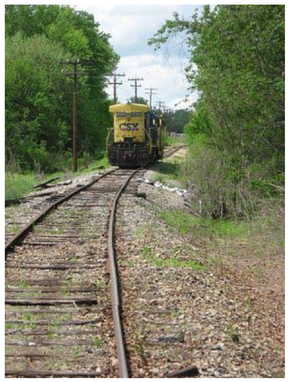
Emergency Response Information for Swamp Rabbit Trail

Ben Stafford

Department of Earth and Environmental Sciences, Furman University, Greenville, SC 29613

I. Abstract

Swamp Rabbit Trail has been improved recently and there are plans in motion to improve and expand the trail further. As the community begins to use the trail to a greater extent it has become necessary for precautions to be made for safety along the trail. This projects intent is to increase the efficiency and ease of emergency response vehicles as they attempt to access different sections of the trail should emergencies occur. This was accomplished by mapping each of the trails intersections with paved roads, as well as bridges and points along the trail where a vehicle is able to maneuver enough to turn a vehicle around.



Swamp Rabbit before trail renovation began.

Swamp Rabbit Trail after renovation

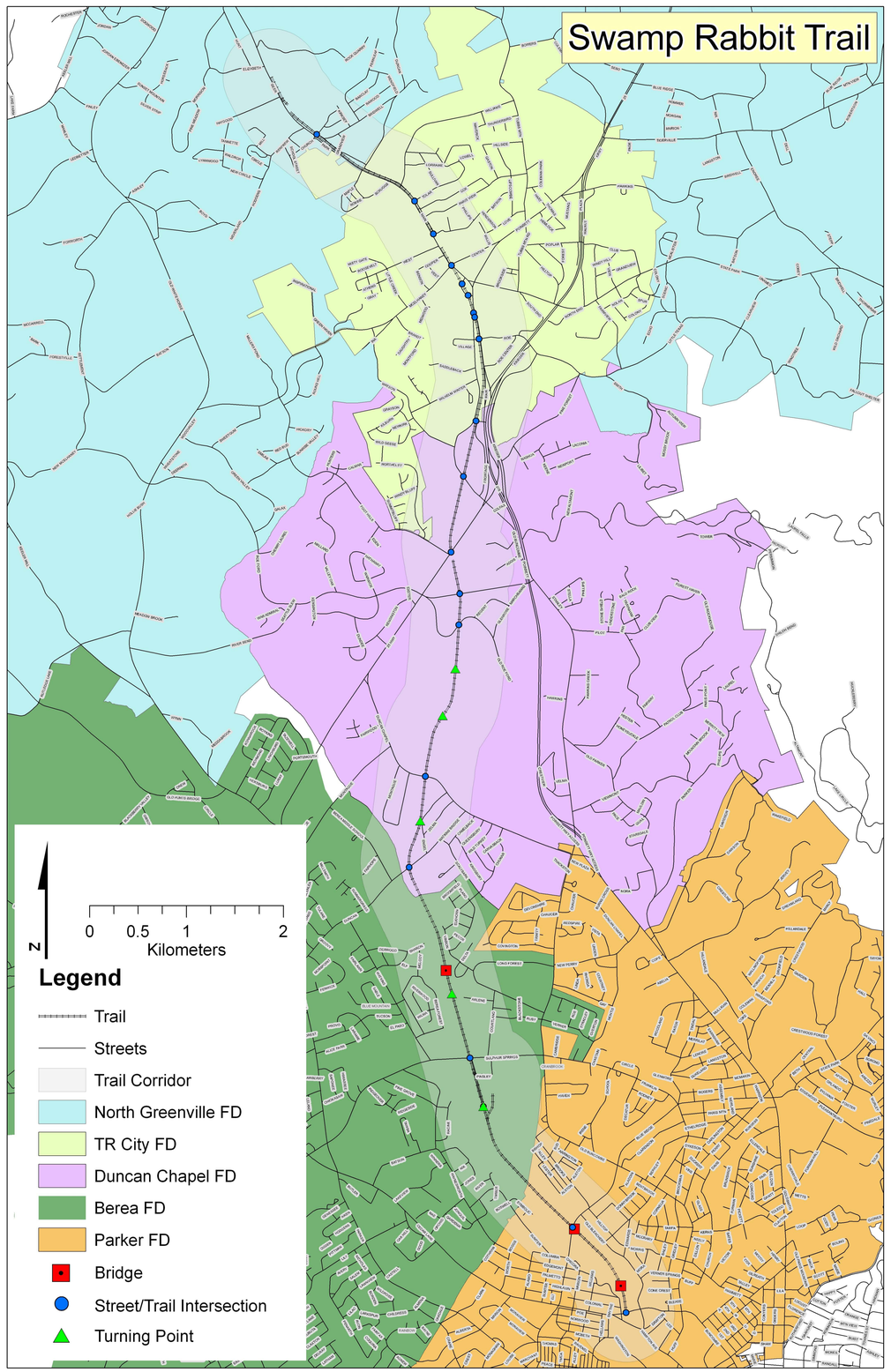
II. Introduction

When looking at project possibilities I spoke with Ty Houck with Parks and Recreation and he suggested several different projects that could be useful to Greenville. I chose to work on the Swamp Rabbit trail in order to help make the trail safer for regular use as it is improved. Initially the plan for my project was to mark the trail-street intersections and map the quickest route to the access point by road but that proved less necessary than a more detailed description of obstructions along the trail and areas where a vehicle may maneuver enough to turn. Relatively recently the trail was an abandoned railroad track. By marking all turning points, bridges, and street intersections along the trail I can help decrease response times for all emergency response vehicles. In a meeting with Ty Houck and representatives from a local Fire Department and an Ambulance response the trail's bridges capacity to allow emergency response vehicles came up. As it turned out, the bridges are capable of holding the weight of all the vehicles but are not wide enough for an ambulance to cross.

Southern most bridge

Middle bridge

Photos of the bridges along Swamp Rabbit trail. Park and Recreations intend to refit the bridges for safe use so I've included the before shots of the bridges. They are in order from left to right of the southern most (left) to the northern most (right: below map).



Map displaying the relation between fire districts and trail access points, turning points, and bridges. Map is displayed in Transverse Mercator andNAD83 UTM zone 17N. Southern half of the Swamp Rabbit Trail has more bridges and turning points along the trail. The bridges (red squares) mark dead ends for any ambulance using the trail.

