

**The Greenway Trail in Community Development: An examination of value, representation,  
and distribution of benefits among stakeholders**

Stephanie Anne Lovely

Dissertation submitted to the faculty of  
Virginia Polytechnic Institute and State University  
In partial fulfillment of the requirements for the  
degree of

DOCTOR OF PHILOSOPHY

In

Leadership and Community Education

Rick Rudd  
Cernetrius Bohannon  
Kim Niewolny  
Hannah Scherer

July 7, 2020  
Blacksburg, Virginia

Keywords: Greenway trails, Sustainable development, Urban Political Ecology, Equitable  
representation, Roanoke River Greenway

## ABSTRACT

Greenway trails, or linear community parks, are growing in popularity around the world and are increasingly prevalent in cities of all sizes in the United States. At their best, greenways can provide affordable transportation, access to jobs, safe recreation space, community building, biodiversity protection, stormwater drainage, and air and noise quality benefits. Yet, commonly, neoliberal governance and design of greenways leads to diminished social and environmental design in favor of economic development. Intentional design for social, environmental and economic stability is crucial for successful greenways, though they are often viewed as innately sustainable. Urban Political Ecology (UPE), Actor Network Theory (ANT), and Campbell's Sustainable Development are used together as lenses to better understand the greenway development process and its outcomes. This research is a case study of the Roanoke River Greenway (RRG) in Roanoke, Virginia which was conducted in attempt to discover who benefits from the greenway, in what ways, and by what means. Semi-structured interviews, participant observation, and mapping combined to answer research questions. Participants were eleven neighborhood residents, five greenway commissioners, and five city and regional leaders involved with the greenway. Interviews were transcribed, coded, and grouped into themes, along with map data and field notes. I combined these methods to draw conclusions that shed light on the complex system surrounding the RRG. Conclusions are (1) that residents who live near the greenway and want to use it for recreational purposes as well as the City of Roanoke and its elite class of businessowners and homeowners who live near the greenway benefit the most from the RRG benefit because the greenway is catered toward recreation and economic development, in form, function, and process, (2) that the system which enables these benefits and prioritizes their beneficiaries is the greenway's evolving planning process, a system both steeped in mindsets of traditional economic development and exclusive planning aesthetics and imbued

Lovely\_ The Greenway Trail in Community Development

with innovative approaches of connecting residents to the outdoor environment, and (3) that Roanoke's greenway movement is strong because of its popularity but is vulnerable, because there are no provisions to officially protect it for the future, in terms of maintenance, increased use, and public opinion. Implications for praxis are that communities with greenway trails should diversify the people and perspectives who have power in the planning practice, that environmental and social design should be addressed directly and consistently in greenway development and maintenance, and greater outreach efforts should be made to residents in order to make the greenways more accessible and welcoming to diverse users. Implications for research are for increased research conducted with low-income and minority residents and on microlevel social and economic impacts in neighborhoods.

Keywords: greenways, sustainable development, systems, equity, Urban Political Ecology

Link: <https://uploads.knightlab.com/storymapjs/e7335b2d510bb6ffb6e6f04bdbd41e56/meaning-and-purpose-on-the-roanoke-river-greenway/index.html>

## GENERAL AUDIENCE ABSTRACT

Greenway trails, or linear community parks, grow in popularity around the world and are increasingly prevalent in cities of all sizes in the United States. At their best, greenways can provide affordable transportation, access to jobs, safe recreation space, community building, biodiversity protection, stormwater drainage, and air and noise quality benefits. Yet, commonly, neoliberal governance and design of greenways leads to diminished social and environmental design in favor of economic development. Intentional design for social, environmental and economic stability is crucial for successful greenways, though they are often viewed as innately sustainable. Urban Political Ecology (UPE), Actor Network Theory (ANT), and Campbell's Sustainable Development are used together as lenses to better understand the greenway development process and its outcomes. This research is a case study of the Roanoke River Greenway (RRG) in Roanoke, Virginia which was conducted in attempt to discover who benefits from the greenway, in what ways, and by what means. Semi-structured interviews, participant observation, and mapping combined to answer research questions. Participants were eleven neighborhood residents, five greenway commissioners, and five city and regional leaders involved with the greenway. Interviews were transcribed, coded, and grouped into themes, along with map data and field notes. These combined to draw conclusions that shed light on the complex system surrounding the RRG. Conclusions are (1) that residents who live near the greenway and want to use it for recreational purposes as well as the City of Roanoke and its elite class of businessowners and homeowners who live near the greenway benefit the most from the RRG benefit because the greenway is catered toward recreation and economic development, in form, function, and process, (2) that the system which enables these benefits and prioritizes their beneficiaries is the greenway's evolving planning process, a system both steeped in mindsets of traditional economic development and exclusive planning aesthetics and imbued

Lovely\_ The Greenway Trail in Community Development

with innovative approaches of connecting residents to the outdoor environment, and (3) that Roanoke's greenway movement is strong because of its popularity but is vulnerable, because there are no provisions to officially protect it for the future, in terms of maintenance, increased use, and public opinion. Implications for praxis are that communities with greenway trails should diversify the people and perspectives who have power in the planning practice, that environmental and social design should be addressed directly and consistently in greenway development and maintenance, and greater outreach efforts should be made to residents in order to make the greenways more accessible and welcoming to diverse users. Implications for research are investigations into residents who do not use the greenway, for long-term and minority residents.

Keywords: greenways, sustainable development, systems, equity, Urban Political Ecology

Link: <https://uploads.knightlab.com/storymapjs/e7335b2d510bb6ffb6e6f04bdbd41e56/meaning-and-purpose-on-the-roanoke-river-greenway/index.html>

DEDICATION

This dissertation is dedicated to Rosie and Quinn, who inspire me to work towards building a kinder world and whose joyful spirits elevate mine and help me to see a hopeful future.

## ACKNOWLEDGEMENTS

I consider this research project a gift, in that it was an opportunity for me to better understand the world in which I live and to share that understanding with people who can use it to enact meaningful change. I am grateful to the people who generously shared their time and energy into helping me with this project. I could not have done this alone. Those who are listed in my citations page are researchers, theorists, and others who have written the literature and formed the schools of thought that I build my research upon. Their work shapes my knowledge and thinking and leads me toward better understanding the communities and people with which I work. Thank you to the Roanoke community, and all of the participants who willingly and openly shared their perspectives and experiences with me. These include residents of Mountain View, greenway commissioners, and city and regional leadership. Their words make up a large part of this document, and I thoroughly enjoyed learning from each of them.

Thank you to my phenomenal committee. Dr. Rudd, I would not be here doing this work without your support. Your guiding me towards community infrastructure was a great gift, and I appreciate your encouragement of me exploring urban greenway trail systems. Dr. Scherer, your introduction into systems thinking has been a corner stone of my scholarship. I always look forward to hearing your patient and understanding perspective, as it reliably helps me to see things more clearly. Dr. Niewolny, you always help me to get to the heart of the matter by asking tough questions and challenging me to find the answers. You help me articulate my meaning and to embolden my praxis. Dr. Bohannon, your guidance and motivation is invaluable, and it prepared me for every step in my research process. Thank you for speaking my sports analogy language and assuring me that “you got this!” I know how lucky I am to have found you all.

