

**Thesis Project Portfolio**

**Reston Site Redevelopment Project**

(Technical Report)

**The Urban Planning Process Paradigm**

(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

**Aleyna Bade Bedir**

Spring, 2020

Department of Engineering Systems and Environment

## **Table of Contents**

Sociotechnical Synthesis

Reston Site Redevelopment Project

The Urban Planning Process Paradigm

Prospectus

## **Sociotechnical Synthesis**

Our lives can be defined daily by our surroundings, our actions, and our thoughts. The environment that is a part of our daily lives is defined by the physical aspects of the space, and our interactions with them. The built environment is made up of infrastructure, building, and public spaces designed by engineers, architects, and urban designers. These designed developments are then presented to the local governments of their proposed sites. The make-up of cities today is defined by their built environment and the interactions of community members with these developments. The technical report and STS research paper explore the private and public processes through which land becomes a development, and how clusters of these developments impact communities that assign meaning to them.

The technical design report proposes a redevelopment plan for a parcel of land in Reston, Virginia. The main objectives of the project were to create a site design within the parcel boundaries that satisfies the requirements set by the client, Reston Realty, to increase the value of the parcel and integrate the goals set by the updated Fairfax County Comprehensive Plan. The report details the final site design proposal which encompasses a 50% commercial and 50% residential building site layout plan, private and public parking areas, vehicular and pedestrian circulation concept plan, a site grading, utility, and stormwater design plan, a landscape plan, a phasing plan and construction milestone schedule, and an erosion and sediment control plan. The report includes a building architectural design proposal and a construction cost proposal.

The STS research paper investigates the urban planning process paradigm existing within cities. The processes in which urban planners consider the new or redevelopments proposed for implementation into their communities are analyzed and discussed. This thesis studies the implementation of accessibility and mobility-based planning and the various interactions between the built environment and its intended and non-intended users. The constant interactions

between society and the built environment contribute to the meaning and purpose it holds for individuals making up the community. The conceptions of the uses of public urban spaces are discussed within the varying perspectives of those individuals concerned with designing and building them. This thesis urges city planners and communities to break down the lines boxing in the built environment's social division and encourage infrastructure to be available and accessible for all of whom desire to bring meaning to it.

The technical capstone design report and STS thesis research paper topics are coupled together through how they each highlight the respective components of the development processes cities undergo when designing their communities. The technical report proposes a redevelopment designed by engineers and designers to Fairfax County's urban planners which will then decide if the redevelopment site proposal will be approved and implemented into their local community, as discussed within the STS research paper.

Thank you to my family, friends, mentors, and team members who have continuously supported and encouraged me to stay positive and always give my best.