to hire an outside parking management company that has more experience, but this is an additional cost to the Town.

There also is a financial impact to the Town of Waxhaw to support these events. The cost to the Town is approximately \$80,000. The revenue for these events comes in the form of sponsorships, which amounts to a total of \$13,000, primarily used as a revenue source for the larger events. In addition, the Town receives concession revenue of \$35,250.

On the expense side, there is a need to acquire parking for four of the events. This would cost \$250 per event for a total of \$1,000. Because these events are so large, parking is pushed north away from the downtown area and requires the Town to lease additional parking from retail communities. Due to the distance from the downtown area, transit also has to be provided. The additional expenses incurred to put these events on is \$44,250—a loss of almost \$1.50 per person attending these events.

Waxhaw is a victim of its own success. Due to the geographic location of the Town, coupled with its distance from Charlotte and a very successful event planning group, consideration has to be given to the development of an events park away from the downtown area. Another option is the possibility of charging for parking at these events at \$5.00 per car. We recommend charging for events with over 5,000 patrons. That is sufficient in terms of attendance, but also requires an extraordinary amount of parking.

Many municipalities use the surcharge as a mechanism to recover the additional burden of expenses associated with these events. Some municipalities have carved out the citizens who are not Waxhaw residents and have asked them to pay, while not collecting any revenue from the Town of Waxhaw residents. This normally is justified and explained by the taxes paid by Waxhaw residents can cover their portions of these events. Therefore, the patrons outside the tax base are providing the additional funds to help recover costs.

Using the most conservative estimate of three attendees per car and charging \$5.00 per car, Waxhaw would receive \$231,500 of revenue. This would have a positive net gain of over \$150,000. The additional funding could be used to help fund the special events park venue, or other landscape/hardscape improvements in the main street area.

# Shared Parking



Downtown Waxhaw Parking Study



## Downtown Waxhaw Parking Study

### Shared Parking

#### *Implementing Shared Parking Agreements*

Shared parking is defined as a situation where different land uses use the same parking spaces at different times of the day. This allows for existing parking resources to be used more efficiently. Successful shared parking arrangements requires regular attention to implementation and effective enforcement of shared parking agreement terms. When the involved parties do not implement these agreements properly, there can be a chaotic outcome that frustrates the parkers as well as the decision makers. The conclusion is a flawed concept, but in reality it's the implementation of the agreement itself that is flawed.

These approaches are becoming commonplace in municipal environments where demand for parking is growing and the lack of available land for new parking facilities. Shared parking seems to have an opportunity to work at an office building where adjacent parking typically peaks from 11 AM to 2 PM on weekdays in conjunction with a nearby retail establishment with access to that same parking facility that peaks typically on evenings and weekends. This also can work for Waxhaw with the Woman's Club, since during the week they have a limited need for parking, but after hours it can be used to catch the overflow for restaurants and retail in the area. As a result, total parking for both users can be distributed to meet the demand for the offsetting peak times. Conceptually, these types of arrangements can maximize parking and create an overall efficient parking system.

This type of arrangement is growing in popularity as a means to discourage more land use being allocated for parking and perhaps have a land use that can make shared parking arrangements work. The first of these agreements is one between the parties and the local jurisdiction that will ensure that the parties will share parking as anticipated. This type of agreement outlines the obligations under such sharing and assures the local jurisdiction that the promised parking will be available.

The second type of agreement between the entities sharing the parking, which will govern the day-to-day management of the shared parking may include the following:

- Clear and binding language of the rights of each party to use portions of the parking inventory at particular times, days, and seasons. This defines the exclusive and shared portions of the parking facility, payments, if any, between the parties for use, and collection and disposition of any revenue.
- Any supporting features, such as maintenance of the facility, utilities specified, taxes to be paid, signage required, insurance, passive or aggressive security, indemnification, termination, and other supplemental covenants.
- Definitions of the enforcement protocol, such as requests to comply with parking security personnel, time limits specified, length of stay fees, validations to be used, designated parking areas, physical separations, placards or stickers that may be used to help identify the patrons, types of enforcement used, and right to tow.
- Coordinating mechanisms between the parties to monitor data about sharing, identifying and resolving any operational issues, establishing communications strategies and meetings to measure, monitor and track existing issues.
- Parking proximity and site design that is convenient and pleasurable. A recommended distance for this is highly dependent on the type of trip and the walking environment. Generally speaking, people want to walk shorter distances like 300-400 feet for a single purpose trip, but are more willing to walk distances of over 2,000 feet for a special event. There are several factors that influence the patrons' acceptability of shorter distance: short term parking, high turnover, unfamiliar destinations, stress, age, disability, and high expectations.