Northern most bridge

III. Methods

The majority of the information used in this project was collected and used by previous students in their own projects. I found this data in the shared GIS Data folder. The data I collected myself was done with a handheld GPS unit to mark areas where vehicles can maneuver as well as where bridges are on the trail. The GPS unit I used was a Garmin: geko201. I compiled all the data and exported images as readily readable as possible.

IV. Results, Discussion, and Conclusions

The trail includes twenty street intersections, five points for turning vehicles around, and three bridges which limit only an ambulance's movement along the trail. Emergency response vehicles will need to coordinate together in order to avoid vehicles meeting head to head along the trail in the case of an emergency. The easiest solution would be for them to divide the trail into multiple sections and designate one trail access point that all vehicles will use in the case of an emergency. Another option might be to limit which vehicles are allowed on the trail given the situation. For example, in case of an injured biker only an ambulance would be allowed on the trail or only a fire truck in the case of a forest fire along the trail. There are currently plans on paper and in the making to extend the trail further. There will be need for future analysis of the trail similar to this project. One topic that came up in the meeting with the emergency response representatives was the naming of the trail-street intersections with house numbers. The numbers will increase from south to north and from inner Greenville out. Looking at the two southern most bridges you will see that between the two there is not an access point. In the case of an injury in that area an ambulance would be unable to get there. A street access point will need to be built into that area or another arrangement made.

V. References

1. Richard Hanning, 2006, Greenville County GIS Data, Greenville, SC.
2. USGS. GPS to GIS. http://rockyweb.cr.usgs.gov/outreach/gps/gps2gis.html Last modified 2/26/2004.
3. Federal Communications Commission. Conversion calculator. http://www.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html
4. Before Image. http://www.flickr.com/photos/linkerjpatrick/1848396516/
5. After Image. http://addgreenvillesc.blogspot.com/2008/04/swamp-rabbit-tram-trail.html

VI. Acknowledgements

Ty Houck was very helpful in providing answers for numerous questions and arranging a meeting with emergency response representatives for project clarification. Suresh Muthukrishnan for providing a GPS unit and troubleshooting when I was unable to get through a process in ArcMap.