


#### Abstract

As a team, we are working with the city of Charlottesville's PLACE Task Force Team in order to identify and analyze sustainable places throughout the City of Charlottesville. This analysis will help determine how the existing urban fabric can influence future planning decisions. We are specifically looking at the Venable, 10th and Page, and Rose Hill neighborhoods. Through the compilation of maps and photos that show the current state of these neighborhoods, we will be able to show, in detail, what areas need to change or stay the way they are. Specifically, we are going to look at three existing themes: Block size, Residential and Commercial Building Density, and Transportation (public transportation systems, bike routes, and walkability features). These three themes will be looked at for different parts of the neighborhoods, whether it is schools, commercial areas, community centers, and certain residential intersections. A major objective of our project is to show how "accessible" Charlottesville is. This means that we would like to show how someone can get to different parts of Charlottesville, and how easy/hard it is in existing neighborhoods. For example, we are looking at how long it takes for a person to get to a bus stop in or around their residence, and then how long it takes for that person to get to the University, commercial area, or supermarket. Through this analysis people will be able to clearly see what areas of Charlottesville are more accessible. Two other maps will be created that show the block size and building/population density. By making these maps for five different areas in our neighborhoods, comparisons will be visible. These comparisons will show what types of blocks work in different areas. For example, a dense and large block may not work if it blocks routes between two places, but this type of block could be beneficial if it acts as a barrier between two distinct places.


Up to this point we have accomplished our objectives. With our transportation, block size, and building density maps, we have discovered where sustainable places exist within the City of Charlottesville. By looking at each areas analysis we discovered that there are certain places throughout the city that have more accessibility than others.

## INTRODUCTION

Over the course of the semester, our group will be working with the City of Charlottesville's PLACE Task Force Team to identify and analyze sustainable places in Charlottesville and determine how the existing urban fabric can influence planning decisions in the future. Our group in particular will be mapping the existing fabric of three Charlottesville neighborhoods: Venable, 10th and Page, and Rose Hill, and identifying both sustainable and unsustainable planning practices that occur within them. Our work has the potential to directly affect the citizens of Charlottesville and make the city a more sustainable and livable place. Our group decided that sustainable places are active, safe, beautiful, clean, easily accessible, walkable, and many times ecologically friendly, or at least non detrimental to their surrounding environment. Factors that foster sustainability include mass transit systems, mixed use buildings and structures, strong community involvement, slightly denser habitation, and attractions in the area. Together, these factors combine to make sustainable places and places where people want to live, work and raise their families. Through research and mapping, we hope to highlight patterns of sustainability where these factors occur, and emphasize the importance of sustainable practices in city neighborhoods. At the same time, it will be apparent where these systems are lacking and hindering the potential of certain neighborhoods or city areas.

In many ways, Charlottesville already fulfills many sustainable characteristics and requirements. However, there is always room for improvement and growth towards a healthier, more responsible and more connected community. Like mentioned before, our community partner is the PLACE Design Task Force. The Task Force is a team within the City of Charlottesville government who works with the Planning Commission to make decisions about places in the community and how to best engage the community through place. The Task Force is chiefly an advising and consulting team, so they need information and patterns of development that reveal directions to take various projects. They provide the guidance that
eventually turns into a reality if other factions of City government and the people of Charlottesville agree. That being said, citizens of Charlottesville are the main stakeholders and benefactors of the Task Force. The Task Force exists to enrich the community and make Charlottesville a better place to live, so it has to work within the framework of the public's opinion and the rights of landholders and homeowners. Citizens living in the areas the Task Force plans or who visit the areas directly benefit from the projects and appreciate a more cohesive and lively community. It is our goal to present the people of Charlottesville, along with the Task Force, factual information and patterns of inhabitation that promote sustainability and responsible development.

## METHOD

The goal behind our plan and strategy for this project was to create a comprehensive and unbiased evaluation of Charlottesville's existing urban fabric. We wanted to create an index that effectively communicated the good, sustainable practices Charlottesville was already engaging in while also recognizing the less desirable planning patterns in place. This index would then hopefully be used by the City's Planning committee and be eventually implemented into a new comprehensive plan and future development.
To begin, we met with a representative of the Charlottesville PLACE Task Force, our community partner. She spoke with our group about moving towards a more sustainable, denser city plan, which could be helped with our research and evaluations. Given that this was largely a research project, the bulk of our information came from visiting our sites, photographing our areas, and using GIS mapping software. Visiting sites gave us a better understanding of terrain, building density, neighborhood activity, and walkability. We were then able to take our first hand experiences and use them in conjunction with information from GIS. This information included building size, block size, parcel layout, sidewalk availability, accessibility of bus stops and routes, and terrain.
Once we gathered our information, we met in group sessions to discuss our research and form common indexes to measure various aspects of sustainability. The three main themes we focused on were block size, building density, and transportation. We then took our information and created maps and diagrams illustrating those themes in our respective areas. Finally, we wrote about our findings and compiled them in a final report. For example, the Rose Hill neighborhood, which consists of mostly single-family homes, is within walking distance of the commercial area on Preston Avenue. Also, no house is more than a 4-minute walk to a bus stop that allows residents to get to Barracks Road Shopping Center in about 10 minutes. The block size and density maps showed us how different sizes and densities can be beneficial for different areas. For example, on 15th Street NW, The Grandmarc apartment complex seems sustainable because it houses hundreds of people in a dense area. When comparing to other maps, we found that it would make sense to break this area up to allow for routes between 15th Street and Chancellor Street. These are just some things that we were able to accomplish through the comparisons of different maps of our neighborhoods.

