

CHARLOTTESVILLE

LOCUST GROVE + MARTHA JEFFERSON

SIDE WALK

BIKE PATH

ROAD

BUS ROUTE

GROUP 1

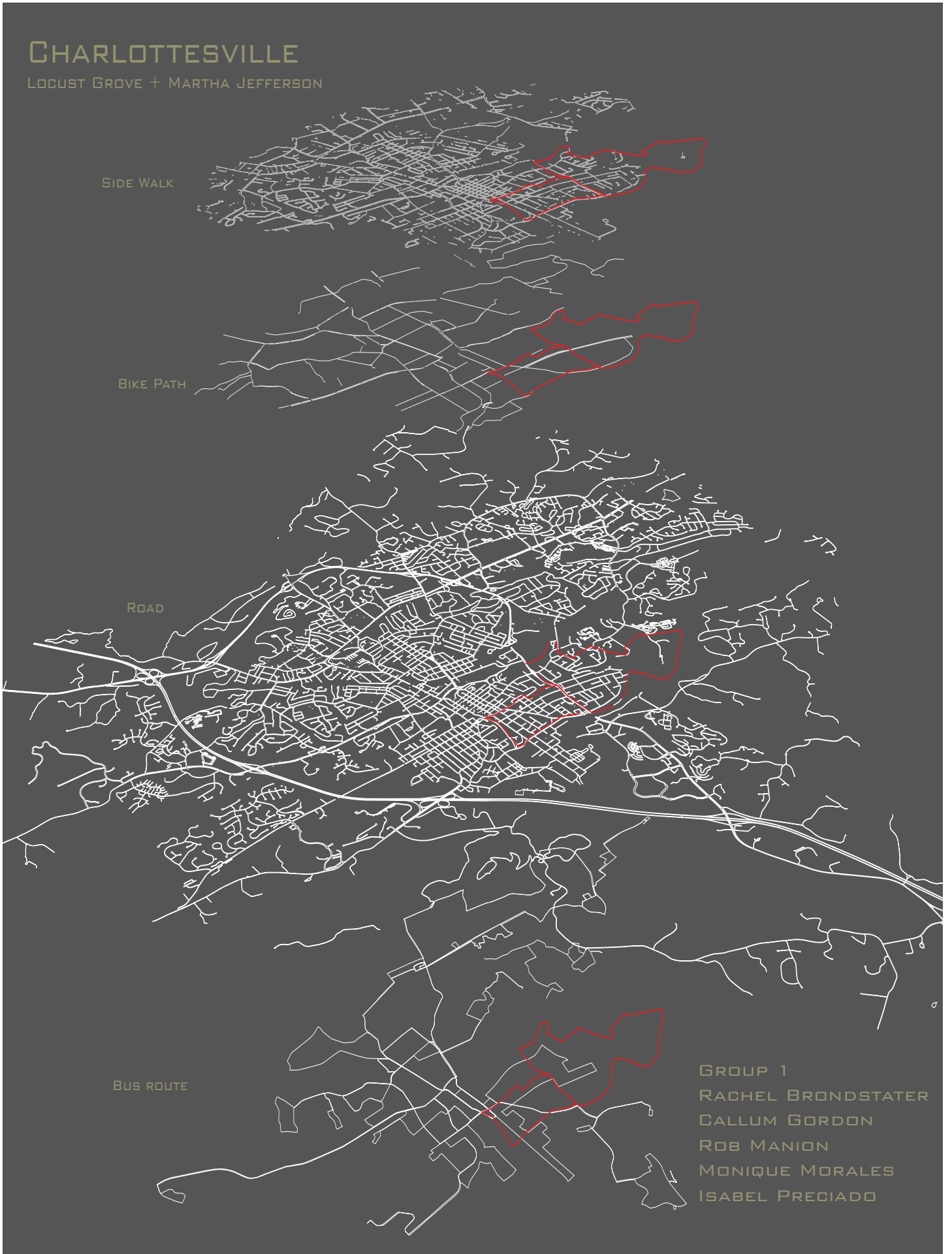
RACHEL BRONDSTATER

CALLUM GORDON

ROB MANION

MONIQUE MORALES

ISABEL PRECIADO



ABSTRACT

The objective of this project is to educate the neighborhoods of Martha Jefferson and Locust Grove about sustainability, provide them with information on how sustainable their neighborhoods already are, and point out where they are succeeding and where they are failing. In order to achieve this objective, our team chose 5 systems that are critical in determining how green and sustainable these neighborhoods really are. These 5 systems include: transportation, health and safety, green versus urban space, culture, and density.

The most important goal is to educate the community and do so in a way that fully encompasses the entirety of the neighborhoods we were presented with. In turn, we hope the project will encourage the rest of the community of Charlottesville to develop and construct under these sustainable standards in order to transform and keep the city of Charlottesville a green city.

These 5 systems have been taken, researched and thoroughly analyzed in the context of both the Martha Jefferson and Locust Grove neighborhoods and compared between the two to determine the more efficient system. However, if we discovered that a system was lacking in both neighborhoods we brought in an outside precedent to compare with. These are places that we believe are great examples of what is a sustainable place based on the criteria of our systems.

In terms of transportation we researched accessibility to public transportation, walkability of the neighborhoods, parking distribution, street layout and bike paths. Then the Health and safety section deals with crime, the distance these neighborhoods are located from police stations, hospitals and fire stations. Third, the Green spaces capture the utilization of the land with respect to potential community engagement, and how future developments can contribute to the sustainability of the neighborhoods. Then, the cultural and public aspects of the neighborhoods are explored as well as the "green areas" of the neighborhoods. Density reveals interesting demographics of Martha Jefferson and Locust Grove and looks at pillars that can be used to make the neighborhoods more sustainable through density.

INTRODUCTION

The goal of the “Think Global Act Local” project is to help the Charlottesville community assess/identify its current sustainable places and improve on them. In the beginning stages of this assignment, we defined what it means to be sustainable and why it is important to the community. We decided that a place that looks to minimize its impact on the natural world and improve the community by encouraging environmentally friendly practices can be considered sustainable.

These types of places are important, because they improve the quality of life in Charlottesville while also connecting the members of the community. We decided to explore five aspects of the Locust Grove and Martha Jefferson Neighborhoods in order to evaluate their sustainability: transportation, proximity to safety infrastructure, green spaces, cultural/public spaces, and density. In our exploration of these elements we are able to evaluate the sustainable places of the neighborhood and create ways to improve on them by either comparing the elements between the neighborhoods, or looking at some other patterns around the country that we believe to be successful.

TRANSPORTATION

Transportation, in terms of sustainability, relates to how well the inhabitants of a neighborhood can move throughout the space and into other areas of the larger city. This movement is made possible through a cohesive network of transportation elements that aid the inhabitants in their everyday movement and this system should seek to minimize the everyday car travel associated with American transportation, which is harmful to the environment. This transportation network is made up of different elements depending on the location of the area in question. If a neighborhood lacks a certain element, it can have adverse effects of the neighborhood's level of sustainability.

