

Thesis Portfolio

Measuring Airport Similarity to Create a Towering Decision Aid

(Technical Report)

Electric Vehicles' Engines and their Impact on the Global Warming

(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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2nd Semester, 4th Year

Department of Engineering Science and Environment

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Sociotechnical Synthesis

My thesis portfolio focuses around transportation, though in very different ways. My technical report focuses on airplane transportation- more specifically it focuses on air traffic control towers (ATCT) at airports. These towers tell planes when to take off and land, and are essential to the safety and efficiency of the airport. When an airport has an ATCT, the surrounding town's economy also improves due to the increase in traffic at the airport. There are 500 towered airports, and 20,000 non-towered airports in the United States of America and the essential question is, when should an airport tower. A current FAA document, Establishment and Discontinuance Criteria for Air Traffic Control Towers (FAA-APO-90-7), helps to outline this decision. However, this document is very outdated and does not consider economy into the decision. The goal of my team was to update this process. My team clustered the airports in America and created a model to help airports with this decision. We finally then built an easy interface that these airports can use.

My STS research paper focuses on a different form of transportation- cars. In my research paper, I wanted to see if Electrical Vehicles are actually good for the environment. After all, most electricity in the United States is made from fossil fuels. I also then wanted to see how the network of cars and environment had to change in order to create a car that didn't harm the environment at all. My research paper is much more focused on the societal impacts while my research paper is more focused about the environmental impacts. Besides the fact that both of my research topics were about transportation, my topics do not overlap.