## Downtown Waxhaw Parking Study

Special care is required in implementing shared parking, because the parties involved are aware of the risk involved if the arrangement fails. The recommended approach to addressing all of the issues listed are carefully crafted and executed agreements and continued attention to operating details, as well as a strong follow through. These type of arrangements generate enormous capital costs savings, and with the advent of today's technology makes monitoring and assessing easier.

# Safety and Parking Configuration Options





# Downtown Waxhaw Parking Study

## Safety & Parking Configuration Options

Kimley-Horn performed a limited parking layout review along South Main Street between the South Broad Street and South Providence Street intersections. Parking along the north side of South Main Street is typically drive-in angled parking spaces interspersed with landscaping islands containing trees or vegetation. Parking along the south side of South Main Street is typically parallel parking spaces directly serving local business.

According to the Waxhaw Unified Development Ordinance, parking spaces are required to meet the following minimum dimensional requirements:

- On-street parallel parking: 8' x 21'
- Back-in reverse-angled parking: 9' x 13'
- Drive-in 45-degree angled parking: 9' x 17'
- Drive-in 60-degree angled parking: 9' x 18'
- 90-degree parking: 9' x 18'
- Compact parking: 8' x 16'

Kimley-Horn reviewed two alternative parking layout options and compared those against the existing parking layout: 90-degree parking (Option A) or parallel parking (Option B). Option A considered changing all existing angle-in parking spaces to 90-degrees, while Option B considered changing all existing angle-in parking spaces to be parallel. In both cases, existing parallel spaces along the south side of the street were kept in their original configuration. See Figures 8, 9, and 10 for a visual of the existing conditions and options A and B.

Figure 8: Existing Conditions



Waxhaw Parking Study - Existing Conditions

Waxhaw, North Carolina

APRIL 21, 2016





# Downtown Waxhaw Parking Study

Figure 9: Option A

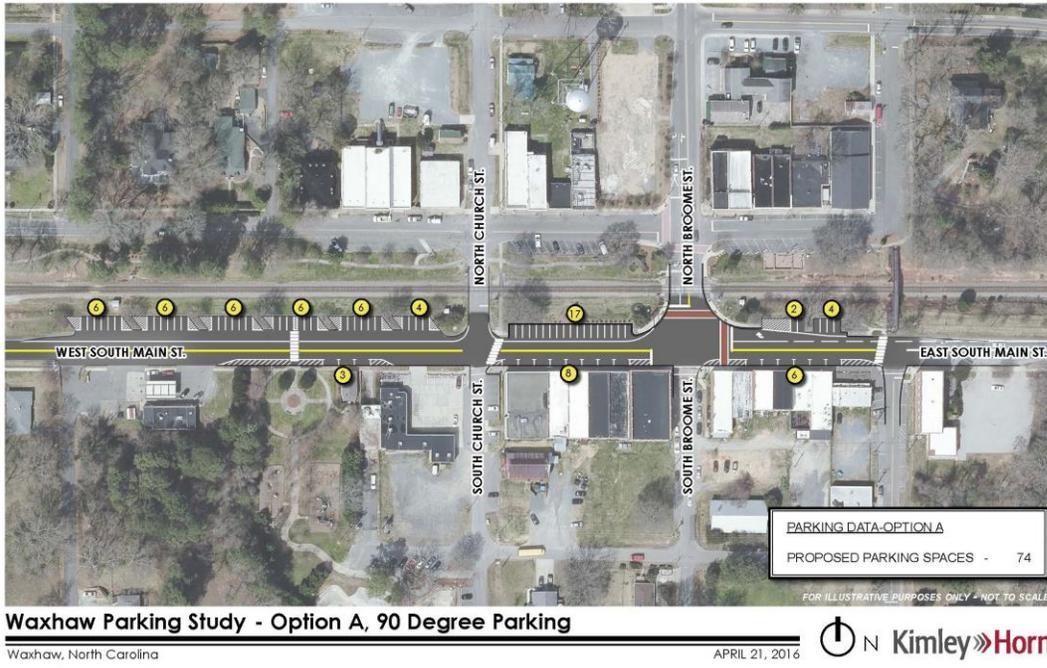
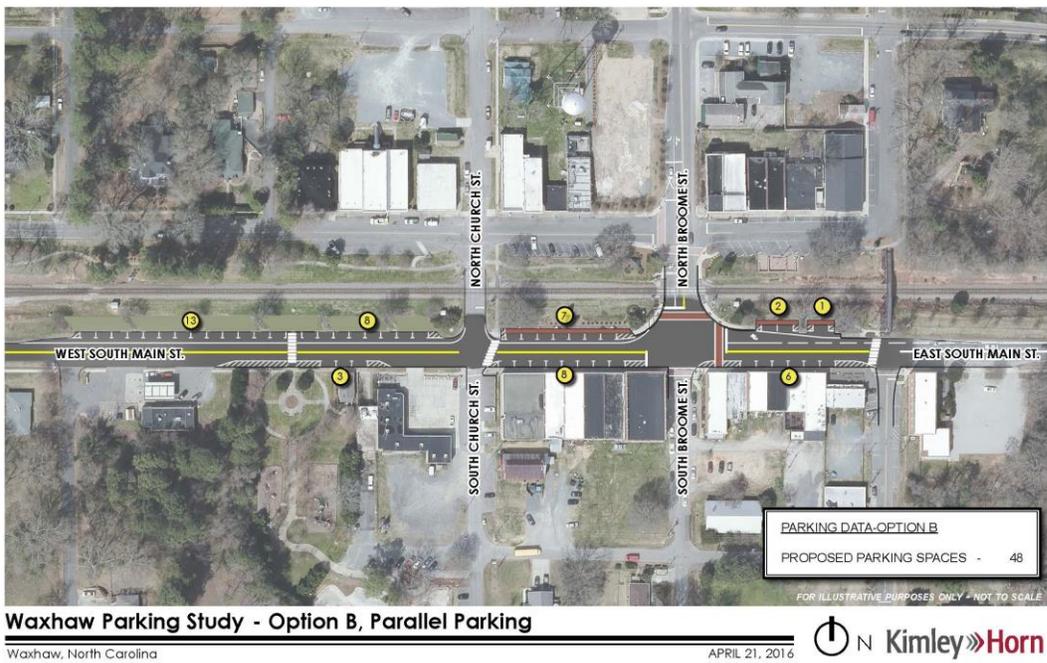