The current transportation conditions of the neighborhoods of Martha Jefferson and Locust Grove greatly contribute to each neighborhood's level of sustainability. The neighborhoods are similar in terms of the level of their transportation and the overall elements that make up their transportation network, but differ in the distribution of these elements and their overall effectiveness.

Currently the transportation networks present in these neighborhoods are made up of six parts. These parts are the basic road layout, pedestrian routes, bus routes, bike lanes, walking paths and parking. All together these elements determine the sustainability of these neighborhoods relating to their transportation.

The first element of the transportation networks of these neighborhoods is the basic road layout. The roads of Martha Jefferson are laid out in a loose grid system resulting from the neighborhood's proximity to the center of the city (see figure 1).

This results in a grid work on which to place the remaining transportation elements and simplifies movement based on the easy to follow layout and familiarity of the basic system. In contrast, the neighborhood of Locust Grove is laid out in a somewhat random network of criss-crossing roads ending in cul de sacs (Figure 2). This plan is a result of the new formation of the neighborhood and the larger land area it takes up. This distribution results in a less efficient layout because of the dead ends and relatively low level of connectedness present with the current system. In this instance, the neighborhood of Martha Jefferson has the more efficient layout and Locust Grove should try to implement a more grid like pattern into their streets to increase their connectedness.

Martha Jefferson Neighborhood road Distribution

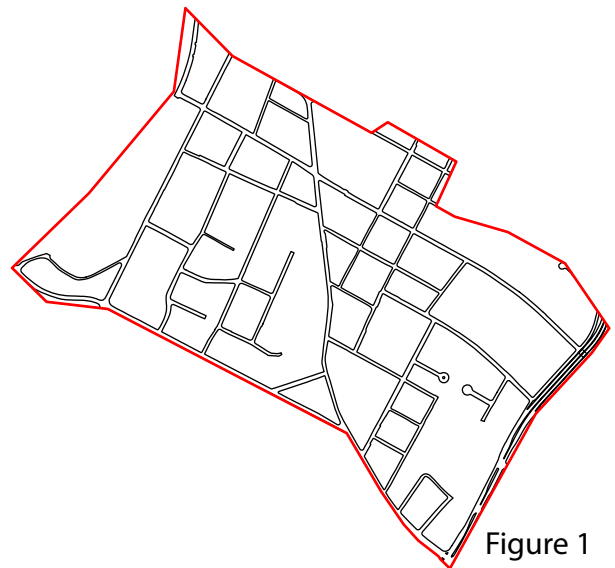


Figure 1

The differences in the road layouts also affect the safeness and crime rates of the neighborhoods. Although Martha Jefferson and Locust Grove may be adjacent neighborhoods they are very different in terms of health and safety. These two locations are pretty much the same distance away from the two hospitals located in Charlottesville as well as all the police stations. What is interesting is that the crime rate of these two neighborhoods is completely different; which brings up the question to whether the crimes have to do with the demographics of the area or with the urban planning

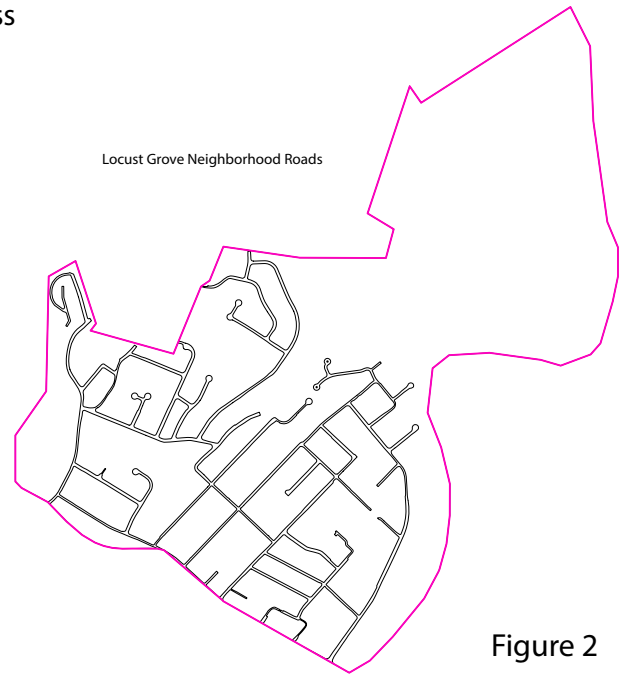


Figure 2

development of these two neighborhoods. Having appropriate entrances and easy access to the neighborhoods make it easier for the police department or any rescue squad to reach the place they need to be at much faster which ultimately allows for a more successful rescue, less resources being used: such as gas and/or energy among many other resources.

Overall Charlottesville has a 108% higher violent crime than the Virginia Average. Within this category, Martha Jefferson is known to be 73.9% safer than any neighborhood in Charlottesville, whereas Locust Grove is only 34% safer than any Charlottesville neighborhood. One can infer that the crime rates between Martha Jefferson and Locust Grove go hand in hand with the way their road layouts are set up. Because Martha Jefferson is set up in a more grid like form it is a more connected and accessible neighborhood whereas Locust Grove's cul-de-sacs make it harder to patrol and harder to access. Patrolling these areas more frequently or adding more street lights could help with Locust Grove's crime rate being relatively high compared to the average Charlottesville crime rate. Being able to access these two neighborhoods more effectively, in terms of time, will not only reduce the crime rate and make these neighborhoods a better place to live but also add to making these neighborhoods a more sustainable place because the resources used within every rescue mission will be more effectively exploited and not wasted.

Martha Jefferson, Charlottesville crime information

Statistic	Martha Jefferson /100K	Charlottesville /100K	Virginia /100K
Violent crime	183 (estimate)	458	219
Property crime	1,590 (estimate)	3,975	2,627
<u>Total crime index</u>	1,773 (estimate)	4,433	2,847

Locust Grove, Charlottesville crime information

Statistic	Locust Grove /100K	Charlottesville /100K	Virginia /100K
Violent crime	370 (estimate)	458	219
Property crime	3,211 (estimate)	3,975	2,627
<u>Total crime index</u>	3,580 (estimate)	4,433	2,847

Martha Jefferson closest Hospitals and Police Stations:

Station:

Address:

Charlottesville Police Department

Charlottesville
(434) 970-3280

3 min drive. 15 min walk

606 E Market St.

Albemarle county Police Department

Charlottesville
(434) 977-904

15 min drive

1600 5th Street Ext

Charlottesville Emergency Comm

Charlottesville
(434) 977-9041

16mins drive

2306 Ivy Rd

Virginia State Police

Charlottesville
(434) 293-3223

16 min away

900 Natural Resources Dr.

Martha Jefferson Hospital

Charlottesville

2min drive or 8 min walk

459 Locust Ave

Uva Medical ctr

10min away

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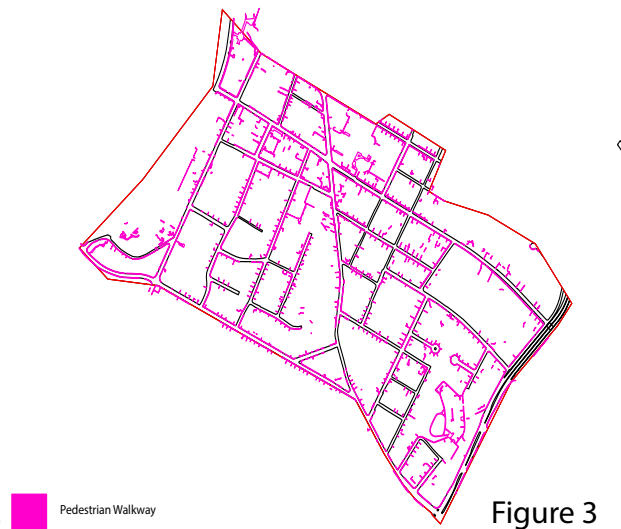
Uva Medical ctr

10min away

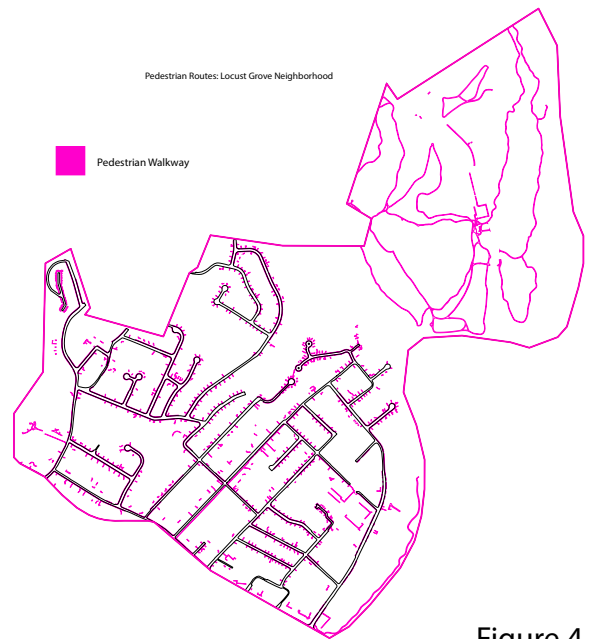
The second element of the transportation networks of the neighborhoods is the distribution and level of pedestrian routes. In the case of these neighborhoods the level of pedestrian routes is almost identical in both circumstances. The routes follow the road layout and in the case of Locust Grove even venture into the location of Pen Park (Figure 3). The difference between the neighborhoods comes from the distance between sectors of the neighborhood. When approached with this in mind, the neighborhood of Martha Jefferson leads the way due to its compact distribution and tight layout (figure 4). The neighborhood of Martha Jefferson can be improved by adding to its layout with new roads and pedestrian paths that connect the different areas through shorter distances.

The next element in these neighborhoods is the bus route distribution. Bus routes run through both neighborhoods but more so in that of Martha Jefferson. This is due to the neighborhood's proximity to the downtown center and the distance the routes extend into the surrounding city. Almost every area of the Martha Jefferson neighborhood has access to a bus stop and the subsequent bus route which allows for the residents to use the bus rather than their car (figure 5). This keeps cars off the road and makes the neighborhood more sustainable. In comparison, the neighborhood of Locust Grove has a larger distance between stops and a larger travel distance between the resident's homes and the stops (figure 6). This results in the routes lack of riders and the lack of sustainability related to decreased car use. The neighborhood would aid from the addition of another route that extends to the areas of the neighborhood not already served by the bus routes.

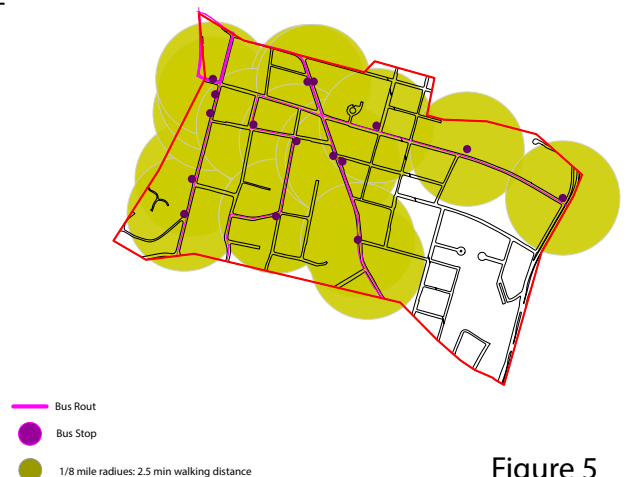
Pedestrian routes: Martha Jefferson Neighborhood



Pedestrian Routes: Locust Grove Neighborhood



Bus Route Layout: Martha Jefferson Neighborhood



The fourth element of the transportation in these neighborhoods is the layout of bike routes. This is an area where both neighborhoods are lacking because they contain a very limited number of designated bike routes (figures 7 & 8). The bike routes run down a few select streets that extend into the greater city area but are non-existent within the greater expanse of the neighborhood. Therefore they do not provide a sufficient connective element to the neighborhood. The bike routes need to extend throughout the neighborhoods in order to be effective because in order for bike travel to be efficient, all areas of the community need to be accessible by the means of transportation.

Moving onto the fifth element of the transportation networks are the walking paths. These differ from the basic pedestrian routes because they extend out of the bounds of the built environment and into the natural one. The neighborhood of Martha Jefferson completely lacks a path system because it is so urban and therefore lacks a connection with the natural environment. This means that the residents of the neighborhood lack a specific element of transportation that aids in their physical health. In comparison, the neighborhood of Locust Grove contains a simple layout of walking paths because it is on the outskirts of the city and surrounded by nature (figure 9).