Thanks to my fellow grad students and colleagues, who made this journey fun. I have enjoyed our journey together so much, from workouts, volunteering, and coffee shop meetings to shared coursework and late-night deadlines. I still feel like we are in this together, and I look forward to working with you all and sharing interesting conversations until the end of time.

I would like to thank my family and friends who have supported me along this journey. Your visits, phone calls, care packages, and cards encouraged me. Your belief in me made me believe that I could complete this degree, even when it was really hard.



TABLE OF CONTENTS

ABSTRACT

GENERAL AUDIENCE ABSTRACT

DEDICATION.....vi

ACKNOWLEDGEMENTS.....vii

LIST OF TABLES.....xi

LIST OF FIGURES.....xiv

CHAPTER 1: INTRODUCTION TO THE STUDY.....1

    Definition of Terms.....2

        Greenway trails.....2

        Green and sustainable infrastructure.....3

        Sustainable Development.....4

        Systems thinking.....5

    Introduction to Greenway Trail Functioning.....6

    Introduction to Greenway Case Study.....14

        Research Questions.....16

        Theoretical Foundations.....17

        Methodology.....18

    Significance of Studying Greenway Trails and RRG.....19

    Assumptions.....22

    Limitations.....22

CHAPTER 2: REVIEW OF THE LITERATURE.....24

    Urban Planning, Environmentalism, Greenways, and Land Use Philosophy.....24

    Roanoke Urban Development and Greenway Trail Development.....34

    Common Practices of Greenway Trail Development.....50

    Challenges and Successes of Greenway Development.....61

    RRG Development.....67

    Theoretical Foundations.....69

CHAPTER 3: METHODS.....83

    Ontology, Epistemology, and Methodology Defined.....83

    Ontological and Epistemological positions.....86

    Character of research area influence on positions.....89

    Theoretical underpinnings of positions.....91

Research Design.....	97
Timing.....	98
Research Questions.....	99
Research Question 1.....	100
Research Question 1A.....	101
Research Question 1B.....	102
Research Question 1C.....	103
Research Question 2.....	104
Research Location.....	105
Research Methods.....	106
Semi-structured interview.....	109
Ethnographic participant observation.....	114
Mapping.....	116
Reflexivity.....	118
CHAPTER 4: FINDINGS.....	120
Findings Introduction.....	120
RQ 1A.....	123
Practical uses: recreation, exercise, and transportation.....	123
Connection to community- people and. place.....	129
Connection to nature.....	131
Accessibility for Mountain View residents.....	134
Neighborhood improvement.....	139
Fair negotiation of space and resident needs.....	142
Maintenance and sustainability.....	144
RQ 1B.....	145
Recreational amenity.....	145
Economic development.....	148
Connectivity.....	149
Community building.....	152
Alternative transportation.....	155
Maintenance and protection.....	156
RQ 1C.....	159
Environmental sustainability.....	159

Environmental restoration.....	160
Environmental stewardship.....	162
RQ 1.....	164
Who is the greenway for?.....	164
Design and function for recreation, exercise, and transportation.....	182
Design and function for accessibility.....	186
Design and function for community- people and place.....	188
Design and function for environmental health.....	194
Design and function for economic development.....	195
RQ 2.....	198
Events shaped the greenway.....	198
Transformational land use and development.....	201
Change in perception of how land is valued.....	203
Greenway changed historic patterns of planning.....	210
Intentional land acquisition.....	213
Challenging established policy and procedure.....	215
Protect the greenway.....	218
Map data.....	220
Conclusion.....	227
CHAPTER 5: SUMMARY AND DISCUSSION.....	229
Introduction.....	229
Summary of findings.....	232
RQ1A.....	232
RQ1B.....	237
RQ1C.....	244
RQ1.....	249
RQ2.....	255
Discussion: Who is benefitting, in what ways, and by what means.....	259
Limitations.....	263
Recommendations for research.....	264
Recommendations for practice.....	265
WORKS CITED.....	271
APPENDICES.....	296

Mountain View resident interview guide.....	296
Greenway commissioner and planner interview guide.....	300
City and Regional leadership interview guide.....	304
Participant observation guide for the greenway.....	304
Participant observation guide for Mountain View meetings.....	304
Participant observation guide for greenway commission meetings.....	308
Participant observation guide for community meetings.....	309
Coding data.....	310
Structured codebook.....	310

LIST OF TABLES

Table 1: Physical Greenway Design and Greenway Goals.....	52
Table 2: Development Process Design and Greenway Goals.....	56
Table 3: Project Timetable.....	99
Table 4: Research Participants and descriptions.....	121
Table 5: Research Question and Themes .....	122

LIST OF FIGURES

Figure 1: Urban Land Development and Land Use Philosophy Timeline.....24  
Figure 2: Environmentalism Timeline.....25  
Figure 3: Greenway Timeline.....26  
Figure 4: John Nolan Plan for Linear Parks in Roanoke, 1902.....36  
Figure 5: John Nolan Revised Plan for Linear Parks in Roanoke, 1918.....39  
Figure 6: Roanoke Urban and Greenway Development Timeline.....46  
Figure 7: Theoretical Foundations Diagram.....47  
Figure 8: Research Design Diagram.....78  
Figure 9: Research Design Diagram.....106  
Figure 10: Coding process flow chart.....113

## **CHAPTER 1 INTRODUCTION TO THE STUDY**

Greenway trails, otherwise known as community trails, urban trails, or linear parks, act as hubs where seemingly disparate parts of life converge. Flora, fauna, water, people, community, enterprise, economy, movement, and stillness may exist here together. They weave about one another to create a distinctive environment, a landscape that manifests the ecological character of its surroundings. As Jacobs (2011) says of landscape, it “embodies the memory of natural process and human endeavor; it is an expression of who we are and what we value; it provides critical support for what we wish to become and how we wish to live within nature” (p.318). Though interactions and activity on a greenway trail often go unperceived by community members, anyone may be affected by its presence.

The implications of how a greenway trail is functioning in a community are many and complex, yet community members often see them in their peripheral vision, as part of the vast infrastructure within which they navigate. This research is a way to bring the greenway trail into focus for those using and creating them, to understand why it is present, how its presence plays a role in surrounding communities, and what this means for people in those communities. This research was created using systemic and critical perspectives in gaining understanding about greenway trails, understanding that their positions in history, geographical location, and culture is shaped by and shapes their form and function.

In this chapter, I aim to bring greenway trails and their influence on communities into focus. I will introduce the language and ideas that are central to it. I will then present an overview of greenway trail functioning, my greenway trail case study, and the significance of my study. Next, I will preview what is to come in following chapters, including theoretical lenses, methodology, assumptions, and limitations.

## **Definition of Terms**

Several terms are important for understanding this discussion of greenway trails. These include greenway trails, green and sustainable infrastructure, sustainable development, and systems thinking. Each is described below in detail with context.

