TO: Town Engineer for the Town of Carrboro

FROM: Jordan Pleasant, Analyst at Smith Developments

DATE: November 15, 2020

SUBJECT: Club Nova Redevelopment

Smith Developments is eager to begin the redevelopment of the Club Nova site on West Main Street. Before we can begin however, we need to figure out how much parking this site will require. To do this, we used the Institute of Transportation Engineers' (ITE) publication *Parking Generation*. This publication uses data collected from ITE over several study sites across different cities and multiple years. For specific land uses, *Parking Generation* supplies average parking demand and an equation to calculate parking based on *x*, representing either square footage or number of units.

Our site is composed of three different land uses within one building. Those uses are 1,975 ft^2 of a thrift store, 10,072 ft^2 of offices, and 24 single room occupancy (SRO) units. The table below shows our calculations based on ITE's information.

Land Use Type	Units	Analysis	Suggested Parking Spaces
221: Low/Mid-Rise Apartment	24 SRO Apartments	Equation: $P = 0.92x + 4$	26.08 ≈ 26
		Average Demand: 1.20 vehicles/unit	28.8 ≈ 29
		Other: "One site with 15 dwelling units . . . 1.00 vehicle per dwelling unit"	24
710: General Office Building	10,072 ft^2	Equation: $P = 2.56x - 80$	-54.21568 ≈ -54
		Average Demand: 2.47 vehicles/1,000 ft^2	24.87784 ≈ 25
815: Free Standing Discount Store	1,975 ft^2	Equation: N/A	N/A
		Average Demand: 1.33 vehicles/1,000 ft^2	2.62675 ≈ 3
Total Parking Spaces:			**54**

Source: Institute of Transportation Engineers 2010

For the 24 SRO apartments, the most similar use type within the publication was Low and Mid-Rise Apartments. For this, three different analysis methods were presented. An equation, the average, and an example from a specific site. The equation suggested 26 parking spaces, the average suggested 29, and the example suggested 24. Since the example was from a place with 15 units and a ratio of 1:1 spaces to units, and our development will have 24 we determined we could estimate above 1:1. We felt parking based on average demand was too many spaces, but parking based on the equation was sufficient. We selected 26 spaces.

For the 10,072 ft^2 of office space, we used the average demand because the equation would have given us negative parking spaces. Most office space is larger than what our

development will contain, explaining why the equation is so out of bounds. We selected 25 spaces.

For the 1,975 ft^2 thrift shop, the most similar use was the free-standing discount store. We used average demand because this use did not have a formula. We selected three spaces. In total, according to our use of ITE's data, the suggested number of parking spaces is 54. It is important to state, however that ITE's publication inserts the caveat that local conditions affect parking demand differently.[1] They caution against blind trust of their data and strongly suggest surveys of local conditions be done before determining parking demand.[2]

After determining parking demand based on ITE data, we then looked at Chapel Hill's parking requirements. We found The Town of Chapel Hill does not have parking minimums, but they do have parking maximums.[3] Based on those maximums, our development cannot exceed 54 spaces,[4] the same number of spaces suggested by ITE's equations and averages. The Town also has bicycle minimums, so our development will need to have capacity for 24 bicycles.[5]