Figure 10: Option B





# Downtown Waxhaw Parking Study

Table 9 summarizes the spaces count between each option:

Option	Total	Net
Existing	64	+0
A	74	+10
B	48	-16

On-street parking is an important space design configuration when trying to accommodate patrons, visitors, and employees to the downtown area. When these facilities are being developed, many variables have to be considered. On-street parking designers should limit the places where pedestrians are forced to cross vehicular traffic, and reduce redundant driveways, make safety a primary issue in locations where cars need to back into intersections, and limit vehicular stops and turning movements.

One of the first decisions to make when designing an on-street parking facility is to determine the safest and most efficient configuration of the available space to meet the parking requirements. There are a number of different parking angle configurations to be considered, including perpendicular (or 90-degree) and other angled (60-, 45-, 30-degrees) options, and parallel. The following provides basic descriptions and dimensions including the advantages and disadvantages for each configuration type:

### *Perpendicular (90-degree)*

This is the most efficient and economical parking configuration because it accommodates the most vehicles per square foot of available parking area. Perpendicular configurations work best when space is an issue and it is surrounded by a traffic pattern that allows of backing out of spaces where people are not put at risk. Standard dimensions for this configuration are 9 foot wide by 18 foot deep spaces.

#### **Advantages:**

- Handles the most vehicles per square foot of available space
- Handles most vehicles per linear foot along a driveway

#### **Disadvantages:**

- Requires the widest dimension (60 feet) for a double bay
- Difficult maneuvering for some drivers compared to other angled options

### *Angled (60-degree)*

The primary advantage with any angled parking is the ability to provide more spaces or better circulation patterns when the space available for parking is dimensionally constrained. The 60-degree angled parking configuration is ideal for a fast turnover rate or predominantly short term use and may be preferred over 90-degree parking in some situations due to ease of navigation, even though it may be a less efficient use of the available space. Standard dimensions for this configuration are 9 foot wide by 20 foot deep spaces.

#### **Advantages:**

- Easy maneuvering in and out of parking spaces due to better visibility
- Works best with short term and high turnover situations



## Downtown Waxhaw Parking Study

### **Disadvantages:**

- Requires more pavement per vehicle than perpendicular configurations
- Handles fewer vehicles per linear foot

### *Angled (45-degree)*

The 45-degree angled parking configuration displays similar benefits and limitations as the 60-degree configuration. Standard dimensions for this configuration are 9 foot wide by 19 foot deep spaces.

### **Advantages:**

- Reduced width requirements
- Easy maneuvering in and out of parking spaces
- Good rear visibility

### **Disadvantages:**

- Requires more pavement per vehicle than both 90 and 60 degree parking configurations

### *Angled (30-degree)*

Similar to 45-degree configurations, this configuration progressively increases the amount of pavement required per space while narrowing the double bay cross section. Standard dimensions for this configuration are 9 foot wide by 16.5 foot deep spaces.