### **Greenway Trails.**

Two broad categories of trail systems are applicable to community trail system building, though their boundaries and definitions are not always clear cut (Sager, 2002). Greenways and trails refer to slightly different but often overlapping developments. Greenways, often referred to as green belts, are typically described as linear areas set aside for green space which may or may not include paved or walking trails (Fabos & Ahern, 1995; Jongman & Pungetti, 2004). They may provide boundaries for urban sprawl, wildlife refuges and potential ways for wildlife to migrate, filters for air pollutants, heat dissipation, stormwater drainage, and aesthetically pleasing scenery for communities (Fabos & Ahern, 1995; Jongman & Pungetti, 2004). Trails and their variants (i.e. trail systems, biking paths and bike trails) are essentially travel ways which accommodate some kind of non-vehicular traffic (Sager, 2002). Trails may be a part of greenways and greenway characteristics may be included in some parts of trails. Both greenways and trail systems can serve a variety of purposes in a wide range of settings and are used to serve the community and its environment.

Trail systems may serve multi-use recreational needs and/or be utilized as multi-use community infrastructure. Recreational trails are often found in parks, forests, along bodies of water, throughout neighborhoods, and other areas set aside from commercial and industrial development. They are used for a variety of activities related to recreation; these may include horseback riding, hiking, mountain biking, all-terrain vehicle (ATV) riding, running, walking,



nature exploration, and other activities (FHWA, 2019). Multi-purpose trails are also used for recreation but may also serve practical benefits like providing alternative transportation and access to commercial development. In addition to meeting physical activity related needs, they may also serve as a means for achieving social connectivity, social equity, economic development, transportation infrastructure, community identity and aesthetic, and ecological sustainability. This dissertation will focus on multi-purpose greenway trails which are designed for community development goals. As such, they are a form of green infrastructure.

### **Green and sustainable infrastructure.**

Infrastructure, including the physical and procedural structures that control the water and land and everything that is on it, plays a vital role in communities' everyday functioning. This includes systems and physical structures for water management, waste cycling, mass transportation, food production, and energy production (Belanger, 2016; Hufnagel & Rottle, 2014). Infrastructure may be grey, which is traditional, human constructed infrastructure that uses man made materials like concrete (Lundholm, 2015). Green and sustainable infrastructure are often associated with greenway trails. Green infrastructure consists of natural or built ecosystems (Lundholm, 2015). They may be greenspace that surrounds a community or urban forests within a community (Lundholm, 2015). They may also be designed to produce specific ecosystem benefits, as exemplified by green roofs, bioswales, sewage treatment wetlands or biofiltration systems, or pollinator gardens (Lundholm, 2015). Though greenway trails are often paved, they are considered green infrastructure because of the surrounding linked green area around them. Sustainable infrastructure is simply infrastructure that enhances a community's ability to meet the needs of changing environment. Though its definition varies amongst

practitioners, it often revolves around sustainability in some combination of three broad categories: social, environmental, and economic. These will be described in more detail below.

### **Sustainable development.**

Sustainable development in urban planning is the idea that economic sustainability, environmental sustainability, and social justice and equity must all be present in order to achieve sustainability in a community (Campbell, 1996, 2013). Often tied to a systems approach, this philosophy avoids compartmentalizing the three goals, as focusing on one goal in a vacuum likely leads to deterioration of the others (Campbell, 2013; Immergluck, & Balan, 2016).

Sustainable development was introduced in the late 1980's, defined in the 1990's, and has gone through phases of reimagining since. Lately, there has been a greater emphasis on environmental and social aspects of this model. This is in recognition of the harm that has been done to societies and to the environment in pursuit of economic growth and progress. This sustainability model has filtered into conversations in social sciences and rural studies, and similar terminology is used and applied with other concepts involving change to define viability (Robertson, Blackwell, & McFarlane, 2017).

Planning for sustainable development is now a fairly common practice and has been embraced in popular smart growth, green economic, and especially donut economic models (Bibri, 2018; Curran, & Hamilton, 2018a; Jongman, R., & Pungetti, 2004; Raworth, 2016; Trudeau, 2018; Quastel, Moos, & Lynch, 2012). It is common for cities to use sustainable development approaches specifically for green infrastructure projects, as has been the case in Los Angeles, Seoul, Berlin, New York, Barcelona, and countless other cities (Curran, & Hamilton, 2018b). What is rarer are communities with a true dedication to sustainable development in the sense of minding the three sustainability goals with intention for system-upholding balance.

Copenhagen (Blok, 2013), Vancouver (Quastel, Moos, & Lynch), and Melbourne (Jongan, & Pungetti, 2004) are notable cities that have committed in big ways to the concept and practice of sustainability, although, even these deliberate, focused efforts don't always work. Their trials have been instrumental in understanding how sustainably driven systems operate and what is important to account for in their planning and implementation (Brown, Farrelly, & Loorbach, 2013; Curran, & Hamilton, 2018b; Dorst, Jagt, Raven, & Runhar, 2019).

### **Systems thinking.**

Systems thinking is prominent in sustainability-related disciplines. This may be because it offers a broad view of sociopolitical activities and recouples political and economic behavior with their social and environmental impact. It also allows a foundation for interlinking human and natural systems (Liu et al., 2007). Additionally, systems thinking is desirable for many of these fields because it originated in natural sciences and is thus afforded a baseline legitimacy among many audiences. Though in social sciences systems thinking is often applied more with theoretical application than with modeling, the logic behind its results is supported and relatable (Meadows, 2007; Stroh, 2015).

A system is defined as a set of connected things that work together and produce patterns of behavior over time (Meadows, 2007). It is responsible for its behavior, and alteration of the system can alter the patterns it produces over time (Meadows, 2007). Time is an important factor in systems thinking because it allows for the interconnected parts of the system to interact and produce outcomes (Meadows, 2007). Diverse, complex systems are more stable than those with less diversity and complexity (Meadows, 2007). Information, or feedback, from different points in the system is critical to its functioning (Meadows, 2007).

The systems lens looks at how actor behavior and system outputs simultaneously and continuously interact, a switch from linear perspectives (Meadows, 2007). These interactions combine to create a system that is greater than the sum of its parts (Meadows, 2007). Understanding interactions is at least just as important as understanding the individual components of a system (Meadows, 2007). This perspective is central to systems thinking. It promotes possibility, stresses the probability of unpredictability, and delegitimizes compartmentalization of parts of a system. Systems thinking approaches in social systems may be used both as an ontological and epistemological foundation (Reynolds, & Holwell, 2010). Through participative methods, it may be used to understand past behavior and design a system that will produce desired future behavior (Stroh, 2015). It utilizes multiple, diverse perspectives to understand how a system works (Stroh, 2015). It is specifically used to identify the discrepancy between intended outcomes and system-promoted behavior (Stroh, 2015).