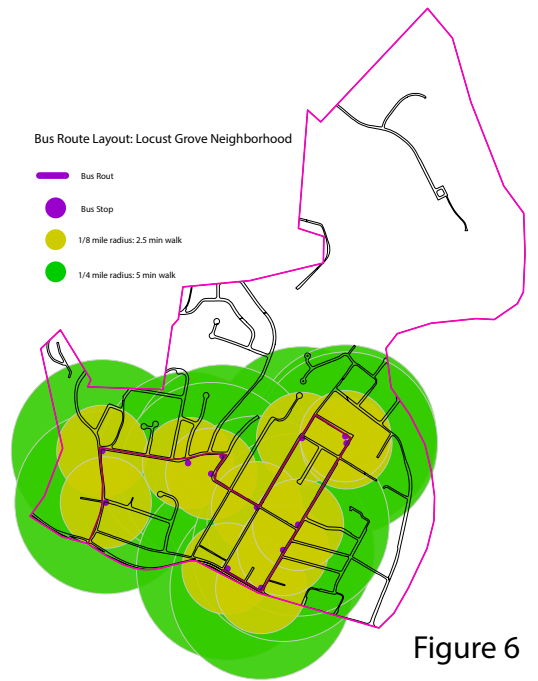


Figure 6

Bike Route Layout: Martha Jefferson Neighborhood

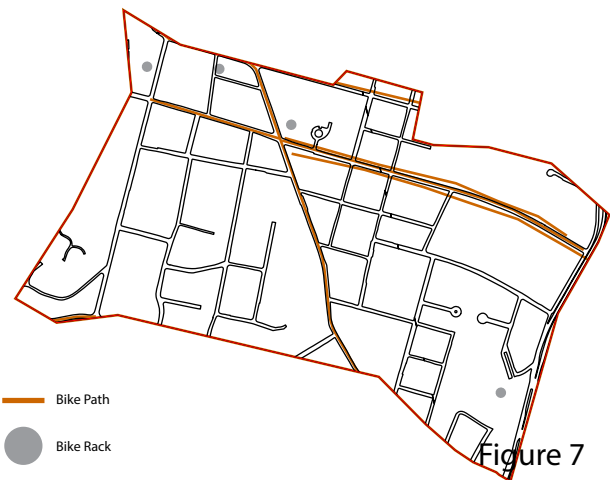


Figure 7

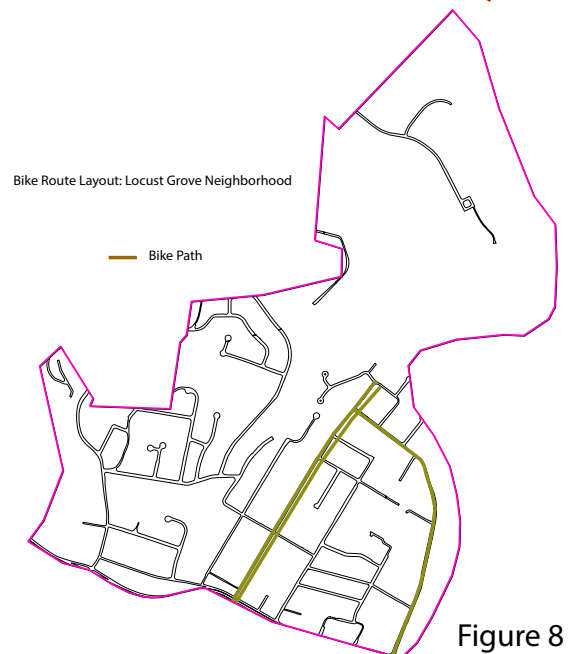


Figure 8

The sixth and final element of the neighborhoods' transportation is the distribution of parking. This element is especially important in terms of sustainability, because the amount of parking results in greater amounts of runoff which leads to pollution problems. Therefore the more parking an area has the less sustainable it is in terms of runoff. This means that the neighborhood of Locust Grove is more sustainable than that of Martha Jefferson because it has less parking and therefore produces less runoff in terms of the impermeable surface that parking constitutes (figures 10 & 11).



Figure 9

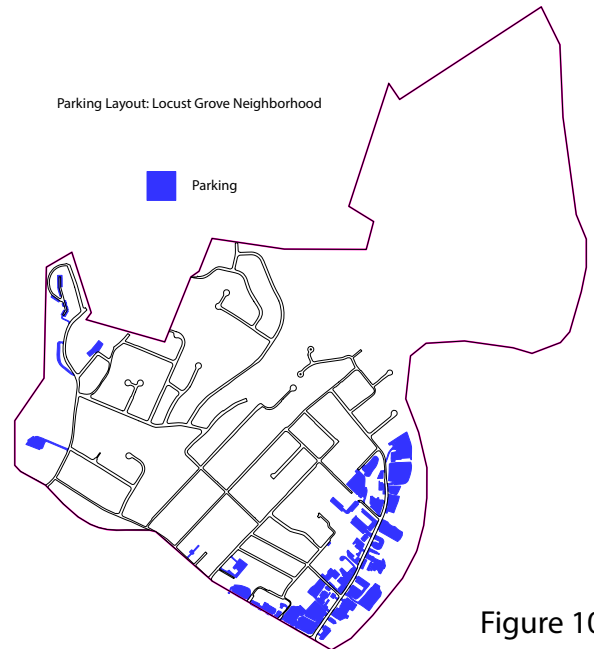


Figure 10

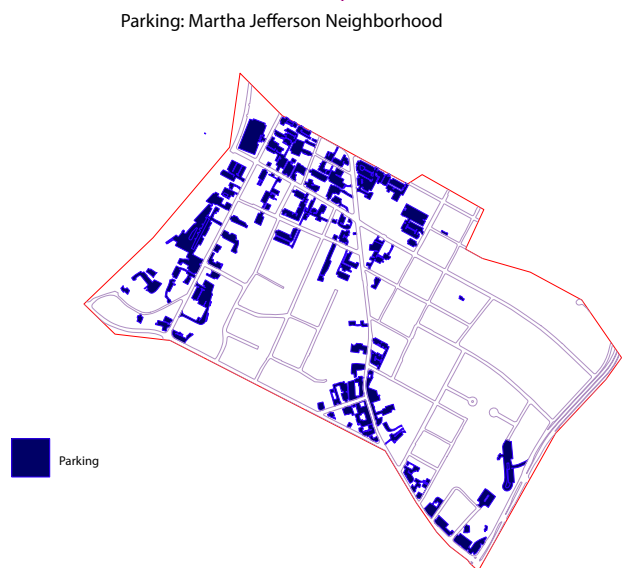


Figure 11

GREEN SPACES

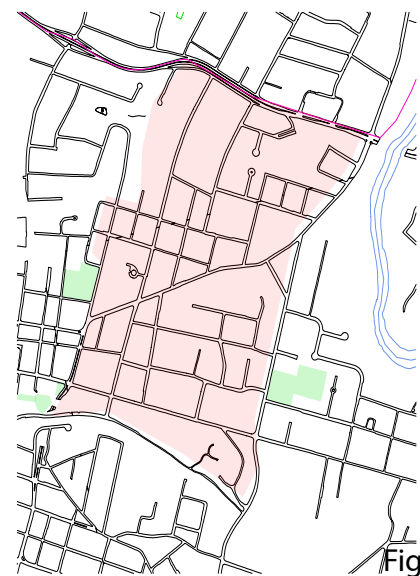
The present situation of green spaces and urban wild within the neighborhoods has both different and similar aspects. In Martha Jefferson, there are almost no green space throughout the neighborhood where the community could gather. However, the neighborhood of Locust Grove includes the biggest park of the entire City of Charlottesville, Penn Park. In addition, the Northeast Park and the Meadowcreek Golf Course are also located in this sector of the city. Although Locust Grove has green areas already established, it shares many of the same setbacks as Martha Jefferson. These include, but are not limited to, a lack of urban wild along the streets, broader range of park amenities, and an overall sense of community.

Martha Jefferson is a neighborhood composed mainly of single-family homes placed in a dense configuration along the terrain of the neighborhood. Because of this, there is not much green space dedicated to community gathering. In fact, the high majority of green areas and urban wild that can presently be found in the neighborhood are the back and front yards of the homes. Therefore, there is an urgent need for sociable green spaces. However, the Martha Jefferson Neighborhood Association has not categorized such need as a priority yet. According to the 2006 Martha Jefferson Neighborhood Plan developed by the City of Charlottesville Neighborhood Development Series, the parking lot at Locust and Sycamore Street was said to be converted into a green space. However, this huge parking lot still remains present and the effort to change such space is yet to be seen.

