

Thesis Project Portfolio

Stormwater Management at the Ivy Corridor

(Technical Report)

Lessons Learned from the COVID-19 Outbreak in the United States

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

With the creation of every new development or system, us people choose to positively or negatively affect the environment with our creations. As climate change becomes more widely accepted, humans must integrate our systems into nature to protect the earth as it is now. Global warming will soon be a problem everyone can no longer avoid, as it is the biggest issue the world and the United States face together. As natural systems now largely depend on human decisions, we must find permanent solutions to maintain nature as it once was. There is no time for disagreement between political parties or social groups, the climate is an issue that needs immediate answers. In the US, the climate is just one dilemma that still lacks a permanent solution. The Coronavirus has highlighted many other issues Americans face. While these new problems are more immediate and urgent for individuals, they lack perpetual answers like climate change.

During the technical portion of my thesis, my group produced a site layout for the 16-acre Ivy Corridor. Our site had to serve as a beautiful entranceway to the University of Virginia Grounds and had to meet all the stormwater requirements enforced by the Virginia Department of Environmental Quality. While we had to meet these two requirements, our focus was in making the site resilient to future storm events. Many stormwater solutions are designed to meet the current demands, our focus was to create a stormwater system that could stand up to the largest storms decades from now.

During the STS portion of my thesis I researched how fragile the US economy proved to be during the Coronavirus outbreak. I also investigated the flaws within our health care system and how they relate to some of the larger issues I found within our economic system.

During both the Technical and STS portions of my research I investigated issues in which the US still has no permanent answers for. Our health care system, economy, and changing climate are all polarizing topics. While they remain subjects of debate at every level in our country, the US will struggle to find sustainable solutions to them. Every day that goes by without a solution, these issues will

continue to affect more Americans. Before too much harm has been done, the US needs permanent answers to solve our economic issues, healthcare system, and global warming.