Though not overtly political, systems thinking is inherently democratic in the way it demands and values citizen participation and indiscriminately calls out policy and practice that undermine social justice and environmental sustainability by expanding frames. It emphasizes the importance of posterity and forward-thinking action (Boulding, 1966). Use of the approach promotes a collective view of society, one that rubs against the self-made man, pull-yourself-up-by-your-bootstraps mentality. It does this by looking at actors that contribute to a given system and accounting for the feedback that make that system possible, many of which are uncontrollable by any one actor or entity. At the same time, there is implied sense of responsibility in systems thinking because awareness of how a system is acting provides power in intervening to change undesired or unpredicted outputs (Meadows, 2007; Stroh, 2015). While uncertainty is a part of the systems perspective, intention is a malleable factor that can shift the

direction of a system. Depending on boundaries and focus, systems are often made up of smaller systems, and even individual actors may be considered a system (Meadows, 2017). Given this, an individual actor with agency can alter its own feedback loops and change its outputs to at least some extent.

Community trails act as a good metaphor for complex community systems because by nature, they are always changing, and they are networks which connect people and places with other people and places. Complexity is rife in the ways in which a community trail is adapted to community needs, both through the process of trail development and the actual physical trail itself. Opportunities for transportation, environmental health, public health, recreation, equity, community and leisure are all parts of a community trail which affect people in a community and the broader community system. The more that people and communities work to elicit these different benefits of a trail, the more impact the trail will have. This may be done by changing and developing physical aspects of the greenway trail, working to change perceptions and attitudes toward greenway trails, and by changing how the greenway trail is utilized. Often, these processes work together.

Physical components of a greenway trail, such as its surface, lighting, placement, benches, and vegetation, are aspects of trail design which, once in place do not necessarily dynamically interact or change. Though trails may extend beyond their original route, and this change contributes to how it is a part of its surrounding community, these changes are less dynamic and changing as complex systems. The way they act as a part of a complex system is how they interact with the ever-changing social structure and natural environment surrounding the trail. Depending on the relationship between communities and their greenway trails, factors like trail usage, value, structure, and perception will change.

Accepting community greenway trail development and utilization as a system also means embracing the idea that information sharing across the system is paramount to its lasting success. Systems are defined by their transfer and use of information. In fact, according to Meadows (2008), “missing information flows is one of the most common causes of system malfunction.” In the trail development process, this implies maximizing input from a variety of stakeholders and using the vast network that combines them to create a mutually beneficial system.

Likewise, finding contradictions in a system’s intended purpose and actual operation is important in successfully directing its behavior (Stroh, 2015). Identifying and resolving conflicting goals, counteracting stakeholders, and counterproductive practices in greenway trail development is essential to maintain an intentionally sustainable community greenway trail. By working within paradigms that support these foundational principles of systems thinking, theory and practice for greenway trail development can be unified and trails can live up to their potential for positive community influence.

### **Introduction to Greenway Trail Function**

Greenway trails vary in scale and purpose across communities. Greenway design that is possible for one community may not translate to another. However, as a piece of infrastructure, a greenway trail has the capacity to form many different functions across sectors of community for a diverse population. What follows are summaries of stories of ideal greenways, whose designers and users make the most of greenway benefits for sustainability benefits; of worst-case-scenario greenways, whose designers manipulate the system to the detriment of the community; and of actual greenways, whose designers and users face real world pressures and struggle through imbedded structures and the conflicts of priorities that exist within them.

#### **Ideal interactions with community.**

Ideally, greenway trails meet a variety of community needs and simultaneously achieve sustainable development goals. In a rosy picture of a greenway trail in an imaginary community, one hypothetical trail user's journey can showcase many of these interactions. The scenario is described below with descriptions of how these individual benefits translate to broader community benefits.

The greenway is a linear park designed as part of an urban forest. Here, native species of plants and trees provide habitat for a well-balanced ecosystem that has been designed in coordination with other local and regional greenspaces to support species' migratory patterns (Jongman, & Pungetti, 2004; Mason, Moorman, Hess, & Sinclair, 2007; Qian, Xiang, Liu, & Meng, 2018). This ecosystem increases the biodiversity of the community, helping local food production and preventing invasive species and disease spreading among community members (Beatley, 2003; Hammen & Settele, 2016; Lindsey, 2003; Ostfeld & Keesing, 2006). The canopy cover on the greenway not only provides shade for trail users, it also reduces heating effects of surrounding urban areas and helps to reduce carbon emissions (Firehock, 2012; Larson et al., 2016). Root systems along with the pervious paving and gradient of the trail help to mitigate storm water and prevent flooding (Firehock, 2012; Larson et al., 2016). The cumulative effect of these environmentally healthy structures helps to retain soil quality, which has a dynamic relationship with native flora and fauna. Healthy soil supports more vegetation growth, which supports the wildlife that live in it and consume it. This is one way the greenway system exemplifies the sum being greater than its parts.

On entering the greenway's healthy environment, the trail user may experience a few direct and indirect physical and mental health benefits. Nature often acts as a natural form of stress relief, mental restoration, and mood enhancement (Gifford, 2014; Schultz et al., 2016). Trees

may evoke a feeling of awe, which in turn promotes feelings of generosity and connection to community (Gifford, 2014; Keltner, 2009). Greenspace also has a wide range of other benefits. For the trail user, these include increased immune function, disease prevention, mental and physical childhood development, stress reduction, increased happiness, and improved cognitive function (Kent, 2016; Gifford, 2014; Shanahan, Fuller, Bush, Lin, & Gaston, 2015). Some of these effects can take place after only five minutes of exposure while others are seen as more long-term responses to permanent changes in environment (Shanahan et al., 2015). Also, the more closely the trail user physically interacts with greenspace, the more profound the effects are (Kent, 2016). The pleasantness of the greenway, along with its safety and vast connectivity entices trail users to stay on the trail longer, which contributes to their health through both their exposure to these stress-relieving components and to prolonged physical activity while on the trail (Akpinar, 2016; Doyle, Kelly-Schwartz, Scholssberg, & Stockard, 2006; Pikora et al., 2003; Schultz et al., 2016; Weber, Boley, Palardy, & Gaither, 2017).

With physical activity, the trail user's mental health, cognitive function, muscle strength, bone density, and heart health are all promoted (Earle & Baechle, 2004). Trail users' active lifestyles are associated with prevention of cardiorespiratory disease, coronary artery disease, diabetes, hypertension, and obesity (Services, 2008; Earle & Baechle, 2004). Those diseases are among the most prevalent and most costly in the United States (Services, 2008). As a form of infrastructure that allows for and promotes physical activity through its connected and safe design, this greenway trail is a part of public health initiatives that highlight the importance of built environment in promoting physical activity (Akpinar, 2016; U.S. Department of Health & Human Services, 2008 Weber et al., 2017; Schultz, et al., 2016). The greenway trail includes adjacent playgrounds, sport facilities, and fitness courses which enhance the potential for



physical fitness on trails and widen the range of muscular and skeletal benefits. Likewise, its designers' adoption of technology, like bike shares help to encourage health and activity (Outram, Biderman, & Ratti, 2010).

