

Belhaven Parking Study Results and Recommendations

by

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Introduction

Parking is a perennial sore spot in towns and cities across the world. Drivers perceive that there is never enough available parking at the right times and places (i.e., right outside the door of their destination when they arrive). Meanwhile parking suppliers like towns, businesses, and developers perceive that they are forced to spend too much money and time on a peripheral aspect of their operation.

Belhaven is no exception to the dynamic described above. To better judge the extent of their parking issues, and to find ways to help the availability and efficiency of parking in the Town, Town Manager Lynn Davis contacted the North Carolina Department of Transportation to see if we could conduct a parking study. Ms. Davis was referred to the Municipal and School Transportation Assistance (MSTA) program within the Mobility and Safety Division, and MSTA agreed to conduct the study. This is a report of the findings of that study.

Method

Email exchanges and discussions between Ms. Davis and the study team helped establish the scope of the study in terms of time, space, and the data desired. The time of interest was a weekday with nice weather conditions. No particular season of the year was of special interest, as Belhaven is a year-round community with no universities or other seasonal generators. Ms. Davis indicated that the lunch period was of interest, as several restaurants seemed to generate good business during that time.

The spatial scope of the study was limited to on-street parking in the downtown area around the central intersection of Main and Pamlico Streets, where Business US-264 turns from eastward on Main to northward on Pamlico. NCDOT (on Business US-264) and the Town (on other nearby streets) have provided a good deal of on-street parking which was the focus of this study. Figure 1 shows the area of the study, which included a six-block area bounded by Pungo, Allen, Water, and Edward Streets. Edward Street was not included within the scope of the study, as it has on-street parking but the generators are mostly the churches on Sunday mornings. Figure 1 also shows that some of that on-street parking is parallel, some is at an angle, and some is at 90 degrees. There appears to be a good deal of off-street parking or vacant, accessible, and publicly-owned lots that could be used for parking around the downtown area as well.

As Belhaven has no paid parking and no enforcement of parking regulations except for egregious violations that endanger public safety, the study team was able to quickly establish the types of data collection that could be helpful. These included inventory data (what parking Belhaven was providing), occupancy data (what portion of the spots were occupied by a vehicle throughout the day), and duration data (how long the average vehicle occupied a particular spot). After questions of revenue and enforcement, inventory, occupancy, and duration are indeed the typical data collected during a municipal parking study.

Inventory
 P = parallel
 A = angle
 90 = 90-degree
 0 = none

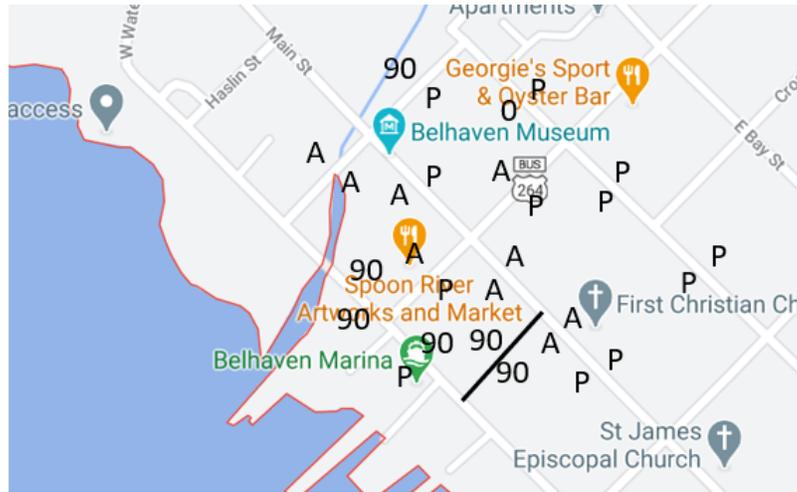


Figure 1. Study scope.