Locust Grove includes several green areas where the community gathers for an excellent source of recreation and leisure activities. For instance, the Penn Park includes eight tennis courts, a little league baseball field, volleyball courts, and three outdoor picnic shelters. In addition, the park also houses the Meadowcreek Golf Course and borders the Rivanna River Trail.

In addition to the Penn Park, the Northeast Park is located within the neighborhood of Locust Grove, at the South side of the neighborhood. However, this park is not as popular as the Penn Park due to its lack of amenities and community interaction.

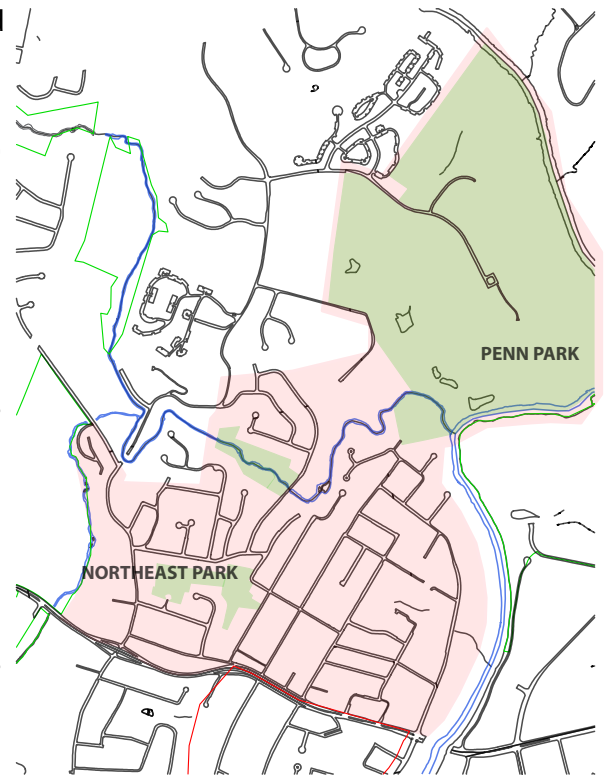
The park is not recognized as a pleasant green space because its design does not encourage recreational activities – meaning there is only one basketball court and one small walking trail. In fact, not even Google Earth (Google Satellite Software) identifies it as a park, yet the green space is there and the 2006 Locust Grove Neighborhood plan recognizes the area as a park.



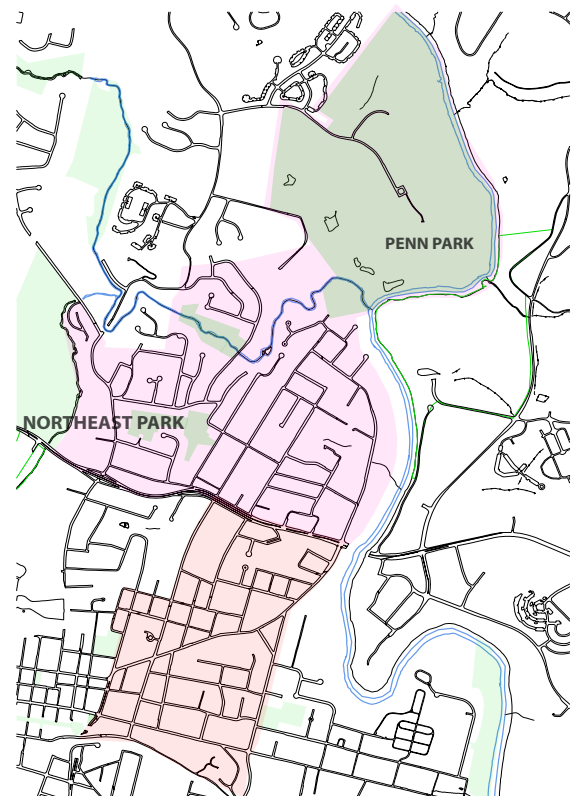
MARTHA JEFFERSON - Neighborhood Plan with Green Areas (non-existent)

The Penn Park located in the Locust Grove Neighborhood follows a great design plan and is very successful when it comes to persuading public engagement. However, the park is shifted to the far corner of the city sector, which makes it harder to access, not only from the neighborhood itself, but also from other city sectors nearby, including Martha Jefferson. In addition, the entrance and trail into the park is not clearly indicated, which affects how people actually enter the park. For instance, when we went to visit the site as a group, we drove around the entire neighborhood and could not find a clear entrance or pathway into the park. An easy accessible entrance to the park is essential since it is what draws people into the park.

The Martha Jefferson and Locust Grove Neighborhoods both need improvements to exalt their green spaces and subsequently, promote community engagement. First of all, the commission should study and get informed about the ideal design language that makes a park successful. There are several characteristics that can make an urban park be successful along the neighborhood. One feature is that the park needs to be nearby everyone to optimize its use. A metric of 5 to 7 minutes walking from most residents can be a fair scale to follow and base the design on (Katz, 2011). Public buildings, convenient shops and transit stops should also be included along the park area since such would simultaneously drag more of the community into the parks. A second attribute that the park must have is it has to look and feel truly public. By this we mean that sidewalks and streets should corner and border the park as much as possible to avoid conflicts with private housings. When private housing or buildings back up the park, spatial relationships become vaguely defined, encouraging conflicts between those who live next to the park and others who come from surrounding areas. Thirdly, another attribute is that the park must be simple and not overdesigned (Katz, 2011).



LOCUST GROVE - Neighborhood Plan with Green Areas **Figure 13**



LOCUST GROVE and MARTHA JEFFERSON - Neighborhood Plans with Green Areas **Figure 14**

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An ideal park must include trees, grass, walkways, and benches. Its design should be focused on having a strong identity and implied use, with fine definition of active (outdoor activities, such as sports) and passive recreation (low intensity activities, such as picnic areas) zones. In addition, it should always include any basic characteristic that satisfies the needs of the broad range of users. A fourth feature the park should undertake is to retain or enhance natural contours of the land. In dense urban areas, it is typically very hard to imagine the original contour of the land or how it looked before it was built over. Therefore, the park should disclose the original land characteristics and appearance, as a breakage of the dense urban grid. Finally, the park should allow the visitor to see and walk through it. The openness of the park will not only positively contribute to safety issues, but also increase the sense of freedom and tranquility the park gives to the visitors. Visitors do not want to feel as a victim of planning, where they are forced to navigate through obstacles to get through the park (Katz, 2011).