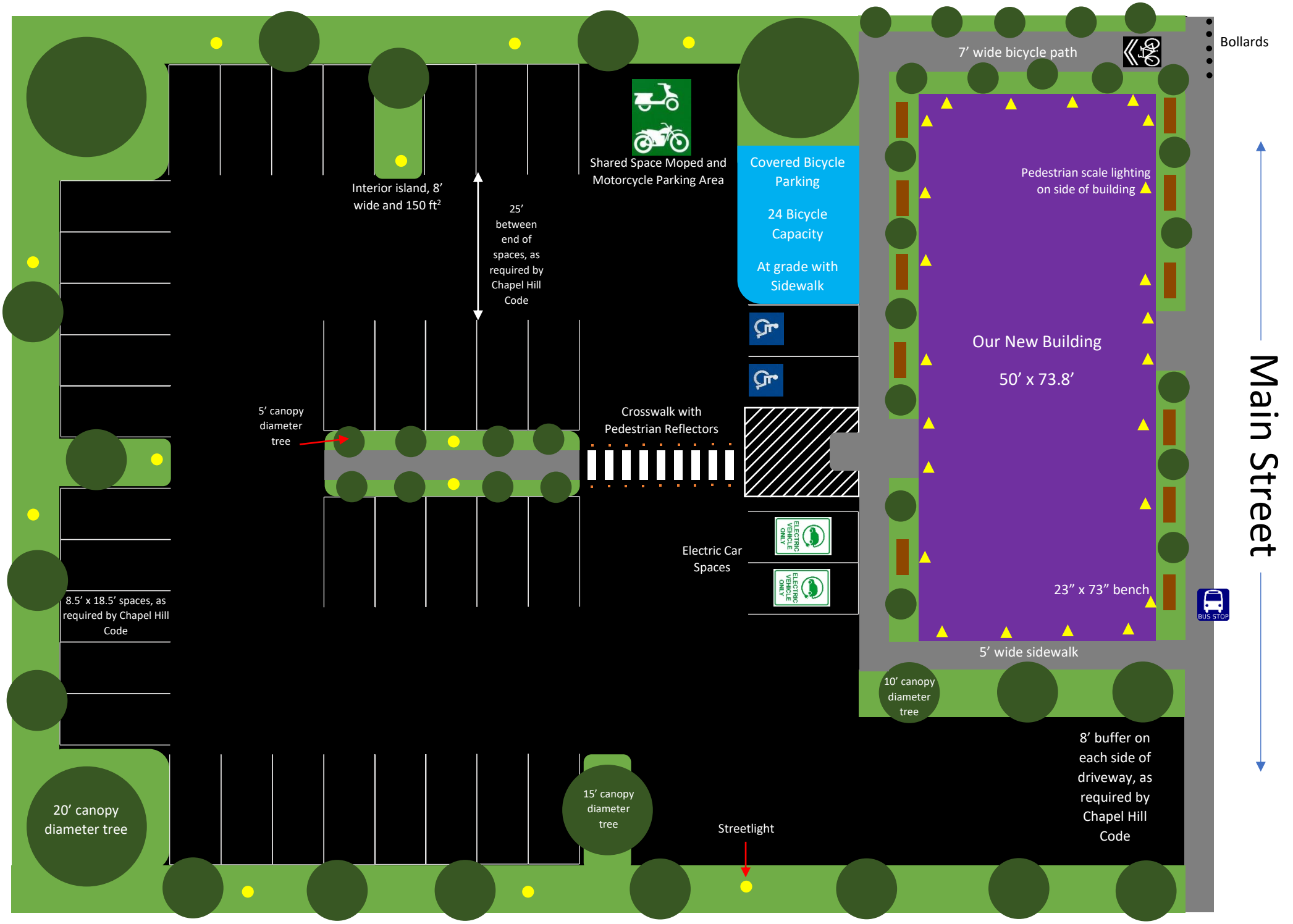
Chapel Hill also allows shared parking, wherein 50% of spaces for one use can be used for another use, provided the uses are at different peaks times, such as night and day.[6] We determined retail and office have peak parking during the day, as they are closed at night, and the SROs peak is at night, as those residents with cars have likely driven to work during the day. Chapel Hill's maximum number of spaces for the thrift shop is 6, the offices 26, and for the SRO's we used the "rooming house" land use type to determine the number of spaces, which was 18. SRO's generally have shared bathrooms and kitchens, making "rooming house" the closest land use type.

The sum of the retail and office maximums is 32. Therefore, 16 spaces can go towards the SROs' total, meaning only two spaces need to be built. If shared parking were required, this would put our maximum number of spaces at 34. Shared parking is not required, so our development can have a range of spaces between zero and 54.

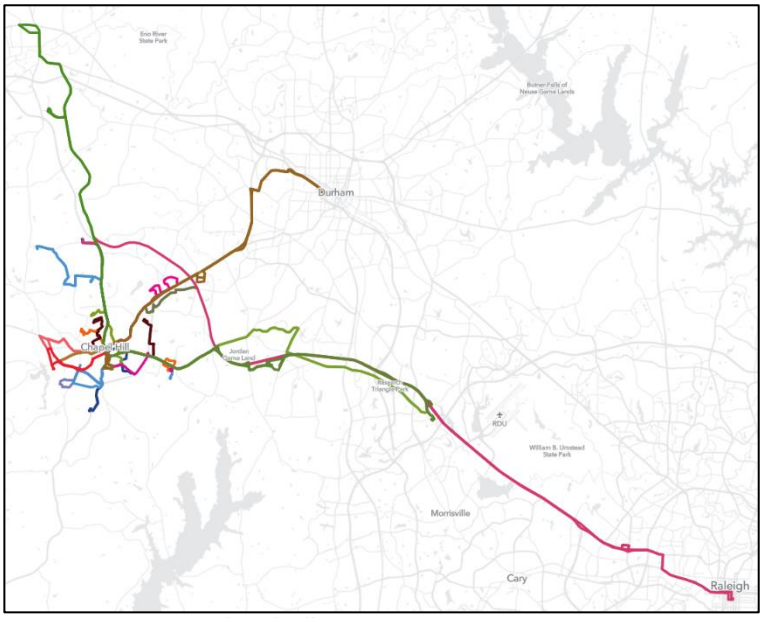
We have attached our parking plan on the next page. Our plan contains 39 spaces. Two of those are electric car parking and another two are handicap accessible spaces. In addition, there is also a shared space the size of three typical spaces for mopeds and motorcycles. Our site also contains covered bicycle parking with capacity for 24 bicycles. We are only fifteen spaces away from hitting Chapel Hill's parking maximum.