The only other typical data that the team debated, but ultimately choose not to collect, was generation data, which involves determining the building which a particular vehicle’s occupants ultimately visited. Generation data are more difficult and costly to collect as they involve intrusive surveys of people as they walk between their vehicle and their destination. After discussions with Ms. Davis, the team did not feel that the extra expense and intrusion of a generation data collection effort were justified in this case.

The inventory data we collected in this study were from on-line photos, including aerial and driver views from the latest sources available for each street. For duration and occupancy data, we made a field data collection trip and walked each block within the study area a number of times. During each tour, we wrote down the first three digits of the license plate number of each parked vehicle. Three digits is enough to see repeat vehicles without violating the privacy of the vehicle owners. Figure 2 shows our field data collection form, adopted from the 2010 edition of the “Manual of Transportation Engineering Studies” from the Institute of Transportation Engineers.

Belhaven Parking Study Field Data Sheet

Observer _____ Date _____ Weather _____

Side of street _____ Street _____ between _____ and _____

Type of space*	Time circuit began										Notes

Record first three letter (digits) of license plate; check mark for repeat vehicle from prior circuit
 * 90 = 90 degrees, A = angle, P = parallel, I = illegal

Figure 2. Duration and occupancy data collection sheet.

Results

Joe Hummer and Tammy Germiller conducted the field data collection between 11 am and 5 pm on Friday, October 23, 2020. Joe and Tammy stopped collecting data at 5 pm due to the perception that the parking situation had stabilized, and with many businesses closing at 5 pm parking demand was likely to decline after that time. The Covid pandemic was underway at the time of data collection, but most businesses in downtown Belhaven seemed to be open and functioning. The one closed business that we noticed that may have made a difference to the results was the Belhaven Senior Club at the corner of Main and Allen. Business in Belhaven is not nearly as tied to the seasonal tourist trade as the Outer Banks for example, so the parking patterns revealed during this effort probably apply well throughout the year. During our data collection people were setting up for a barbeque festival on the waterfront south of Water Street and west of Allen Street which was to take place the next day, but we did not sense that the festival set-up affected downtown parking very much. The weather during data collection was beautiful, mostly sunny and seasonably warm at about 80 degrees. During data collection Tammy and Joe did not see any events or incidents that they thought would have affected travel or parking patterns in any unusual way. Overall, the data collected on October 23 should be quite representative of weekday daytime parking through most of the year in Belhaven.

During data collection, Tammy and Joe talked with many people on the sidewalks of Belhaven curious about what we were doing. Generally, people were friendly and understood why we were doing the study once we explained ourselves. Most people thought there was some sort of parking problem in Belhaven. Many comments were along the lines that the parking spots in front of their destinations were full too often. Some people also complained about the drainage problem on Allen Street (see below). Tammy and Joe noticed that many of the people using parking spots in Belhaven were older.

An apparently common drainage problem on Allen Street was prominent on the day we collected data. On Allen just south of Main, over and around the waterway, there was at least a foot of water all day, across the whole roadway. The water on Allen essentially blocked the street to smaller vehicles, so only pick-ups and large SUVs were able to wade across. With Allen south of Main essentially turned into a cul-de-sac the parking spaces on that block of Allen were mostly useless. There was some water puddled on Allen Street just north of Main as well, but not nearly as deep as on the south side of Main. Allen Street north of Main was usable during data collection in our estimation. The water on the roadway also blocked the sidewalk on the south side of Main, so anyone walking out of the downtown along the south side of Main had to walk in the street or cross to the north side of Main.

Other observations Tammy and Joe made included:

- Some lines marking parking spots were faded, especially for angle spaces on Town streets,
- There were a few conflicts between vehicles backing out of angle spaces and vehicles travelling down the streets,
- There was not much signing directing drivers to parking or explaining regulations, and
- There were only two handicapped parking spots marked, including one on the south side of Main at Pamlico and the other on Water Street near the bridge.