## TIMELINE

In order to show a more detailed description of our method and process for this project, we have created a detailed timeline showing how we have worked for the past few months.

## february 2013

February $22=$ On this date, we will have had our first group meeting with an assigned area to study. We have already created a tentative timeline for our project, but it is something that was adjusted a good amount because the focus of our project in general has shifted as well. In general, editing our timeline and project objectives gives us more time to specific analysis and less on hypothetical projections, because representing information about parts of Charlottesville will be sufficient enough in showing how we could improve the city from a planning perspective.

February 28= By this time, our group has taken a general visit of our region of analysis for the first time. This visit was simply to get us familiarized with the area's energy and the way it looks. We recorded any observations that stand out to us, as well as took photographs and made quick sketches of the area.

## march 2013

March 7= After visiting our region for the first time, our group decided that focusing on key areas would be the best way of showing patterns found in the region, so we decided to divide the region into other subregions of study. We held a group meeting and looked at areas in the region that we felt best represented the good and bad examples of what to do in a city, and assigned one area to each member of the group. March 10= After making a final decision on what specific areas we would each study, we individually decided how broadly we would study each area, ranges that vary according to what is appropriate. We also each found specific blocks to use for mapping areas with very specific detail.
March 14= During spring break, each team member just continued to think about what information should be portrayed on each map.
March 21= On March 21, our team gained access to a helpful data set of Charlottesville from GIS so we started to create our maps with this information. We decided to show one general map of our group's entire region. As individuals, we also decided to create at least one map of the more general extents of our neighborhoods, and at least one specific block study map. Each member could create more than two maps, but we set a minimum to make sure the different scales of our analysis were represented.
March 24= We had a group meeting on this date to discuss how we would organize our project report, as well as to discuss what we wanted to write in the report. We also compared maps to make sure there was a consistency in their styles.

## april 2013

April 1= April 1st was our final group meeting to make sure each team member has finished creating the set of maps they were assigned, according to the regions they have each studied. We also compiled the parts of the draft report we each were assigned and discussed them to make sure that the project report was as informative and whole as it could be. We edited this paper to make sure that our information was displayed clearly and that any resident of Charlottesville would be able to understand what we were trying to call out. We made sure that our text analysis corresponded with our graphics in a way that makes sense, and we made sure that the paper was organized so that it sounded like one complete package.
April 3= We handed in the rough draft of our project report, after having edited individual parts of the essay and maps and ensuring that the report is both informative and understandable.
April 11= We will tentatively be given critique on our draft reports by now, so we will be starting to think about how we could improve upon our project report. Perhaps the critique will even call for more complex analyses of our areas, so we will hold a group meeting by this date to come up with a plan to edit our project so that it is as informative as possible.
April 13= We will have another group meeting between April 11 and April 18 to help one another with finalizing our project reports to make them richer with information, easier to understand, or better organized. We will also peer edit each other's maps to make sure they are perfect.
April 18= By April 18, we will hold another group meeting to confirm that all editing work with each assigned part of the report is finished. We will also start to arrange our information and maps onto a final poster for our final presentation.
April 25= By this date, we want to have our poster finished and make sure the report is finished as well.

## may 2013

May 2= The poster for this project is due by this date.
May 4= The final report of the project is due by this date. There will be a printable set of information and maps to deliver to the PLACE Design Task Force, as well as a documentation of our project's process as a group.

## ANALYSIS

## rose hill

The Rose Hill community became a part of Charlottesville in 1916. Rose Hill consists mainly of single-family homes, which are small to medium in size. Education property is the second greatest land use in this area. There is the Burley Middle School and the Murray Alternative School, both of which serve Albemarle County. The Murray Alternative School helps serve the at-risk youth of Charlottesville. Another important part of this area is Washington Park that acts as a community center for Rose Hill residents and other surrounding neighborhoods. Washington Park has areas for recreation, and it even includes a community swimming pool.