Our plan is more than sufficient to meet the needs of the residents, workers, and customers who will be living, working, and shopping within our development. One reason in

[1] Institute of Transportation Engineers 2010
[2] ITE 2010
[3] Officials of the Town of Chapel Hill, North Carolina 1971; 2020
[4] Officials of Chapel Hill 1971; 2020
[5] Officials of Chapel Hill 1971; 2020
[6] Officials of Chapel Hill 1971; 2020


Bollards
7’ wide bicycle path
Shared Space Moped and Motorcycle Parking Area
Covered Bicycle Parking
24 Bicycle Capacity
At grade with Sidewalk
Interior island, 8’ wide and 150 ft²
25’ between end of spaces, as required by Chapel Hill Code
Pedestrian scale lighting on side of building
Our New Building
50’ x 73.8’
5’ canopy diameter tree
Crosswalk with Pedestrian Reflectors
Electric Car Spaces
ELECTRIC VEHICLE ONLY
ELECTRIC VEHICLE ONLY
8.5’ x 18.5’ spaces, as required by Chapel Hill Code
23” x 73” bench
BUS STOP
5’ wide sidewalk
10’ canopy diameter tree
8’ buffer on each side of driveway, as required by Chapel Hill Code
20’ canopy diameter tree
15’ canopy diameter tree
Streetlight
Main Street

particular that 39 spaces will suffice is our site's connection to Chapel Hill Transit's bus system. This map shows all the destinations that can be reached within one bus transfer of the bus line which stops right in front of where our new building will be built. Not only can an individual get anywhere within Chapel Hill via the bus, they can also easily get to Durham and Raleigh.



Sources: Remix.com; Chapel Hill Transit; Orange County Transportation Services; GoTriangle

When analyzing the area by census block group, 4.6% of workers living within the same census block as the Club Nova site (Block Group 4, Tract 107.03) take the bus to work.[7] Within the seven bordering block groups, 0%, 15.9%, 11.7%, 15.5%, 14.3%, 10.3%, and 22.3% of workers living within the block group take the bus to work.[8] Most of these are much higher percentages than the nationwide average of 5.1%.[9]

At first glance, 39 spaces may seem too little for our proposed development. However, we find that with Chapel Hill Transit's exceptional bus system, the disproportionately high number of people within the surrounding area that use the bus to get to work, as well as the addition of our bicycle and moped/motorcycle parking is more than sufficient to make up for the perceived shortness of parking spaces within our Club Nova redevelopment site.

Smith Developments looks forward to discussing this with you in greater detail.

[7] US Census Bureau, ACS 5-Year Estimates 2018
[8] US Census Bureau 2018
[9] Fox 2017

Sources

Association of Pedestrian and Bicycle Professionals. 2010. “Bicycle Parking Guidelines, 2nd Edition.” https://www.townofchapelhill.org/home/showdocument?id=3361.

Chapel Hill Engineering Department. n.d. “Lot Layout Schedule.” https://www.townofchapelhill.org/home/showdocument?id=2872.

Fox, Justin. 2017. “Who Takes the Bus or Train? Not Many Americans.” Bloomberg Opinion. December 18, 2017. https://www.bloomberg.com/opinion/articles/2017-12-18/who-takes-the-bus-or-train-not-many-americans.

Institute of Transportation Engineers. 2010. “Parking Generation, 4th Edition.”

Officials of the Town of Chapel Hill, North Carolina. 1971. *Code of Ordinances of the Town of Chapel Hill*. https://library.municode.com/nc/chapel_hill/codes/code_of_ordinances?nodeId=CO_APXALAUSMA_ART5DEDEST_5.9PALO.

The Park and Facilities. n.d. “6’ Essential Series Aluminum Bench with Back - Powder Coated Black.” The Park Catalog. Accessed November 18, 2020. https://www.theparkcatalog.com/amfilerating/file/download/file_id/37136/.

United States Census Bureau, ACS 5-Year Estimates, 2019. Retrieved from platform.remix.com.