Ivy Corridor Phase II Redesign

The Analysis of Mixed-Use Developments vs Segregational Zoning and their Effects on Community Sustainability

A Thesis Prospectus
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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction

For my group's technical project, we will be designing a multi-use lot at the corner of Copeley Rd and Ivy Rd to provide more residential, dining, and academic space for the university. This project will be focused on connecting Central Grounds and North Grounds while also creating a distinct area between where community and university members both can recreate, learn, and engage with the community. For my STS project, I will be analyzing how mixed-use developments and form-based codes create more sustainable communities as viewed through the actor-network theory framework. This project will look at how sustainable communities are unable to be built outside of mixed-use developments and how, as a society, our current methods of zoning and development have created unsustainable and unhealthy communities. Within Charlottesville, the codes allow some areas of the city, and UVA Grounds, to be zoned as mixed use, and although these spaces do have some sustainability benefits, these types of developments must be more widespread and centralized in order to capitalize on the benefits that they can provide. When I discuss multi-use developments, I mean developments which incorporate multiple types of residential, retail, green, and commercial spaces.

In the STS section of this paper, investigate the technologies of mixed-use developments and more widely applied traditional development tools (i.e. segregational zoning) throughout the history of the United States. This will consist of looking at the top 5 most sustainable cities in the United States, according to The Arcadis Sustainable Cities Index, and then at their respective policies surrounding mixed/multi-use developments (WBCSD Communications, 2022). I will then propose that multi-use developments, and subsequently the cities that employ them, are more sustainable, as per the triple bottom line, than segregational zoning. The triple bottom line is the idea that true sustainability means sustainability in the economic, environmental, and social realms of a community. This topic is relevant to most everyone living around the world

due to the fact that most everyone belongs to a physical (and social) community and abides by the community's zoning ordinances (if there are any in place). However, this analysis will be focused on the United States zoning practices and their implications. The actor-network theory will provide a framework for this analysis whereby the technologies of mixed-use developments have effects on the communities within due to the close interactions of the different elements/uses.

Technical Section

My technical project will focus on the re-development of the Ivy Corridor closest to Copeley Rd and adjacent to the current construction happening to the East on Ivy Rd (Phase I). This re-development is considered to be the second phase of the Ivy Corridor Project, through which the university intends to connect Central and North Grounds while also creating a distinct entrance to the university, as it is currently lacking one. The design layout of Phase II is expected to be holistic and harmonious with existing infrastructure while helping to educate 'site users' on watershed issues through an interactive stormwater feature that will be centralized on the site.

The site we will be 'designing' is roughly five acres and it currently includes a 7-Eleven, some UVA student housing, and other UVA-owned facilities. While the stormwater feature is an integral part to this site, we are also expected to include building space for residential, dining,

and educational purposes so that the site as a whole has a multitude of different buildings. In order to design this site, we will need to employ several different areas of work including site layout, stormwater management, sustainability, transportation planning, utility planning and cost estimation. In terms of site design, we will be attempting to fit approximately 300K GSF of residential space, 100K GSF of academic space, and 50K GSF of dining space, while also including an outdoor classroom setting and interactive stormwater feature. Our design must also comply with ADA standards, local regulations on effluent stormwater quantity and quality, and ASCE guidelines for urban stormwater system design. For the interactive stormwater element, it is expected to be aesthetically pleasing, well-incorporated into the site (without closing off areas of the site), and informative on its purpose/importance (through signage). All designs should also be in line with UVA's sustainability goals, and, in order to keep this focus, we will be employing a LEED scoring method/template for the development of neighborhoods. In line with the sustainability aspect and how the site will act as a link between Central and North Grounds, the site will incorporate multiple modes of transportation to, from, and around the site including pedestrian access with sidewalks, bicycle access with bike lanes and bike racks, car access with underground and above ground parking, and public transportation with a bus stop planned for the Phase I development. This part of the design will be where ADA is most focused on as per mobility and accessibility. With utility planning, there are many different utilities utilized on the site including natural gas lines, electric lines, stormwater infrastructure, sanitary sewer lines, water pipes, and telecommunication cables. Each utility must comply with Virginia and Charlottesville regulations in terms of materials and spacings. Finally, with cost estimation, we utilized quantities from plan sheets and unit prices from RS Means Landscape and Site Work Costs book. It is important to note that the buildings were out of the scope of our project.