For the enhancement of the green areas, the PLACE Design Task Force should focus first on Martha Jefferson since there is no existing park there today. The parking lot at Locust and Sycamore Street needs to be re-analyzed based on its usefulness because it could be an ideal place to start planning for a park. Ideas for the park should be taken from the existing conditions in Locust Grove's Penn Park since this is a very successful park in relation to the encouragement of recreational and leisure activities within the community. Another precedent the PLACE Design Task Force should look into is the Marvin Gaye Park in Washington DC. The park was redesigned and retransformed from being a "drug hub" into an interactive park for the children and the community (Donahue, 2011). It includes a youth-run farmer's place as well as several children playground areas and stations for a bike trail system. In addition to the overall design of the

park, the design task force should also look into how the park was actually renovated and brought out from the dark side of the neighborhood. Community volunteering and work was essential for the development of the park. For instance, the National Recreation and Park Association (NRPA), with collaborative efforts of the community group, designed campaigns to foster the contribution of the community to the development of the park (NRPA, 2011). Along the activities they organized was the Park Clean-up day, where the community got together to collect trash within the park and the surrounding areas. The NRPA also created a video campaign with help of the media to incentivize the community to participate in the refurbish of the park (NRPA, 2011). The design task force

MARTHA JEFFERSON - Neighborhood Plan with Green Areas (non-existent)
Scale: 1/64"



Potential Park between Sycamore St. and Locust St.

Figure 15



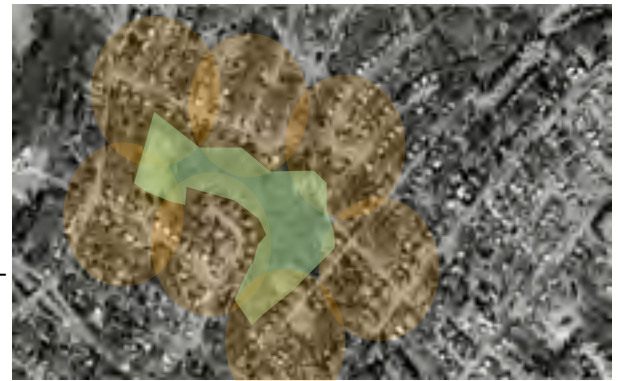
5 - 7 Minute Walk Analysis for potential Park in Martha Jefferson

Figure 16

can use the videos as examples to motivate the Martha Jefferson neighborhood to contribute to the development of the park. The possibility of making the community interact and integrate since the start will not only increase overall community interaction but will also strengthen the relationship the community has with that specific garden of place. Such relationship could be very beneficial on the long term since the community will guard and take care more of the park if they feel a powerful bond with it.

In addition to focusing first in developing the green spaces in Martha Jefferson, the PLACE Design Task Force should also focus in exalting and improving the amenities of the Northeast Park in Locust Grove. The design task force might study the amenities offered in the neighborhood pars in Vancouver to foster community interaction. For instance, the Vancouver-Clark Parks and Recreation Community Garden organizes a community garden program where people from the community can purchase a garden plot in one of the neighborhood parks and grow flowers and foods while developing friendships with other people in the community (The City of Vancouver, 2013). In addition, the program also provides the community members to help the hungry by providing drop off sites where the members can donate their extra vegetables. It is a great way for the community to interact and give back to society at the same time. Another activity organized around the parks in Vancouver is nature play, a program that gives the chance to children play, enjoy, experiment and learn about nature in their own (The City of Vancouver, 2013). Some of its amenities include log walks, places to dig, interactive bridges and pathways, birdhouses, and different types of plants. Nature Play is a low cost alternative to other more formal forms of recreation, such as ball fields or structured playgrounds while still providing to the entire community with another natural and green space for community interaction and engagement closer to the center of the neighborhood.

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5 - 7 Minute Walk Analysis for Northeast Park

Figure 17

Finally, the PLACE Design Task Force should keep in mind as well the possibility of improving the accessibility to Penn Park, which would increasing its use and popularity. Because the park is surrounded by the Meadowcreek golf course, the possibility to undertake an adjacent extrusion to the southwest borders of the park should be considered by the design task force. This potential extrusion will not only provide foot access to the park, but will also drag the park more into the neighborhood. In addition, the design task force could study the Bryant Square park in New York City to gather ideas on how to integrate the entrance of the park with the streets and private housing located on that area. The Bryan Square park successfully connects the dense private urban zones of New York City with public buildings such as the public library. In Locust Grove, the PLACE Design Task Force

could study the possibility of designing something similar and successfully integrating the private housing areas with public spaces. The development of a public building on this site to drag the community even closer could also be studied as a potential project.

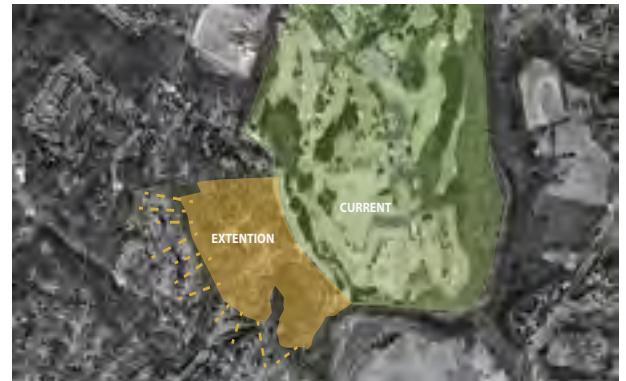
After considering and developing all of the previous suggestions, the PLACE Design Task Force should start thinking of ways to integrate both of the city sectors even more. The possibility of designing a series of green corridors with specific anchor points or nodes (which will be the different parks) is one proposal that the task force might study and analyze. In addition, the PLACE Design Task Force should also take a closer look into the Kentland neighborhood in Maryland where open green spaces and pocket parks are available between the districts or in odd spaces near buildings and dwellings. By emulating the

Kentland neighborhood, the commission can not only increase the green areas in the different sectors but also encourage even more community engagement. Moreover, to promote community engagement even more, the commission should start to organize recycling centers in these pocket parks and green spaces that will subsequently contribute to the welfare of the environment. Finally, the importance of the Rivanna River and Trail should be exalted more. To connect the trail with the green corridors and create easy access to the river would be helpful in improving the green areas of the different two neighborhoods.



Current entrance to Penn Park

Figure 18



Potential extension of Penn Park for walking access

Figure 19

CULTURAL AND PUBLIC SPACES

One aspect of these Charlottesville neighborhoods, that is important in defining the area as sustainable, is the presence of public spaces within the community. Public and cultural centers are imperative in bringing a community together. In designing focal points for the neighborhood, the planners have created space for people to gather and interact. The centers in Locust Grove and Martha Jefferson include Penn Park, Charlottesville Day School, Youth and family services, Riverside Football field, the Rivanna Trail (bordering the river), The First Presbyterian Church, and Burnley Moran Elementary School.