Residents of this area are within close proximity to the Preston Avenue and Downtown Mall commercial areas. The Downtown Mall includes amenities such as banks, restaurants, theaters, a pharmacy, and a large outdoor concert venue. Residents also have close access to the public bus transportation system; no house is more than five minutes away from a bus stop. The area also has bike lanes that run along Rose Hill Drive and Preston Avenue.

Rose Hill is a relatively small area compared to the rest of the City of Charlottesville, it is 115 acres or about .2 square miles. According to 2008 census data, the population is 559 , which correlates to a density of about 3,103 people per square mile. About $75 \%$ of the population is African American, with the second majority, of almost $20 \%$, being Caucasian.

## the corner

The Corner is a commercial area with approximately 200 residents including those on the 14th street. The block size is about 2 acres, which is similar to the average block size of 2.1-2.4 acres category for a US city. This place is more densely packed with public spaces for people to meet and have a conversation. According to our site visits, we found out that there are also many pedestrians passing at any time period during the day and public transit is utilized very well in this area. It is easy to get to places from the corner by bus as well, for example, residents can take the bus to downtown mall for 20 minutes on bus 7 and for less than half an hour to Harris Teeter in Barracks Shopping Center.

## lambeth

The Lambeth Field area is located close to Central Grounds. As one of the upperclassmen housing complexes, the Lambeth Field has 174 apartments in the 24 buildings. Each contains either two or three double occupancy bedrooms. The building block is approximately 7.5 acres, which is significantly larger than the average block size of 2.1-2.4 acres category for a US city. We estimate that there are 300 to 400 students living in Lambeth, so the density is about 46 people per acre. According to the measurements and site visits, we found out that it takes about one minutes to walk the length of the block. It is an elongated block, which creates spaces for pedestrian transportation between buildings. As we visited the area, we found that it takes less than 10 minutes to walk to central grounds. Additionally, there are multiple bus routes, such as the North Line, Green Route, and Central Grounds Shutle. It takes 3 minutes to get to the corner by foot and 15 minutes to Harris Teeter, and more than half an hour to walk to downtown mall.

## 14th street and venable

The area around Venable Elementary School is an important focus for our project's region because ready access to institutions of education is an indicator of a complete and sustainable neighborhood. Education is something that creates and strengthens relationships between people, builds foundations for gaining skill and knowledge in any field, and begins practice of good work ethic, critical problem solving, and enthusiasm for learning more. Beginning all these benefits is especially important in the earlier years of education, which
is why it is so important that this elementary school is accessible for its students. We found that the school's district range is within two miles from the school itself and normally within one mile from the school itself, which is a good range for an urban elementary school. Because a lot of the housing types in the immediate region surrounding the school are for college students, the area is not very safe or accessible for children to travel to the school by taking methods of transportation other than car or school bus. However, a third lane for student drop-off creates a condition for easy circulation with commuting students. There is a bus system that frequents the blocks close to the elementary school, for the university lines that lead around the college grounds, which is good for university students but does not increase accessibility for families with children in the elementary school. We studied the block immediately next to the elementary school and analyzed its density and walkability. We found that the average block size is about 2.4 acres, and that there are about sixteen dwelling units per block in the immediate region. Most of these structures are single-family homes for student housing, housing between four and eight people each. That gives an average block density of 40 people per block. There is a cross walk at the intersection of 14th and Gordon Street, and a decreased speed limit at the school during school hours. This reduced speed and installation of pedestrian priority crossings both encourage walking by foot. Students in this area are never more than a four minute walk to bus stops, and by bus, they can access the downtown mall, the corner, and Barracks shopping area within a half hour.

## 15th street

The 15th Street area in Venable neighborhood is a largely residential area consisting of mostly student housing. We looked at eleven blocks constituting a one-block buffer around 15th Street. Of the eleven blocks in the area, only four fell into the "typical" block size category for a US city. The other seven blocks ranged from 2.7 to 8.5 acres. Between measurements and site visits, we determined it takes about one minute to walk the length of a typical block, where it can take nearly five minutes to walk the length of an extended size block. The longest block was between Virginia and 15th and Wertland and 15th, which spanned over 1,300 feet and took over five minutes to walk the entirety of its length. Seven of the eleven blocks were accessible from all four sides, while four of the eleven were only accessible from three. The reason for the lack of full accessibility is that there are railroad tracks running next to 15th Street. The railroad forms the back boundary for these blocks and prevents them from being connected.

The 15th Street area's eleven blocks contain approximately 165 buildings over 45 acres. That averages to about 15 buildings per block and 3.6 buildings per acre. However, the buildings per block and acre vary throughout the length of 15th Street. Most buildings in the 15th Street area serve as student housing, with some exceptions such as the Martha Jefferson House, two churches, and a few restaurants. Various types of student housing exists, from large apartment complexes like GrandMarc, The V, and The Pointe, to smaller, single family homes that house 4-10 students. Large block sizes allow for large apartment buildings like Grandmarc, which sits on the largest block in the area and houses over 600 students, making it also the most densely populated block in the area. Further up 15th Street, blocks become smaller and contain mostly smaller single-family homes rather than large complexes. These house fewer students. For example, Grady Avenue between 16th and 14th Street contains 25 single-family homes and houses around 150-200 students.