This trail (or those linked to it) are within walking distance of community members, so they have a greater appreciation of the social and environmental benefits as well as a greater likelihood of using the trail for physical activity (Akpinar, 2016; Larson et al., 2016; Lindsey, Wilson, Yang, & Alexa, 2008). These trails are distributed equitably, with safe, quality greenspace available to diverse groups of community members (Keith et al, 2018; Palardy, Boley, & Gaither, 2018; Ross et al., 2012). ADA compliance and multiple types of trail users have been considered and accommodated (Flink, Olka, & Searns, 2001).

Trail users are thus connected to the land and gain a deep appreciation of it. Interactive displays, educational signage, and events on the trail make trail users more informed about their surrounding environment and its value and function in their lives. Based on this knowledge and their experiences on the trail, they are more likely to take care of it, both through their own action and through civic behavior and pro-environmental behaviors (Gifford, 2014).

This ideal trail connects people with places that are meaningful to them, either directly or by working in conjunction with other forms of alternative transportation (Leslie et al., 2007). These may be places for social gathering, recreation, work, shopping, transportation needs, or other cultural mainstays (Hanson & Young, 2008; Krizek, 2007). Likewise, those destinations have amenities for trail users and welcome their presence (Hanson & Young, 2008). Though some recreational amenities and upscale developments may be on the trail, the trail is catered to the needs of the surrounding local communities (Gobster & Westphal, 2004; Kim, 2018; Pearsall, 2018). History and culture are valued over economic development and community-led projects

showcase the meaning of the land to the community (Curran, & Hamilton, 2018a; Erickson, 2004; Kim, 2018; Stern & Hall, 2018; Qviström, 2012).

All of these resources are valuable to all community members and enhance their quality of life. Protective government policies prevent displacement of local community members in order to ensure that these benefits remain in the hand of local residents (Quastel, 2018). The trail's power-holding planning advisory board includes trail users and residents who guide the development of the trail as another way to protect against unwanted development and gentrification and to promote development that focuses on local community needs (Curran & Hamilton, 2018a; Hanson, & Young, 2008; Gobster & Westphal, 2004; Pearsall, 2018). Efforts are further made to connect with, hear from, work with, and accommodate representatives from all stakeholder groups (Flink, Olka, & Searns, 2001).

This is not to say that this trail neglects economic needs of the community. In contrast, the ideal trail sees economic development in terms of providing low-income residents with access to jobs, by enabling local business development and access, and by job creation in trail-related jobs and businesses (Atlanta Beltline, 2017). Public health cost decreases also help contribute to a less-taxed economy (Akpinar, 2016; Schultz et al., 2016). Communities also see economic benefits by reaping the benefits of a less-stressed vehicular transportation system, enhanced stormwater mitigation, and lower overall carbon emissions and heat island effects, all of which would cost more money to mitigate by traditional means of repair and installation of grey infrastructure (Firehock, 2012).

These are all qualities of the greenway trail that work together to create a symbiosis. Though this scenario has largely ignored the processes that would create and prolong these benefits, the ideas of what ideal greenway trails might encompass have been summarized. Now that an

understanding of what a well-designed and implemented trail has been established, the opposite might be imagined, along with some details that make such a scenario especially harmful. Next, a negative sort of trail system will be described.

### **Harmful interactions with community.**

This greenway trail is situated in an environmentally sensitive area, and its highly manicured landscaping utilizes non-native species of plantings. Its grading and paving counteract stormwater drainage system, and when it rains, standing pools of water are prevalent on and along the trail, degrading the paved trail along with the soil around it. The trail is unsafe as a result of its uneven surface and attracts pests that breed in stagnant water. Allergens are also potent because of the nonnative species and toxic plant species are present along and sometimes even on the trail. Dangerous run-ins with local fauna whose habitats have been overtaken by greenway development are common (Curran & Hamilton, 2018b).

The trail is not wide enough to accommodate multiple users and does not address the needs of multiple trail purposes. Bicyclists and pedestrians are prone to conflict, and those with physical disabilities may not be able to reach the trail. The greenway trail is truncated by multiple roads with vehicular traffic. Connectivity of the trail is low, and portions of the trail are inaccessible and / or unsafe.

This trail is a part of a coopted green movement. Its developers have used the imagery of green development to promote their economic-focused endeavor, resulting in light greening, or development that appears to be green, but actually it is unsustainably developed and designed (Curran and Hamilton, 2018b). This process has endangered local low-income communities with the threat of displacement and environmental degradation (Curran & Hamilton, 2018b; Pearsall, 2018; Rigalon & Nemeth, 2018). Local residents' needs are not accommodated or even sought

after, and no provisions have been made and followed through on to protect their ability to stay in their community (Immergluck & Balan, 2018; Kim, 2018; Pearsall, 2018). What's worse, some government officials see this as an opportunity to remove the local community and make room for economic development (Rigalon & Nemeth, 2018). As a result, rent and residential tax rates increase and businesses in the area become more expensive to shop at (Kim, 2018; Pearsall, 2018). Needs of community members are also not considered in design of the greenway trail. Local history and culture in the area has been ignored, covered up, and replaced with privileged perspectives.

### **Actual interactions with community.**

While greenway trails are commonly perceived as being inherently green and inherently good, there are plenty of ways in which they fall short of those expectations. Actual greenway trails typically fall somewhere in the middle of the above-mentioned pictures. More details and examples of actual greenway trail cases will be explored in the next chapter. There is no one size fits all solution to greenway trail development, nor is there one size fits forever. Communities are diverse and needs within and between communities must be negotiated.

Likewise, these community needs and the solutions found to meet them are constantly changing, as the social and physical environment around them shifts with time. Intricate design and care must be applied to communities when developing their greenway trails. Understanding how the socioecological system works and how it may be altered help to remedy problematic consequences of greenway trail development.

### **Introduction to the Greenway Case Study**

In Roanoke, Virginia, the purpose and practice of developing the community's greenway trail has evolved since its inception. In 1994, community members instigated the development of

a greenway as a conduit for community improvement. Raising funds and petitioning for the greenway trail, the Roanoke River Greenway (RRG), community members oversaw much of its management. The City of Roanoke later adopted it, embracing its potential for much needed stormwater management as green infrastructure. The city hired a greenway trail coordinator and took over responsibility for management. As the trail expanded, so did its possibilities. Roanoke government adopted it as a big part of its Roanoke Outside marketing campaign, which is geared toward creating an identity for Roanoke as an active community connected to the natural environment. Though at times there was some resistance to its expansion, eventually, many local businesses and property owners began to see the greenway as an asset. Now, there are almost 10 miles of trails on the RRG, and over 22 miles of paved trails connected to it in Roanoke. There are also 77 miles of unpaved trails in Roanoke that are still being expanded and that community members are actively involved in maintaining and building. Some areas around the greenway are changing character and composition because of the greenway.

Though there seem to be positive effects of the trail, especially at the surface level, there are long histories of the greenway development and of Roanoke's land development that likely influence community members' experiences of the trail. This history includes conflicted land ownership, racial segregation and racism, class politics, and economic emphasis in development. There are also more recent histories of neighborhood redevelopments and of environmental risks, like flooding, unremitted brownfields, and pipeline water contamination.