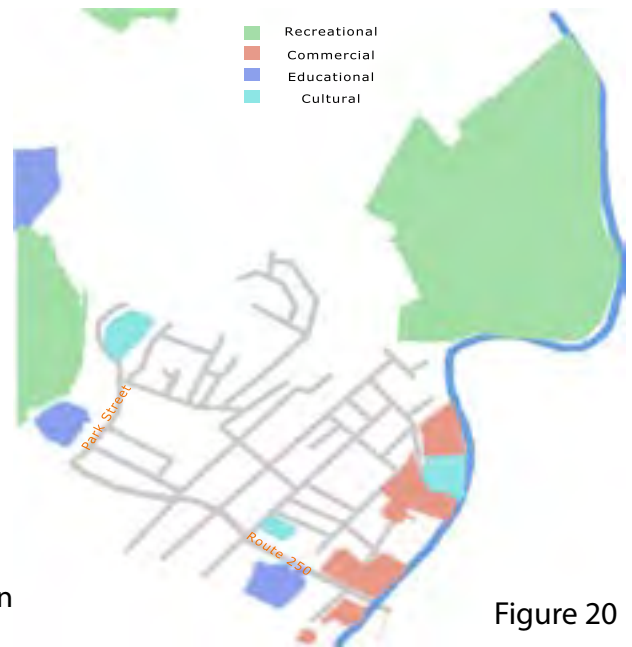
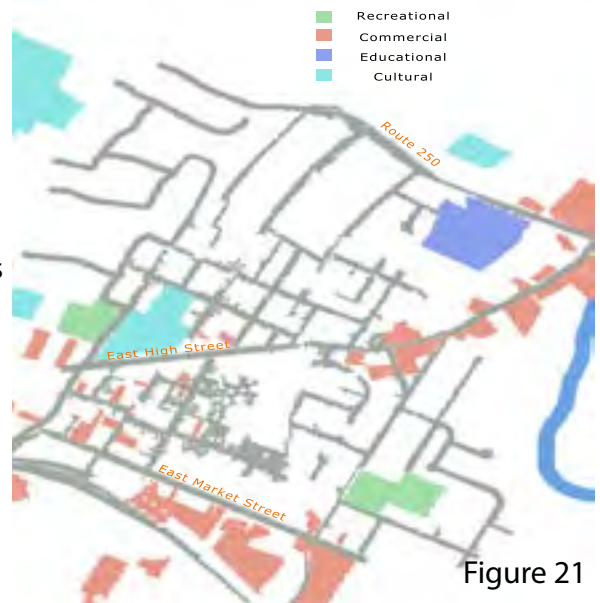


Figure 20

These places provide a node for the area and allow community members to become more involved in the Charlottesville culture. The schools obviously bring the children together, but also provide a place for the parents to become involved with their children. Its close proximity and integration into the neighborhood helps provide a chance for the community to help the school in terms of fundraising, and dedication to sustainable school practices such as recycling. Penn Park in Locust Grove is an extremely important area in terms of prominent cultural centers. These are all very functional spaces that attract a large portion of the local population. The only real problem with the park is its placement (figure 19); the park is not readily available to pedestrians as it is a far walk with minimal sidewalks. However, this walkability issue does not stop members of the community from using it frequently. Some may not think of Penn Park as being part of the neighborhood, however it is an integral piece of that community. This is the largest park in the city and it contains 8 tennis courts, a baseball field with batting cage, volleyball court, 3 outdoor picnic pavilions, and a playground for children. There is the 18-hole meadow creek golf course with clubhouse and pro-shop it also boasts an outdoor physical fitness space with 10 stations moving through the natural setting near the Rivanna River. This brings up another area of the neighborhood, the Rivanna Trail, it is crucial in bringing nature into the lives to the residents. The trail can be used for walkers, joggers, and cyclists as well. This trail has limited access as it starts and stops usually in places that are not easily accessible to the regular foot traffic in the neighborhood. Sustainability is deeply rooted in bringing the environment into our lives to help us appreciate the natural world and therefore think about our impacts on the environment.

It is generally assumed that today's generations do not have as many face to face interactions and therefore lack basic communication skills. The use of the internet and other advances in technology has enabled mobile communications which reduces the need for actual human interactions. However, with these zones of interaction being positioned in close proximity to the majority of the neighborhoods population it encourages their use. While there is this area does not have a lot of mixed use development, it mainly has industrial use along the river and residential areas from



there on (figure 20), it still has critical community centers dotted throughout the region. They are somewhat "few-and-far-between" but there are enough of them to create what can be called a sustainable neighborhood. Having a close location to the dense area of the neighborhood also motivates more foot traffic/bicycle use in place of driving these marginal distances. The Minimizing the use of automobiles and encouraging physical activity and interaction with nature are all part of improving the quality of life in the community. On city that has realized the importance of community gathering and perfected the use of cultural centers, on a similar level is Gainesville Florida.

A large percentage of Gainesville's land consists of single -family development, mainly areas west and north of NW 13th Street. Nearly 30 percent of the over 27,000 acres of land in the city are zoned for single -family residential development. This types of housing is very similar to what we have here in our neighborhoods. Gainesville has many community centers that help improve the quality of life and also create a sustainable culture. Cultural focal points of the community include seven recreation centers, three swimming pools, three skate parks and special activity areas such as basketball courts, ball fields, and tennis courts. Much of Gainesville's center provides adequate access and infrastructure for transit users, pedestrians and bicyclists. Aspects such as sidewalks, buildings close to the street, a mix of housing types/incomes, varied architectural styles, street trees/urban vegetation, a concentration of cultural facilities and programs, and a large amount of pedestrian, bicycle and public transit traffic. The city has successfully created a shift in the life of residents. We must look at cities similar to charlottesville, like Gainesville, that have had success in their development. The Charlottesville Planning Department must strive to increase the use in transportation alternate from driving alone. The challenge the city government has is preserving the quality of parks and the experience of all the guests as the region grows and the number of visitors increase.

Charlottesville must realize that time and energy must be put into the cultural spaces improvement and maintenance in order to improve the public's involvement in their own community while also encouraging interactions with nature. In 2005, Charlottesville's park system contained one acre of recreational space for every 49 people, which results in around 10% of the area of the entire city being parks. This is a great start but there is always room for improvements in terms of better connecting these areas to the greater neighborhood and creating even more public spaces.

DENSITY

Density is an important tool that can be used to create a more sustainable city while still preserving agricultural land and open space passed the city's borders. If density is strategically planned, the result could benefit the world as its population continues to grow and people move to cities. The densification of cities can help to improve the health of the entire planet.

The density of Locust Grove and Martha Jefferson could be improved to increase sustainability in those areas. Locust Grove is 1.431 square miles and has a population of 2,108 people ("Locust Grove neighborhood"). This makes the population density 1,473 people per square mile. Martha Jefferson's population density is a little better with 2,699 people per square mile with the area being only .474 square miles and a total population of 1,279 people ("Martha Jefferson neighborhood"). The city of Charlottesville overall has a much better population density with 4,390 people per square mile. This shows that Locust Grove and Martha Jefferson could increase their density to be like the denser areas in Charlottesville in order to create more sustainable neighborhoods.