In terms of transportation, students and other residents living in the 15th Street area have access to local Charlottesville bus routes. Route 9 is the only city bus route with stops in the designated area, and this can take residents to the Corner, Preston Avenue and Downtown. However, stops for other routes, most of which on the corner, are just a short walk away. The Downtown Mall, Barracks Road Shopping, Preston Avenue and Jefferson Parkway Avenue are all within a 10 minute drive and 30 minute walk.

## 10th and page streets

Historically 10 th \& Page neighborhood used to have variety in ethnic and social backgrounds, as well as income levels. However, now this neighborhood is mainly occupied by African American families.
This is a very compact neighborhood with its 84 acres or size. Even though the major land use is residential here it was a balanced mixture of residential and family owned businesses in the past. 10th\&Page is really close to the Historical Downtown as well as to the Corner. This makes the area very accessible to main gathering and shopping areas as well as businesses like local shops or UVA Hospital.

This area is one of the key neighborhoods which can be developed easily to be the new "place" and sustainable landmark for the Charlottesville community. If the neighborhood becomes mix of residential and small businesses with its multi-cultural identity again as well as secure like it was in the past, people can actually spend more time outside in their compact neighborhood. That would be a big step in order to create a livable place.

## PROJ ECT LIMITATIONS

The biggest project limitation we have had as a group is within the project requirements themselves. Because our project is only about mapping and explaining current conditions, it does not seem as though we are telling people what being sustainable is enough. We ultimately want this information to drive people to want to transform Charlottesville into a denser, more efficient city, but if they see our information without previous knowledge for what is sustainable, we do not believe that they will understand that there is room for improvement in the city. Another problem with studying our specific area is that the audience for the majority of our region is extremely temporal, with students not living in it for more than four years. This kind of temporary environment makes it hard to use it as an example for the more permanent parts of the city.

## CONCLUSION

After our research and site visits have finished, we can conclude that this region of Charlottesville is actually fairly sustainable. The biggest problem with the area is a lack of efficient transportation, which is caused by a lack of density in certain areas. We cannot convince the city of Charlottesville to create more rapid, efficient transit unless density for the average city block is increased, which is explained well when we compare our region's statistics to the country's averages. There is a good amount of walkability and safety within our area, with features such as blue lights and crosswalks. The transportation is efficient, but perhaps not efficient enough for the tight schedule of the university student. Therefore, we have concluded that increasing density is the main concern for our region.


## CHARLOTTESVILLE LYNCHBURG ALEXANDRIA



## POPULATION DENSITY






Henry Ave and Rose Hill Drive to
Cynthianna Ave and Forest St
Regular Block Size Accesible on All Sides Walking Time: 2 Minutes


## Block Size

## Charlton Ave

 between 10th St NW and Rose Hill DrElongated Block Size
Accesible on 3 Sides
Walking Time: 5 Minutes

Booker Street and Charlton Ave to Preston Ave and Rose Hill Dr

Elongated Block Size Accesible on All Sides Walking Time: 4 Minutes

## Building Density

## 7.5 acre

74 apartments
24 buildings $300-400$ residents
$\operatorname{co}^{2}+x^{2}+\sqrt{2}$
$x^{2}+5$
$1-n n^{1} x$
$\sqrt{4}$
5

## BUILDING DENSITY

## TYPICAL 14TH STREET BLOCK

AVERAGE DIMENSION 300ft x 350ft
HOUSES PER FACADE
6 single family homes
PEOPLE PER DWELLING UNIT
4-8 residents
AVERAGE DENSITY PER BLOCK
35 people per acre

Bus stops in area




## Building Density


2.81 Residents Per Building

25 Residents Per Acre

Booker Street and Charlton Ave to
Preston Ave and Rose Hill Dr
17 Buildings
4.9 Acres

Approximately 47 Residents
Average:
2.76 Residents Per Building 9.57 Residents Per Acre


## TRANSPORTATION

Preston
Walking 0.9 miles / 19 mins Bus 11 mins to the stop +5 mins Driving 1.0 miles $/ 4$ mins Bicycling 0.9 miles $/ 9 \mathrm{mins}$

## Downtown Mall

24
Bus 91.3 miles $/ 24$ min Bus 9 mins +2 mins walk Driving 1.4 miles $/ 6 \mathrm{mins}$ Bicycling 1.5 miles $/ 8 \mathrm{~min}$


## TRANSPORTATION

$\frac{(1+y-x+1}{(x+y)}+\left(\frac{1+x+1)}{1+2}\right)=$