In one neighborhood that borders the greenway, Mountain View, several of these issues converge. Neighboring brownfields and floodplains threaten the physical safety of portions of the neighborhood. With a history of wealthy land ownership and a current identity of being a low-income area, the neighborhood has gone through significant changes and is currently facing

social and economic reconfiguration. Alongside its residential area, the neighborhood contains a community garden, greenspace, an historic community center, weekly farmers markets, a school, and a church. It has an active and involved neighborhood association which has, in the past, successfully advocated for the greenway path to pass through their neighborhood.

**Purpose Statement.**

The purpose of this research is to understand who is benefitting from the RRG in the context of the Mountain View neighborhood, in what ways they are benefitting, and what processes allow them to do so. The research specifically is in context of power, looking at how people with different levels of agency in the greenway development process perceive the value of the greenway, and of sustainability, looking at how those values match with the social justice and equity, environmental sustainability, and economic sustainability of the greenway which inevitably affect all stakeholders differently.

**Research Questions.**

Greenway trails can enhance or disturb livelihoods, can embrace or disregard the environment, and bring together or drive apart communities. Despite holding great potential to promote environmental and social health in communities, planning and implementation of greenway trails often fall short of meeting community needs, blindly focusing on the needs of a few at the cost of many.

The research questions I chose answered these questions incorporating concepts of power through agency and of sustainability in environment, society, and economics. I asked, how have planning, implementation, management, and user-adaptation of the Roanoke River Greenway trail represented the needs and values of residents in Mountain View? I specify asked, what are the perceived uses for and values of the Roanoke River Greenway from the perspectives of

Mountain View residents, and, what are the perceived uses for and values of the Roanoke River Greenway from the perspectives of greenway planning commissioners and Roanoke government planning officials? Next, I asked, to what extent do these residential, planning, and government official stakeholders' values for the greenway fit with social, environmental, and economic sustainability values? These are values that, although not always at the forefront of stakeholder perceptions, are nonetheless necessities for community health.

Finally, I asked, in what ways does development and use of greenway space reflect the historical complexity of Roanoke's city planning, including class and race? This question is specific to not only Roanoke's context of urban and greenway development, which I will elaborate later throughout this chapter and dissertation, but it also speaks to the trends of urban and greenway trail development throughout the last century. Development contexts tend to emphasize economic development over other goals. By asking this last question, I flipped the focus of this research to the sustainability goal which planners commonly considered last: social justice and equity. In doing so, I gained better understanding of why certain stakeholders benefit from the greenway and how historical practices may shape perspectives of who can benefit from the space.

### **Theory.**

Theories I used to investigate my research questions are Actor Network Theory (ANT), Campbell's Sustainable Development Theory, and Urban Political Ecology (UPE). These three theories worked in concert to showcase the current system's interactions and outputs, framed by the perspective of sustainability, with historical contexts of power and manipulation of land, respectively. Together they focused my research on the current condition of the greenway trail

and its relationship with stakeholders while understanding that historical events influence those current events and experiences.

ANT is a theory that uses human and nonhuman actors to show interactions in a system. It can be used to show how stakeholders interact with one another and with the environment to produce benefits or burdens for a community. Campbell's Sustainable Development Theory portrays sustainability as a balance of social justice and equity, environmental sustainability, and economic sustainability goals. The balance is dependent on the context, and for this context, I propose more emphasis on social and environmental goals, with economic goals directed at supporting the other two. UPE is a form of ANT that looks specifically at class and manipulation of land. It explicitly is directed at answering the question of who is benefitting from land development and takes a historical perspective at looking at how land has been manipulated by the neoliberal state, or capitalists, to take its current form.

### **Methodology.**

My research took the ontological perspective that the world is inseparably connected, and there is no distinct line between humans and nature, as humans exist within and as a part of nature. There is not one absolute truth, but there are multiple realities which come from different perspectives and timelines in the world. Reality is always changing, as it is always adapting to new actors and conditions. Further, the ways these changes occur are often unpredictable. In my ontological perspective, agency is viewed as the ability to act within a system, and power is agency to affect other actors within the system.

In this research, I took the epistemological positions that there are multiple ways of knowing, that knowledge is co-created and subjective, and that it cannot explain motivations, but can only



describe action and how that action is supported by a system. Knowledge can be transformative and may be used for making change, and as such, it is a form of power.

The methods I chose for this case study are semi-structured interviews, participant observation, and community mapping, which was a part of the semi-structured interviews. These methods were chosen to include experiential and spatial aspects of the greenway trail. The interview participants were community stakeholders with different levels of power in the greenway development. They were asked questions about their use and perception of the trail, in terms of sustainability. They were asked to identify places of use and meaning on and near the trail. I then used these responses to create a map of stakeholder uses and values on the trail. My observations as a researcher on the greenway trail and in greenway and community meetings and events added depth and perspective to the analysis of the greenway's sustainability and the values that direct it.

### **Significance of Studying Greenway Trails and the Roanoke River Greenway**

Part of the challenge with changing a system that is imbalanced is finding agreement on how that system should function. Specifically, when dealing with green and sustainable infrastructure- categories in which greenways are classified- the system is dependent on how sustainability is defined and managed by those charged with creating and implementing that infrastructure. In neoliberal contexts, there is a long-held ideology that sustainability is dependent first and foremost on economic viability (Heynan, 2012; Immergluck & Balan, 2018). However, this notion is heavily contradicted in sustainable development theory and practice, where sustainable development encompasses a combination of social justice and equity, environmental sustainability and economic sustainability (Campbell, 2012; Immergluck & Balan, 2016; Julnes, 2019; Patton, 2019). In greenway trails, environmental sustainability and

social justice and equity are most appropriately considered first, and economic sustainability is considered secondarily as a means to support those goals (Lovely, Archibald, Bohannon, & Scherer, UPCOMING PAPER).

Trails have immense possibilities. The combination of what features and design will be included on a trail, how the trail will be used, and who will use the trail is unique to the physical and social landscape of the community in which it resides. Community trails take on the character of those involved in developing it and of those who use it to work best for their needs. It happens that greenway trails have a domain that crosses many sectors of community. In the ideal trail example above, urban forestry, public health, parks and recreation, economic development, housing, urban planning, and art and culture were all involved and touched by greenway activity.

Greenway trails can act as a hub that connects humans, places, and stakeholders. Through studying greenway development, it is possible to find ways to collaborate across these different areas of community and to develop mutually beneficial and sustainable solutions in greenway development. Connections and values fostered in this process may be a leverage point in community systems that will allow people to have closer relationships to one another and with the land.

This research seeks to test in a new way the assumption that intention behind a greenway system is linked to the way that it performs and interacts with its surrounding communities. By looking intensively at one greenway as a case study, I better understand how the energy and intention that drive its development system are linked both to historical planning and social patterns and to current system outputs. I compare simultaneously across stakeholder groups the intended and actual benefits and services of the physical greenway and the process that

establishes it. This is a way to gain a more holistic understanding of the merits and faults of the greenway system, including who is and is not involved in it.