STS Section

Zoning is the process whereby a city or municipality is separated into districts, with each district having different regulations. These regulations have traditionally been on the basis of land-use in an attempt to limit exposure of higher intensity industrial pollution to residents/residential areas. However, this separation of uses has caused a decrease in housing options, exacerbated segregation issues and decreased accessibility by encouraging urban sprawl. It is an integral part of creating communities in the United States, and many other places around the world, but, presently, most zoning in the US predominantly uses codes that regulate on the basis of usage and intensity which creates unsustainable communities. The fact that most cities and municipalities are developed according to this restricting code has led to communities that are environmentally, fiscally, and socially unsustainable (Speck, 2015). They are heavily reliant on private automobiles (most of), which emit carbon dioxide into the atmosphere. These communities have become increasingly unaffordable, and do not support local businesses or local community engagement (Evangelopooulos & Nuworsoo, 2017).

In contrast to these communities, there are communities that employ mixed-use, smart developments. These developments create more walkable environments that are typically more aesthetically pleasing and fulfill the community's vision in private and public spaces. These communities also have a greater variety of housing types, which creates more inclusive environments for different family dynamics and living options (Speck, 2015). With these developments, I propose that they create more sustainable communities as per the triple bottom line (environment, economics, and equity). In the era of climate change and increasing social

awareness and inclusion, I believe that creating communities that are representative of the changes we want to see as a community is very important.

Within this technology of zoning and developments, I believe that most every citizen/resident of the United States has relevance when discussing it, as everyone is a part of a community and requires the services that communities provide. Although I did not mention people who reside outside of the US, they are also all parts of communities and have traditional development types. However, due to my lack of knowledge on how other countries zone their cities and what their priorities are, as well as the unique history of the United States and its development, they will not be pertinent to this discussion. Considering all of society is a part of a community and relies on physical infrastructure to support their needs, it is important that their communities accurately reflect their needs without unintended consequences which affect both them and their environments.

The framework I will be using to evaluate these methods of zoning will be that of actor-network theory. Actor-network theory is the social theory that all technologies are influenced by and influence actors in a related network. In respect to design and development, their features account for and influence the social, psychological, physical, and economical world (Ruming, 2008). In this way, multi-use designs help to shape human action and influence decision making. The way that we design and zone communities affects human relationships and also has an impact on other intangible facets of humanity such as morality and politics. In this way, designing a community that is sprawled and divided based on development type leads to a community that lacks interconnection; members of the community only visit certain areas to accomplish certain things, causing them to only interact with those around and within their home and work life (Speck, 2015). The spaces we have traditionally created in the United States do not

leave room for interpersonal connection outside of one's social 'status', whether that be on the basis of race, economic class, ethnicity, education level, and/or citizenship status, causing people to lack the view of other perspectives when approaching an issue. So, as the physical and social environment are changing, they are affecting the physical environment and influencing how communities zone and what is developed.

For this research I will be looking at the history of mixed-use developments in the top 5 most sustainable cities in the US (as according to the 2022 Arcadis Sustainable Index), and the community interactions/sustainability of those systems/technologies.

Conclusion

Zoning and development shapes all of our communities and the current methods do not shape communities to accurately reflect the wants and needs of its members. Utilizing mixed-use developments as a means to create an engaging and sustainable community will require a change in zoning legislation away from use-based segregation and towards inclusive, multi-use developments. The future of development and zoning depends not only on how we want our cities to look and function but also on how the changing social conditions influence personal connections to the environment and other community members. The research performed will help to inform the needs of development and how they can physically represent the wants and needs of communities.

Key Texts & References

Evangelopooulos, E., & Nuworsoo, C. (2017). *Form-Based Codes: An Overview of the Literature*.

This source talks about how form-based codes should be structured in order to best reflect community needs and minimize issues. It helps me by discusses the differences between form-based and use-based codes.

Ruming, K. (2008). (rep.). *Negotiating Development Control: using Actor-Network Theory to explore the creation of residential building policy*.

This source helped me to frame my argument in terms of actor-network theory and helped to relate it to zoning consequences.

Speck, L. (2015). *The Importance of Mixed Use*.

This source talks about how mixed is a tool to create cohesive and enduring communities with multiple benefits in different social realms (public health, accessibility, education, etc).

WBCSD Communications (2022). The Arcadis sustainable cities index 2022. *World Business Council for Sustainable Development*. Retrieved from https://www.wbcsd.org/Overview/News-Insights/Member-spotlight/The-Arcadis-Sustainable-Cities-Index-2022

This source was the basis for my analysis into the links between sustainability and multi-use development as it ranked the top 100 most sustainable cities in the world according to

over 50 different metrics in the three categories of economy, environment, and society. From this list, I chose the top 5 most overall sustainable cities in the US and researched their individual histories on mixed-use developments/zoning.