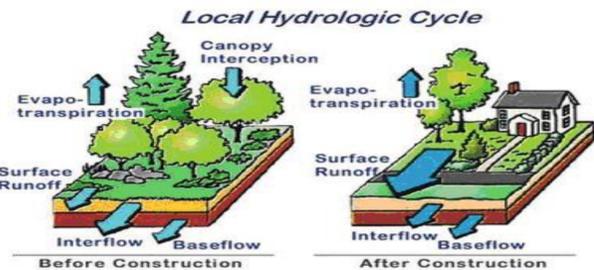
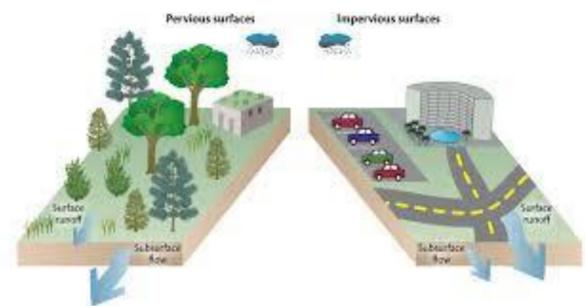


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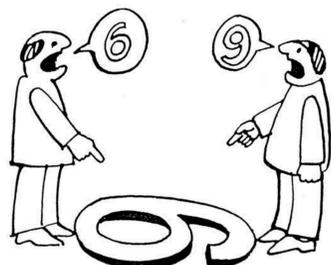
## Introduction

The focus of this project is to create and analyze spatial data that will allow us to visualize the perception that 422 residents in Lake Champlain Basin have on impervious cover and how this compares to the official data provided by Vermont Center for Geographic Information and University of Vermont. The analysis will use GIS tools and the Green Infrastructure Survey conducted by Castleton Polling Institute. This tool will be fundamental to create maps that will illustrate the perception of the residents surveyed. The data generated in this Project could help establish the margin of error in the resident's perception and this could help to implement measures of awareness and information to the residents in an efficient way where it is needed.



## Hypothesis

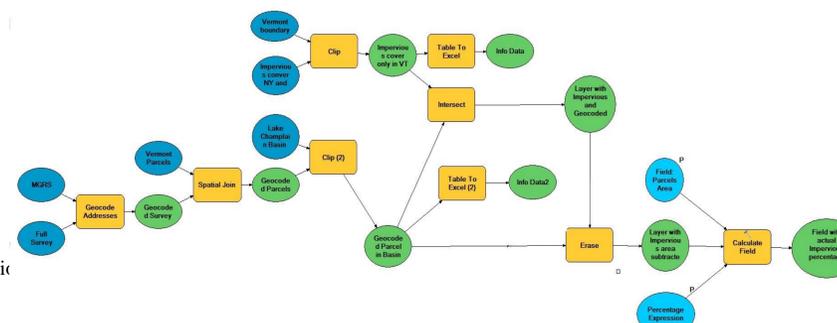
The hypothesis assumes that people do not have an accurate vision of how much impervious cover they have in their parcels. There is a possibility that people are not aware of the real proportion of their impervious surfaces. The data of the residents in the Green Infrastructure Survey will be geocoded in GIS to see how accurate the residents are with their perspective. The reasons why people are aware or not of their impervious cover may vary, but one of the possibilities could be the level of importance they give to these types of soils or lack of knowledge on the impact they have on nature.