**Potential for community benefit and harm.**

Greenway trails are commonly viewed as a public good in the planning profession. As such, they are assumed to do no harm to residents and are meant to serve members of the community as an amenity, service, and resource. While the potential of greenways for both harm (Immergluck, & Balan, 2008; Trudeau, 2018) and good (Firehock, 2012; Flink, Olstra, & Searns, 2003; Searns, 1998) is often underestimated, there is opportunity for public collaboration and discussion over what about their greenway trail constitutes a public good (Trudeau, 2018).

**Potential for shifting values towards contemporary needs.**

Greenway trails are a form of infrastructure that are uniquely reflective of a community's culture and values. Built to promote any number of community aspirations and modified to respond to its changing needs, greenway trails may be a canary in the coal mine for a community's evolving character. It may also be an opportunity to leverage desired change and to connect community planners and leadership with citizens through tangible and intangible community infrastructure.

Greenway trails have the potential to bolster a community's sustainability and resilience. It is helpful to look at them as a piece of resilient infrastructure described by Moorish (2008):

When buildings, landscapes, and cities begin to incorporate natural systems into design and operation, the effect will be cumulative. Eventually, all may even operate as capillaries in an infrastructure network that provides water, air, energy, communication, transportation, and waste services at minimum cost to the environment. (p.75)

From that, I added the point that social justice may be served in conjunction and in the same way. When pieces of infrastructure are designed to incorporate just social systems and connect with others doing the same, they act as a piece of a community that has outputs of social justice, health, and well-being.

Greenway trail processes and products that represent holistic sustainability simultaneously fill many roles in the community as a connector of people and places. Its designers adopt environmentally sound and socially just development practices. Multiple stakeholders work together to find best fit solutions and utilize and benefit from the greenway trail. As the trail develops in physical form and in its role in the community, stakeholders continue to collaborate with one another to find the most beneficial solutions to themselves and to sustainability and resiliency goals. They evaluate how a trail is performing in relation to those goals and adapt as the community changes. The greenway trail becomes interwoven with the socio-natural environment around it, and acts as a part of community identity, functioning, and health.

In this logical functioning that aligns with greenway trail characteristics, there is a rebellion against neoliberal capitalism. Re-connecting humans with their natural environment in the intimacy of everyday transportation, recreation, and social relationships, greenways showcase the value of land as soil and challenge the propriety of using it as a disposable commodity. By shifting to sustainable development practices in this one area, there is an opportunity to instill habits of cross-departmental, cross-class cooperation which may be adapted for use in other community projects.

### **Assumptions**

Assumptions are that my ontological and epistemological positions are true. Another is that sustainable development is important for communities and their residents. On a deeper level,

there is a belief that the manifestation of greenway trails are representative of the sustainability values held by those who develop them and that they can be a leverage point for instigating connection and cooperation between stakeholders and for instilling sustainability values in stakeholders. Finally, there is an assumption in this research that more knowledge about the greenway system is powerful in its ability to shift perspectives and decision-making, and that given increased understanding of the system, actors will alter their behavior to promote desired outcomes.

### **Limitations**

Limitations of this research are its scope. There was only one researcher working in one community of one greenway trail. Because of this, not all perspectives of the many communities neighboring the RRG can be explored, and not all experiences can be researched. At the time of data collection, some resident interviews that needed to be facilitated by in-person contact were lost, and those residents' perspectives are not included. Participation was voluntary, and there is a possibility that residents who spoke with me are more familiar with and favorable to the greenway than those who did not volunteer. Also, I assumed that I would miss some community members perspectives because I am not fluent in some of the languages spoken by some community members. As a student who embarked on this research project for the purpose of earning a degree, I had limited time with my community and there is an understanding of my presence being temporary in the community work. While I invested what I could to form relationships with community members, my temporal limitations and the reality of my situation as a researcher were likely barriers to how much my research community might invest in participation in my research.

## **Chapter 2: Literature Review**

The purpose of this research is to understand who is benefitting from the RRG, in what ways they are benefitting, and what allows them to do so. To set the foundation for asking my research questions and investigating them, I describe how greenways are meant to function, what purposes they are meant to serve, and how they are being implemented, including the intent, philosophy, and history behind those practices. I review what role they play in big-picture, global sustainability and development trends as well as in the narrow context of Roanoke and its Mountain View neighborhood development and culture.

In this section, I recount how greenway trails, and specifically the RRG Trail in the Mountain View community, fit into the current and historical larger socio-political and environmental contexts. I discuss how their development is meaningful in both individual community building efforts and big-picture shifts in community development practices. This chapter is organized with timelines of the processes and values present in American urban planning, environmentalism, greenway trail development, and land use; Roanoke's urban development history; common practices of greenway trail development and greenway trails' roles in sustainability; challenges and successes in community development processes; and the Roanoke River Greenway's history in these contexts. After this literature review, I describe the theories I have chosen and how their perspectives fit together to direct the focus of my research.

### **Urban Planning, Environmentalism, Greenways, and Land Use Philosophy**

Leaders in the late nineteenth and early twentieth century established ideas and practices about how land should be developed and for whom it should be developed that are still influencing modern urban planning and development (Kuklick, 1980). Permanent physical structures and rigid public policy from that era combined to propagate neoliberal standards and

ideology which are so ubiquitous that they are difficult to identify, let alone change (See Figure 1). Importantly, there are counter movements that challenge those standards of practice which prevent them from having total control of land development. Some notable examples are the movements associated with land use ideology (See Figure 1), environmentalism (See Figure 2), and greenway trails (See Figure 3). Trends of the ideologies that shape those movements can be seen running alongside the trends in mainstream, established urban planning and land development policy. Together, these contextualize the existence of greenway trails in communities and reveal how the greenway trail manifests those ideologies in its form and function.

Though the popularity and prevalence of greenway community trails seems to be relatively new, the planning and development of greenway trails has a long and complicated history (See Figure 3). Approaches to and practices for implementation of greenway trails have led to current trends in greenway trail development. Ways in which a greenway trail interacts with its surrounding communities and the communities' perceptions of the greenway trail are inseparably connected to surrounding politics, power structure, ideology, and culture. I discuss these relationships between seemingly different movements and their relationship with my research community later in this chapter.