### **Advantages:**

- Easiest spaces to back out from a visibility standpoint
- Easy to pull into spots

### **Disadvantages:**

- Requires the most pavement per vehicle parking space

### *Parallel Parking*

If you think of your favorite mid-density, urban shopping street anywhere in America, it likely has on-street (usually parallel) parking. Why is it that the best urban streets have parallel parking? Because parallel parking does many wonderful things:

### **Advantages:**

- A row of parallel-parked cars creates a 2,000 pound steel buffer between pedestrians and moving vehicles.
- Parallel parked cars create “friction” for moving traffic, slowing it down.
- Parallel parking helps businesses by creating more turnover from quick trips.

### **Disadvantages:**

- Least efficient for most number of spaces for an on-street configuration
- Hardest configuration for entry

In conclusion, this issue needs additional review and consideration and the Transportation Alternatives Program Grant that the Town received should be of great benefit.

# Enforcement



Downtown Waxhaw Parking Study



## Downtown Waxhaw Parking Study

### Enforcement

The foundation of a good parking system is enforcement. Successful parking management systems want parking enforcement and fines to be at an appropriate level so that the parking systems work as they are intended; drivers respect special space designations such as loading zones, adhere to time limits, move cars for street sweeping, pay when there are parking charges, and pay fines when they are levied. Enforcement activity should be planned in coordination with time limits and meter rules. While Waxhaw doesn't have official enforcement in place today, it should be something to consider in the near future. It is better to get a system in place before the inevitable growth of Waxhaw.

Philosophically, enforcement should neither be heavy handed nor exceedingly lenient. Rather, consistent and objective enforcement should be established to ensure that key metrics for the on-street parking systems are met. These metrics include managing duration of stay, turnover, and the rate of violation. Parking enforcement should assist in and promote compliance with parking regulations in a way that maximizes the efficiency and safety of public parking. Best practices of enforcement include enforcement personnel acting as "ambassadors" that serve as the information and wayfinding resources to visitors and patrons of the area.

### *Funding*

The cost of managing the parking enforcement system should be a separate line item so that it can be tracked and monitored individually. Citation revenue should include all the enforcement operating costs and future needs within the enforcement system.

The appropriate rate for parking citations should be based on three criteria:

1. Break even costs for maintaining existing operations including administration, operating personnel, back office, and equipment
2. Future system needs (i.e., growth or equipment)
3. Investments as associated with the targeted goals and matching the violation (e.g., blocking emergency vehicles vs. overstaying a time limit.)

Waxhaw could use some of the funding from the special events model described above to fund these personnel. These folks also can double as additional resources for Town police.

### *Time Limits*

One additional consideration for Waxhaw would be to implement and uphold time limits for certain parking spots. It is found that spaces that should have a high turnover due to their convenience are occupied by all day parkers and time limits could be imposed. This will free up the best spaces for multiple short duration parking patrons. These spaces could be in front of Maxwell's Tavern or on Main Street where people should not be able to park all day.

# Five Year Model





## Downtown Waxhaw Parking Study

### Five Year Model

Our original intent for this section was to build a demand model going forward of the next five years. Given the findings from our demand and utilization study, Waxhaw is far below the utilization thresholds that would create the demand for additional parking. In fact, the rule of thumb for maximum capacity utilization is the 85-90% threshold at peak periods consistently. While some of the individual observations approached these numbers, the overall system had a high of 43%. That means that demand would have to double in five years from where we are today.

Parking Garage Budget		
Number of Parking Spaces	1,000	
Estimated cost per space	\$15,000	
Construction cost		\$15,000
Land acquisition		\$ -
<b>TOTAL CONSTRUCTION COST</b>		<b>\$15,000</b>
Professional services including architecture/engineering, survey, soil report and testing, P.E. inspection, legal services (estimated at 12% of construction cost)		\$18,000
<b>TOTAL DEVELOPMENT COST</b>		<b>\$16,800</b>
FINANCING COSTS		
Issue and other fees (4% of total project cost)		\$672,000
Debt service reserves (10% of total project cost minus reserve fund)		\$1,680,000
Financing Cost Subtotal		\$2,352,000
<b>TOTAL PROJECT COST</b>		<b>\$19,152,000</b>
LOAN CALCULATION		
Principal		\$20,000,000
Interest rate	4%	
Term (years)	30	
Annual Debt Service		\$1,156,602
<b>Debt Service Cost per space</b>		<b>\$1,156.60</b>

*\*Notes: Annual inflation on the construction costs and interest earned on construction budget (12 month construction period and 5% investment rate) have not been included in order to simplify this project budget.*

It is most common for people to conclude that the answer to adding more parking is to build a garage. As you can see from the chart, this is a budget for a 1,000 space garage with its fully loaded costs. You would have to charge or recoup \$1,156 per space just to cover the debt service alone. Then add another \$800 to \$1,100 per space to cover the operating expenses. Therefore, while building vertical to save surface area and create more parking, caution should be exercised before committing to build garage parking. Most municipalities use their on-street paid parking revenue resources to assist in paying for a parking garage.

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