Table 1 shows the main results from the data collection. For each block of parking where we collected data, the table shows the capacity in terms of the number of parking spaces (based on markings or

measurements if no markings were provided), the number of occupied spaces for each tour we conducted, and the average duration of a parked vehicle in a particular spot. The bottom row of the table provides an overall capacity and sums of the occupancy during each tour. Note that the average duration is likely under-estimated, because vehicles present during the first or last tours were assumed to have been present for just one tour, when actually they may have been present for much longer, but the average duration as we report it is still helpful in a relative sense. In Table 1 and subsequent paragraphs, the “alley” we refer to is parallel to and east on Pamlico Street, between Water and Main, behind the businesses that line the east side of Pamlico. We also adopted the convention the Pungo, Main, and Water Streets run east-west and Allen, Pamlico, and Edward Streets run north-south.

Table 1 shows that the downtown core was indeed the busiest in terms of occupied parking. The most occupied spots we observed were on the west side of Pamlico between Main and Water at 1:45 with 15 spots. The south side of Main between Allen and Pamlico and the north side of Main between Pamlico and Allen also saw above 10 occupied spaces at some point. Those three blocks in the downtown core also saw shorter durations, with average durations of just 75, 56, and 53 minutes, respectively. Many vehicles parking for short durations should be ideal for the downtown businesses. Note that the east side of Pamlico between Water and Main did not perform as well as the other three blocks in the downtown core, with spaces not filling as much (peaking at nine occupied spaces) and people staying for longer durations on average (101 minutes).

The capacity column in Table 1 shows that the study area has over 500 spaces of on-street parking capacity. The four core block faces in the downtown area—on Main between Pamlico and Allen and on Pamlico between Main and Water—have 80 spaces. Comparing the capacity column to the occupancy columns shows that most blocks did not fill up during data collection. The only blocks that filled were the seven spaces on the north side of Water between Pamlico and Allen and the three spaces on the south side of Main between Pamlico and the alley. The four core block faces got to about two-thirds full at some points but never more full than that.

Table 1 shows that just outside the downtown core there were plenty of parking spaces available. Both sides of Main between Pamlico and the alley, both sides of Main between the Alley and Edward, both sides of Pamlico between Main and Pungo, most spaces on Water, and both sides of the alley between Main and Water all attracted some parked vehicles but were never close to full. Some of those blocks attracted parkers who tended to stay for long durations: average durations on Main east of the alley and on the alley were all over 100 minutes. The north side of Water between Pamlico and Allen also had a number of parked vehicles with long durations, with an average duration well over 100 minutes.

Table 1. Results.

Side	Street	From	To	Capacity, vehicles	Number of vehicles parked								Average duration, minutes
					11:30	12:15	1:00	1:45	2:30	3:15	4:00	4:45	
N	Main	Edward	Alley	34	4	3	4	3	3	3	3	2	115
		Alley	Pamlico	8	2	1	5	1	1	4	2	3	64
		Pamlico	Allen	17	9	12	7	7	3	3	6	1	53
S	Main	Allen	Pamlico	21	12	14	9	3	2	3	3	5	56
		Pamlico	Alley	3	2	3	3	2	1	1	3	3	93
		Alley	Edward	29	5	4	2	3	5	4	3	3	120
E	Pamlico	Water	Main	19	4	6	7	8	9	7	5	5	101
		Main	Pungo	3	0	2	0	0	3	1	1	1	66
W	Pamlico	Pungo	Main	12	1	1	1	1	1	1	0	0	248
		Main	Water	23	13	13	11	15	12	10	11	12	75
N	Water	Alley	Pamlico	3	0	0	0	0	0	0	0	0	--
N	Water	Pamlico	Allen	7	6	6	6	5	5	5	7	6	114
S	Water	Allen	Pamlico	15	3	2	2	2	1	1	1	3	73
		Pamlico	Alley	2	1	0	0	0	0	0	0	0	37
E	Alley	Water	Main	37	5	5	5	5	4	4	3	2	170
W	Alley	Main	Water	16	4	4	3	2	3	2	1	2	108
E	Allen	Water	Main	11	1	1	0	0	0	0	0	0	41
		Main	Pungo	18	0	0	0	0	0	0	0	0	--
W	Allen	Pungo	Main	18	1	6	3	0	0	0	0	0	41
		Main	Water	6	0	0	0	0	0	0	0	0	--
N	Pungo	Edward	Croatan	52	3	6	5	4	5	6	8	6	161
		Croatan	Pamlico	40	0	0	0	0	0	0	3	3	83
S	Pungo	Allen	Pamlico	12	0	0	0	0	0	0	0	0	--
		Pamlico	Croatan	38	0	0	0	0	0	1	0	0	41
		Croatan	Edward	61	7	6	5	6	6	5	6	6	162
Overall				505	83	95	78	67	64	61	66	63	

