Analyzing User Demographics on the Swamp Rabbit Trail
Spatial Analysis of Available Public Parking based on Survey Results
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Abstract
Over the last two years the Earth and Environmental Science department has teamed up with the Health Sciences Department to research usage of the Swamp Rabbit Trail. Using the data that has been collected over our 2 year period, Mike Druffel and Mathukshin used GIS to analyze the data patterns of the trail from over 100 Greenville County residents. The trail has 19 designated access points where there is limited amount of parking available and this lack of services. Using the data and previous constructed maps, we analyzed where trail users traveled from, and if there where any areas that appeared to be lacking due to lack of convenient access. There had already been statistical research done that looked into peoples reasons for not using the trail, but I used spatial analysis to find an ideal location for additional local parking availability for the trail.

I. Introduction
The Greenville Hospital System Swamp Rabbit Trail is a 17.5 mile long greenway that plays an intricate role in the sustainability of Greenville. A greenway is a linear open space established along a natural corridor converted to recreational use... linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas.[1] The Swamp Rabbit Trail matches this definition perfectly, as it is laid along the old railroad corridor, connecting the people improve the Swamp Rabbit Trail.[2] With the Greenville Hospital System Swamp Rabbit Trail currently existing ones. According to census data there are over 14,000 people living in the vicinity where the people in the survey who live near Sulphur Springs road are 28.9% closer to that area compared to the current parking lots already existing. Others coolest data on which survey our data has been collected over the past year by the Health Sciences department, I will use that data to develop my own thesis separate from the work that has already been completed with the GIS department and my professor's students. I will also used my continuous involvement with the project as an opportunity to hopefully propose this location for additional parking availability for the Swamp Rabbit Trail.

II. Literature Review
The paper by Dr. Mathukshin and Mike Druffel, along with Dr. Anna E. Price outlines the general ideas behind this greater research endeavor; as well as provides some of the parameters of the details on the survey results from the Swamp Rabbit Trail. The survey was of mostly white (90.1%) adults (84.2%), with slightly more than half (55.7%) being males. Also, that the vast majority (91%) of people using the trail cited exercise as their main purpose. The journal article by Louis Mirdum and Germa Coenders also provided me with a good direction to take the class project. In this article there is a portion of the authors discuss the new parking lots that are available in the neighborhoods surrounding the greeways played an integral role in the greeways as a community. This included people who did not live in these proximal neighborhoods and needed transportation to the parks. In Europe (where this studies was based), there was an available public transportation. But here in Greenville, public access involves building parking lots. Therefore, this map was made by Brooks Bailey that I found useful in deriving a concept for this project. His map showed the locations of the survey who didn’t use the trail, and where these people lived. Some of this data can be seen on the map for the far left. Lastly, I referenced the virtual maps online[3] that the county provides as a resource. All of these references were useful in compiling the data into maps I could use for this project.

III. Methodology
Sustainability is a field of growing importance and prominence in everyday life, both in Greenville and around the world. Which is why for my project I wanted to take some of what had been already done with the Swamp Rabbit Trail and expand on it in a way that can be practically applied to the sustainability of the Upstate. There were 1,148 people who were interviewed as part of the survey conducted by the HES department. A subset of those are a group of people who had never used the Swamp Rabbit, for a variety of reasons. More than 50 of this subset claimed that the trail was “too far away.” In Figure 1, I mapped the location of those people’s homes (red dots) in relation to the location I propose for a new public parking lot at the Swamp Rabbit Trail crossing. The reason I propose the Sulphur Springs Road location is because it’s a main road that crosses the trail, and is located centrally between the two nearest public parking locations at Duncan Chapel and Cedar Lane Road. Also, the map shows that 16 survey participants say that the trail is “too far” from their homes live within five miles of the location of the proposed parking lot. Given this information, I am confident that the people who responded to the survey chose the “Other Reasons” category. Although we cannot know the exact reasons for what their reasons are, a more convenient parking location would hopefully be an attractive feature to at least some of these people. Using ArcMap, I was able to find the distance that the people in the survey live from the nearest public parking access point. I then included the potential lot I propose to build at Sulphur Springs Road in this calculation in order to see who would be most affected by the addition. The graph in Figure 3 represents my findings. There were 28 people in the survey who live closer to Sulphur Springs Road than any of the existing lots. If that lot were built, those people would be on average 28.9% closer to a public parking lot then they currently are.

IV. Results and Discussion

A. Non-Use-Reasons Given in Survey

<table>
<thead>
<tr>
<th>Non-Use-Reasons</th>
<th>100%</th>
<th>70%</th>
<th>40%</th>
<th>20%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No parking location</td>
<td>35</td>
<td>40</td>
<td>20</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Inconvenient location</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Too far away</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not live near</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Reasons</td>
<td>10</td>
<td></td>
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</tbody>
</table>

B. Current Available Public Parking

<table>
<thead>
<tr>
<th>Public Parking Location</th>
<th>100%</th>
<th>70%</th>
<th>40%</th>
<th>20%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duncan Chapel</td>
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<td>10</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cedar Lane Road</td>
<td>10</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sulphur Springs Road</td>
<td>10</td>
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</tbody>
</table>

C. Travel Distance Changes (Percent) Based on New Lot Location

For ten weeks this upcoming summer (2013) and throughout the fall and spring next school year I will be continuing spatial analysis of the Swamp Rabbit Trail. Using a new data set that has been collected over the past year by the Health Sciences department, I will use that data to develop my own thesis separate from the work that has already been completed with the GIS department and my professor’s students. I will also used my continuous involvement with the project as an opportunity to hopefully propose this location for additional parking availability for the Swamp Rabbit Trail.

VIII. Acknowledgements
I would like to thank the EES and HES departments for giving me access to their data and for allowing me to take part in their research this upcoming summer. In particular thank you Dr. Mathukshin and Dr. Reed as well Brooks Bailey for his assistance. Also thanks to my professor, Mike Winiski, for his help during class.

VI. Future Research

http://greenville.cresap.com/swamprabbit/maps/.

VII. References


3. Campbell, Hannah S. "Greeenville and Greer Greens.


http://greenville.cresap.com/swamprabbit/maps/.


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