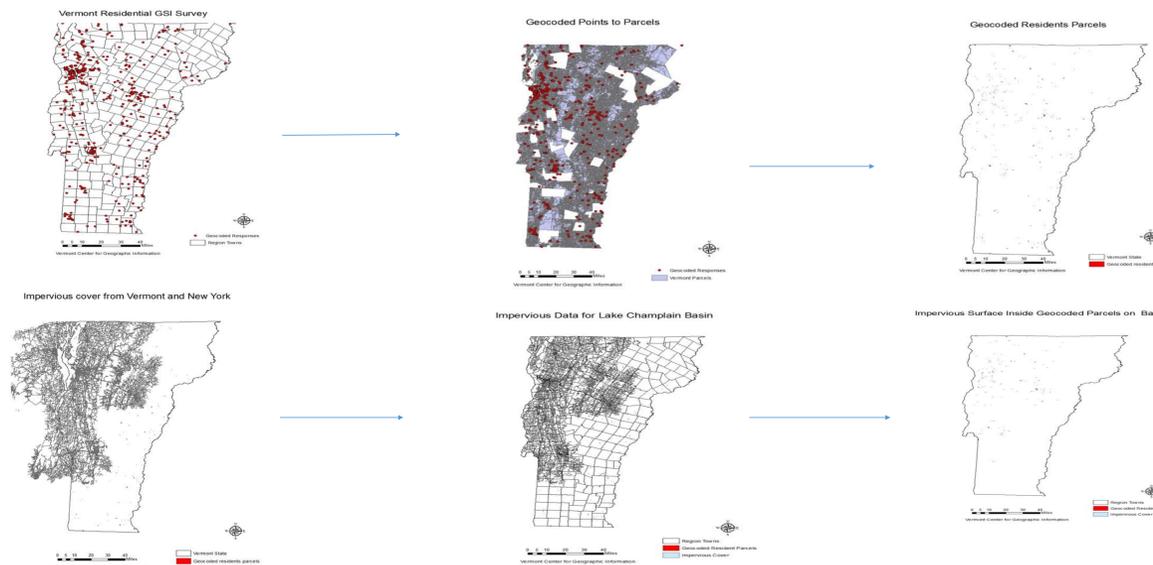
## Methods

- Provide Green Infrastructure Survey to Vermont residents
- Graphic the survey in GIS.
- (Q9. Around what proportion of your lot area is built (e.g. covered in building, structure, driveway, or parking surfaces)
  - Less than 10%
  - 10-24%
  - 25-49%
  - 50-74%
  - 75-90%
  - Greater than 90%
- Geocoded Survey Responses
- Transfer the geocoded points to parcels
- Obtain 1-meter resolution multispectral imagery of impervious data for Lake Champlain basin
- Combine the impervious data with the geocoded responses
- Percentage of impervious surface inside the parcels

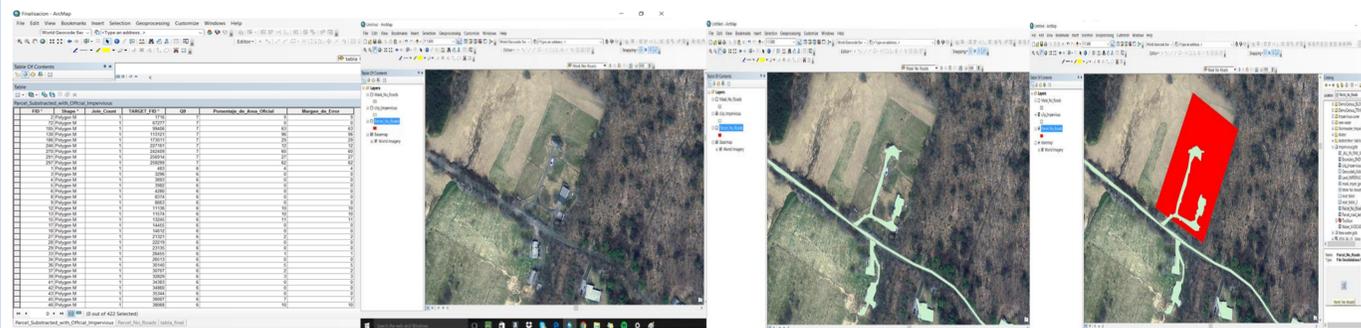
## GIS MODEL



## Maps and Results



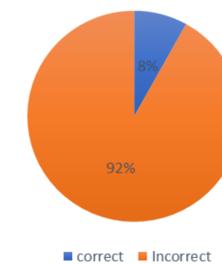
## MICRO SCALE EXAMPLE:



## Conclusion

Only 8% of the respondents were correct in their answers while 92% were outside the correct percentage of land built in their parcels. These findings confirm the established hypothesis which predicted that most people would not be correct in the accuracy of their perception of how much impervious cover they have in their parcels. Being able to understand how people see their parcels and how they are connected to their terrain and nature give us the opportunity to prevent problems of infrastructure and water management in a effective way in the future. The results of this research shows that there are a lot of people who do not know how much land could be affecting their natural resources. Relevant agencies that protect Lake Champlain should establish an information programs that will raise awareness and provide residents with information on how to manage their parcels and structures in an efficient way and prevent negative impact on water bodies.

Percentage of Residents That were Correct and Incorrect in Their Perception



## References

- GIS data obtain from
  - UVM GIS Lab
  - Vermont Center for Geographic Information” <http://vcgi.vermont.gov/>
- Pictures of impervious reference, cover and Hydrologic Cycle example:
  - <http://www.mdcoastalbays.org/bayissues-stormwater-management>
  - <https://kwalliance.org/what-we-do/clean-water-policy/pollution-prevention/stormwater/>
  - <http://mentalhealthandhappiness.com/tag/perception-2/>

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I want to thank Sarah Coleman (mentor) since it was she who helped me to develop the subject and Diego Llamas (mentor) for his technical support in GIS. This project would not have been possible without them.

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