Table 1 shows that Allen Street south of Main was indeed not functional due to water over the road during data collection. Allen Street north of Main had some parkers during lunch in the 90-degree spaces on the west side of the street, but no activity on the east side.

The data in Table 1 confirm that Main Street east of the alley and Pungo Street between Pamlico and Edward had a good number of parked cars, likely residential users, for generally long durations. The spaces that the Town provides along those blocks appear to be a valuable resource for those residents

Table 1 also indicates that nobody was using some blocks with available spaces. This includes Allen, due to the drainage problems, Pungo west of Pamlico, and Water east of Pamlico.

The bottom row of Table 1 shows that the overall peak time for parking was 12:15 pm, lunch time. Parking occupancy overall was steady through the rest of the afternoon.

Conclusions and Recommendations

Based on the data described above, the project team concludes that Belhaven does not generally have a parking problem for drivers trying to find a spot to park. Some drivers at some times, especially around lunch, may not be able to find a spot open directly in front of the front door of their destination. However, almost every driver will be able to find an open spot within a half block. The usual standard in parking studies, espoused by experts like Professor Donald Shoup (for example see Wikipedia, https://en.wikipedia.org/wiki/Donald_Shoup), is that towns should aim for occupancy percentages of 80 to 90 percent on each block. When a block is usually full drivers become frustrated, circle the block wasting gas, commit more violations such as parking illegally, etc. On the other hand, if a block is too empty, people perceive that resources are being wasted, that the businesses are not doing well, that there may be a security issue in the area, etc. Indeed, several people told Tammy and Joe during data collection that they were glad that parking spaces were generally filled downtown, because that meant that downtown had some life and vigor. Based on the 80 to 90 percent occupancy standard, Belhaven does not have a problem of being too full and could use more vehicles to fill more spaces at most times, even in the core blocks.

The data also show that Belhaven does not generally have a problem with long duration parkers hogging prime spots. The durations in the core blocks were relatively short; few vehicles stayed in a space in one of the core blocks for more than one hour. The downtown businesses should appreciate the relatively quick turnover of the prime parking spots. It does not appear that there is any need for posting time limits, increasing parking enforcement, installing meters, or other means of reducing durations.

Even with the positive conclusions we provided in the two paragraphs above, the project team generated plenty of ideas on how Belhaven could improve its parking situation. These include:

- The Town should take any opportunity it has to thank businesses and their employees for not occupying prime parking spots for long times. Positive reinforcement could help sustain the current good practices and nudge offenders to change their ways. The Town should keep encouraging business owners and employees to park behind the businesses in the lot south of Main or in the alley parallel to and east of Pamlico.
- The Town should encourage NCDOT Division 2 to replace the signal at Main and Pamlico with all-way stop control. All-way stop control also gives the pedestrian the right-of-way over any vehicle, reducing the delay for crossing pedestrians. Tammy and Joe found it annoying to have to wait for a green signal to cross the intersection when no vehicles were using the intersection, and likely many pedestrians do too, but an all-way stop would eliminate that delay. This would have effect of encouraging people to park across the street, especially in the under-utilized spaces on Pamlico north of Main. All-way stop control is a much safer form of intersection control than a signal, typically reducing all crashes and injury crashes by 60 percent. All-way stop would also likely reduce vehicle delay in this case. NCDOT records show that Main west of Pamlico averages between 2000 and 2600 vehicles per day, while Pamlico north of Main averages between 1000 and 1700 vehicles per day. At those traffic demands, all-way stop would work well with little delay for anyone. And a switch to all-way stop control would save energy in running the signal. All-way stop at Main and Pamlico would help parking and many other aspects.

- The Town should consider all-way stop control at the intersection of Pamlico and Water as well.
- The Town should consider partnering with NCDOT Division 2 on the installation of an appropriate mid-block marked crosswalk on Main between Allen and Pamlico. It is over 500 feet between Allen and Pamlico, which is a long way for a pedestrian to walk out of the way to get to a crosswalk. This likely discourages people from parking on the south side of Main, or in the lot behind the businesses on the south side of Main, to access the businesses on the north side of Main. The Town has made a nice recent investment in streetscape on the south side of Main a couple hundred feet west of Pamlico; matching that with a marked crosswalk across Main could open more parking possibilities for people.
- The Town should fix the drainage issue on Allen at Main. The poor drainage made any parking facilities on Allen, especially south of Main, essentially useless during our data collection.
- The Town should consider posting more signs pointing newcomers to parking, especially on Main Street entering the downtown from the west. One opportunity where better signing might help point drivers to good available parking is on Main between Allen and Pamlico at the entrance to the lot behind the stores along the south side of Main. That is a convenient paved lot with apparently available spaces, but the one-way narrow entrance from Main Street is tough to see. Another opportunity where a sign might help is pointing drivers on Main to the alley parallel to and east of Pamlico. The wayfinding signs we are recommending do not have to be fancy or expensive to be helpful; the simple white “P” on a blue background with an arrow, in the right place, could help a lot.
- The Town should repaint lines where they are faded, especially for angle spaces.
- The Town should consider converting angle parking to “back-in” style on its streets, and working with Division 2 to make the conversion on Main Street west of Pamlico as well. Back-in angle parking has been slowly gaining ground throughout the US in the past thirty years. It has several benefits, especially in safety, as it eliminates many of the conflicts we saw during data collection between vehicles backing out of an angle parking space and oncoming through vehicle. Figure 3 shows a fairly recent example in Wisconsin. Some positive references to back-in angle parking from the Pedestrian and Bicycle Information Center maintained at UNC for the Federal Highway Administration are:

https://web.archive.org/web/20171028043058/http://www.pedbikeinfo.org/data/faq_details.cfm?id=3974
and

http://www.pedbikeinfo.org/resources/resources_details.cfm?id=4413

- The Town should consider adding more handicapped spots on its streets, particularly in the core downtown area. The Town should also consider signing some prime spots on Main and/or Pamlico for seniors or veterans. These signs would not be enforceable, but could be a welcome help and message to older customers.



Figure 3. Relatively new back-in angle parking in Wisconsin (from <https://www.ayresassociates.com/back-angle-parking-easier-safer/>).

- The Town should consider upgrading the parking capability on the property it owns along the alley east of Pamlico between Main and Water by adding more gravel and wheel stops. It was not clear to Tammy and Joe where Town property was along that alley, and where exactly public parking was allowed. If publicly available, we believe the alley to be a great resource for the Town as a reservoir of inexpensive and convenient parking.
- We would be happy to return and conduct parking data again during summer or after Covid has receded if you wish. We feel like the data collection we conducted was fair and representative, but if business (especially the restaurant businesses) come roaring back bigger than ever after Covid, the numbers may change. With our experience in hand, another round of data collection and an update of this report would be efficient.