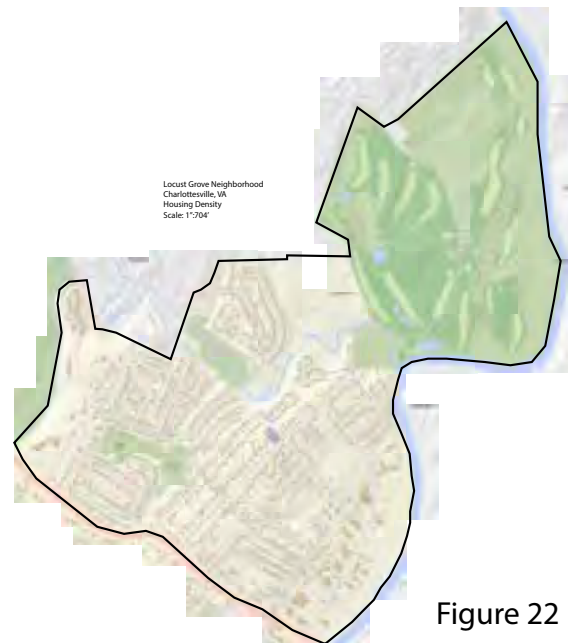


Figure 22

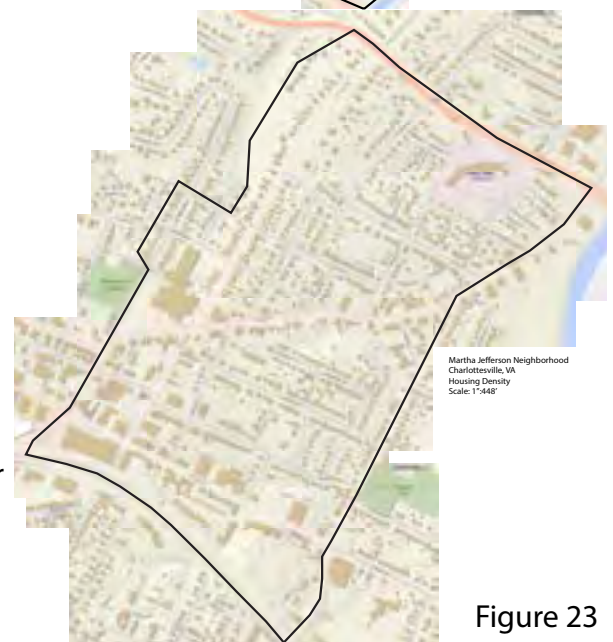


Figure 23

A sustainable city needs to include mixed-use neighborhoods where residents can work, live, play, shop, and learn within walking distance or that can be reached through public transportation. Diverse housing is important to include a range of incomes, family sizes, and ages, and commercial areas should offer office, retail, and commercial space. Residential and community recreation spaces should also be included. Density will make transit and retail more practical, support schools and services close to residences, and support the dense clusters of development to better preserve natural areas. With more dense cities, walking will be possible and decrease the amount of automobiles on roads. Alternatives to automobiles are critical to a sustainable community in order to reduce the need for single-person cars. Parking would, therefore, reduce and not take up so much space. The decreasing of single-person cars and less parking would be a result of denser communities where residents could walk or take public transportation wherever they needed to go. (Toderian, 2008)

Density requires a large number of multi-family homes in a neighborhood, which can be more energy efficient than single-family homes. Even with dense cities not having large open spaces, smaller open spaces should be included to give the community and the environment all of their needs. This includes protecting environmental areas or functions, improving habitat through urban landscape design, allowing recreation opportunities, and providing places to grow food. (Toderian, 2008)

As of 2009, Locust Grove had a median household income of \$47,532, with Charlottesville only having a median of \$39,412. Locust Grove is a wealthier neighborhood within the city. The average household size is 2.2 people, and the average family size is 2.8 members. The percentage of married-couple families is 43.5%, while Charlottesville's percentage is only 29.2%. This shows that Locust Grove is a family oriented neighborhood. Most owner-occupied houses and condos are 5 to 6 rooms, which is larger than Charlottesville as a whole. Most renter-occupied apartments in Locust Grove are 4 rooms, which is also significantly larger than Charlottesville as a whole. Most of the homes in Locust Grove are owner occupied detached houses. Density could be improved in Locust Grove by having houses that are not single-family houses and that can accommodate varying incomes.

Martha Jefferson had a median household income of \$42,711, which is lower than Locust Grove but still slightly higher than Charlottesville as a whole. The average household size in Martha Jefferson is 2.1 people, and the average family size is 2.8 members, which is very similar to Locust Grove. The percentage of married-couple families is 37.6% in Martha Jefferson, which is lower than Locust Grove but still higher than Charlottesville's percentage. Most owner-occupied houses and condos are 5 to 6 rooms. Most renter-occupied apartments in Martha Jefferson are 5 rooms, slightly larger than Locust Grove. Most of the homes in Martha Jefferson are owner occupied detached houses.

Locust Grove and Martha Jefferson could become denser neighborhoods to create more sustainable and efficient communities. Increasing alternative transportation availability and making public transportation more available can have a large positive impact of the carbon footprint of a community. They have the potential to become like other neighborhoods in Charlottesville, which are denser and not as suburban.

CONCLUSION

Over the past few weeks our group has worked on the acquisition and compilation of information regarding the different systems of each of our neighborhoods. We each took a system to work on and compiled different diagrams to demonstrate our findings related to the Martha Jefferson and Locust Grove neighborhoods. At this point we still need to go deeper into the analysis of these systems as a whole in determining the overall level of sustainability in each neighborhood. We intend to accomplish this by diving further in our exploration of each of the systems and finding the areas where our findings overlap so as to gain an understanding of each neighborhood's overall sustainability. We will answer questions such as "How do these systems relate?" and "What findings come from their relation?" as we continue to move through this project. At the end of this we hope to have brought the sustainable practices of this Charlottesville community to the public's attention while also giving helpful insight for improvements.

FUTURE WORK – NEXT STEPS

As a team, we think that the next step should be to take the perspective of the community into consideration. Organizing surveys and meetings with the people of the community is essential to understand their perspective in this situation. We have analyzed how sustainable the neighborhoods are from the outside by using general benchmarks of what we consider sustainable and precedents outside of Charlottesville.

With access to people's insight we could compare and join their collected information with our research to enhance our analysis and recommendations. Therefore, any recommendations and changes that would be undertaken within the neighborhoods would not only be based on outside research, but also on the insight of the residents who are impacted by these issues everyday.

LESSONS LEARNED

Our team ran into a few issues early on in the project because of our two neighborhoods. Locust Grove and Martha Jefferson are both very suburban neighborhoods and are mostly residential. It was hard to find the sustainability aspects of the neighborhoods when not many exist. We began to look at our neighborhoods in systems rather than trying to find individual sustainable places. This helped us to develop a stronger grasp on the idea of sustainability in those areas. It was difficult to reach our goal of finding these individual sustainable places; however, focusing on systems within the neighborhoods gave a better idea of the overall sustainability of the two neighborhoods.

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Links to videos:

<http://www.youtube.com/watch?v=aLtwVvewhNM&list=UUPPH68JZzw9eZfx-ZAw3s2w>

<http://www.youtube.com/v/Z1GFLf3inio&hl=en&fs=1&>

<http://www.nrpa.org/media/parkday/default.html>.