

SITE REDESIGN AT CROZET ELEMENTARY

**PUBLIC OPINION EFFECTS ON ENVIRONMENTAL IMPACT OF CROZET
DEVELOPMENT**

An Undergraduate Thesis Portfolio
Presented to the Faculty of the
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Bachelor of Science in Civil Engineering

By

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SOCIOTECHNICAL SYNTHESIS

The ever-growing global population and increasing urbanization of human society provide a multitude of challenges to sustainable development. This population growth necessitates the construction of additional infrastructure to meet that rising populations needs. This includes housing, food and water, and even education in the case of the construction of academic facilities. With this infrastructure development comes the opportunity for public opinion, the opinion of those who live in these developing areas, to be made known and affect the development process. Their input could potentially prove to be a major benefit or detriment to sustainable development. As such, the technical topic looks at one specific case of infrastructure being developed while the STS topic looks at how public opinion and feedback affected infrastructure development for a wider area.

Crozet Elementary School in Albemarle County, VA, experienced a sizable increase to the student body due to redistricting from a growing area population. This prompted the construction of an additional academic wing, as well as supporting site elements such as parking, access, and playground space. The goal of this capstone project was to work with guidance from the design firm of Timmons Group to develop and design site improvements at Crozet Elementary. The site redesign focused specifically on the school parking and traffic circulation, with the goals of increasing total parking and separating the of car and bus traffic.

The final deliverable for this project was a complete sheet set of construction documents that encompassed all aspects of the design. This included the redesigned site layout, demolition plan, grading plan, erosion and sediment control, and stormwater management. Each of these sheets were connected together in that changing one would mean updating all the rest, causing this project to be a very iterative project. The final capstone design will not be implemented in the

field as the official academic addition design was finalized by Timmons Group and finished construction before the start of the 2022-23 school year. However, the project was a valuable learning experience for all members of the capstone team.

The STS topic remained tightly coupled to the technical topic by looking at the question of whether public opinion had a measurable effect on the environmental impacts of development in the wider Crozet area over the last fifteen years and was this effect beneficial or detrimental. This question was looked at through a Social Construction of Technology (SCOT) framework with the engineers being those in charge of Crozet development and relevant social groups including residents, local business owners, and environmentalists. Sources for this research included local newspapers and news organizations, as well as recorded town halls, public meetings, and forums.

The Crozet Master plan is a living document meant to guide long-range policy direction for land use for the area, which is updated every five years or so with input from local residents and the Albemarle County Board of Supervisors. Research into the history of past iterations of the Master Plan revealed several instances where public feedback altered the plan for the better environmentally. This included lowering future population targets, rejecting heavy industrial business parks, and creating new land use categories to allow for more affordable housing. As such, public opinion did have a measurable and positive effect on development in Crozet.

While the case of the Crozet Elementary School redesign did not specifically focus on the broader effects of public opinion, the capstone team did take into consideration resident opinions into the redesign, specifically student parents and teaching staff. This infrastructure development inspired the wider STS questions looking at development in the Crozet area as a whole. This development was positively impacted by public opinion and feedback.

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PROSPECTUS

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