In the late nineteenth century, the Enlightenment Age and the Industrial Revolution were capturing the imagination and directing the ingenuity of urban planners. This is the time when the dichotomy of man versus nature was becoming imbedded, as science and technology seemed to tame the natural environment (Blok, 2017). Some took the growing capitalist fervor as a

Figure 1: Urban Land Development Timeline

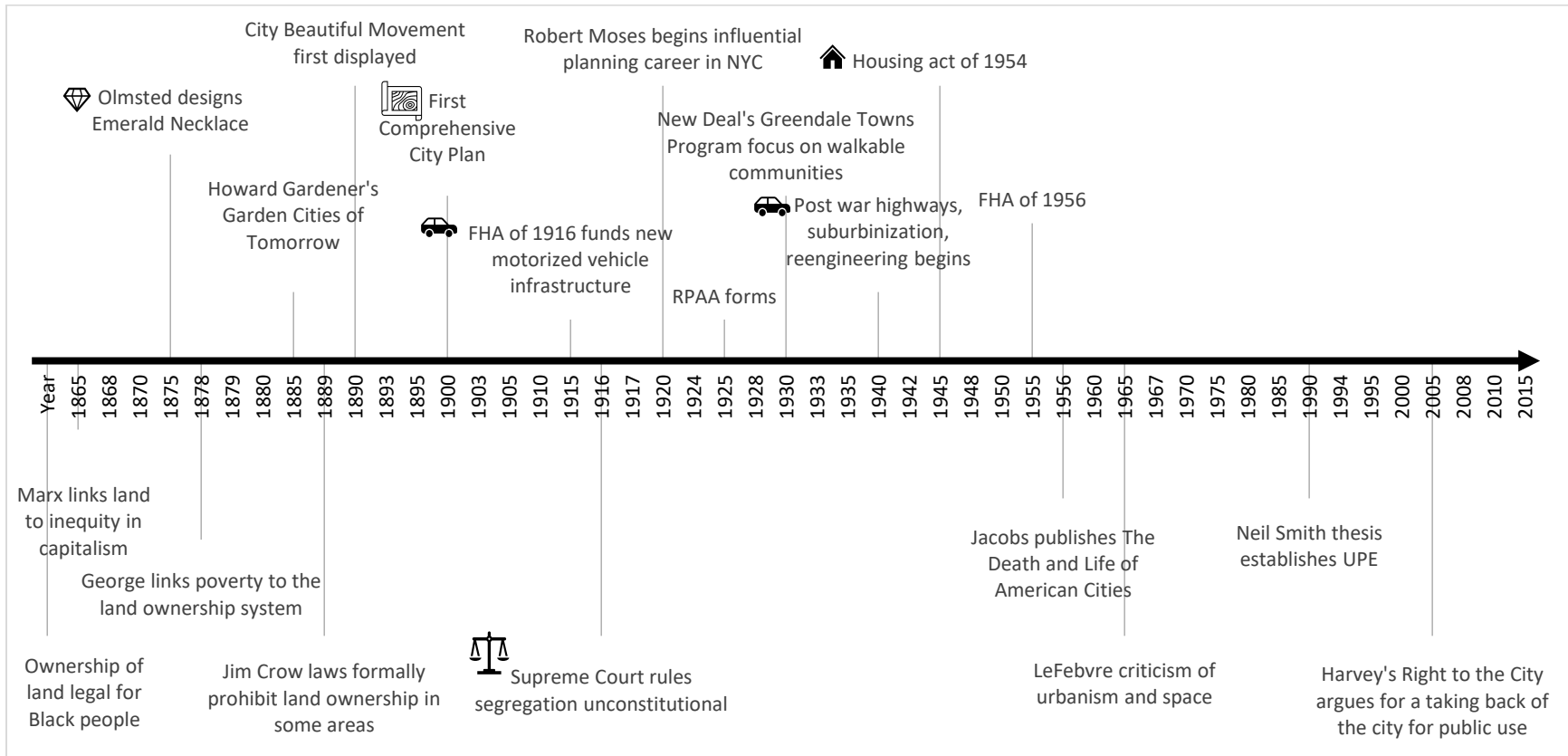




Figure 2: Environmentalism Timeline

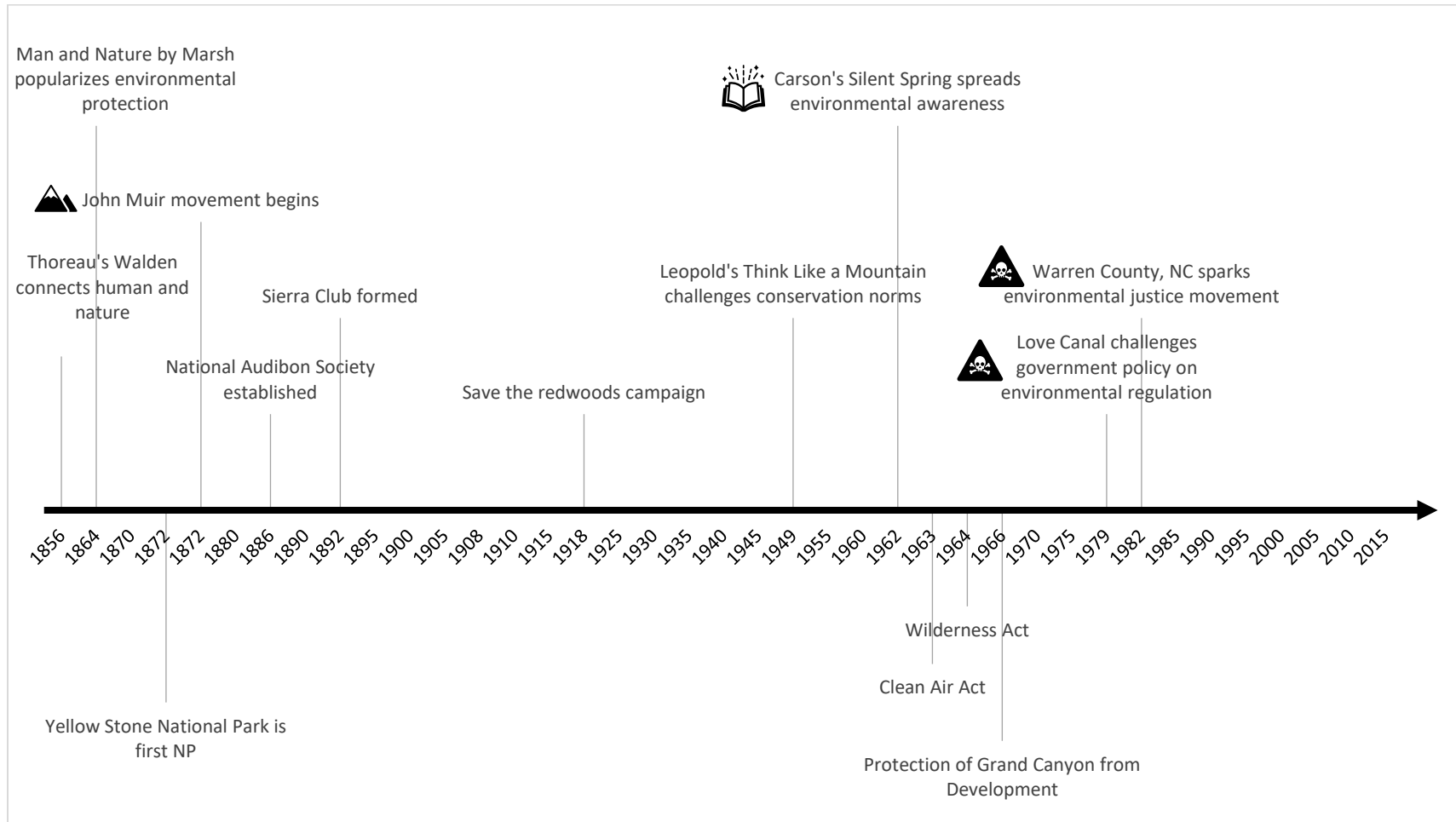
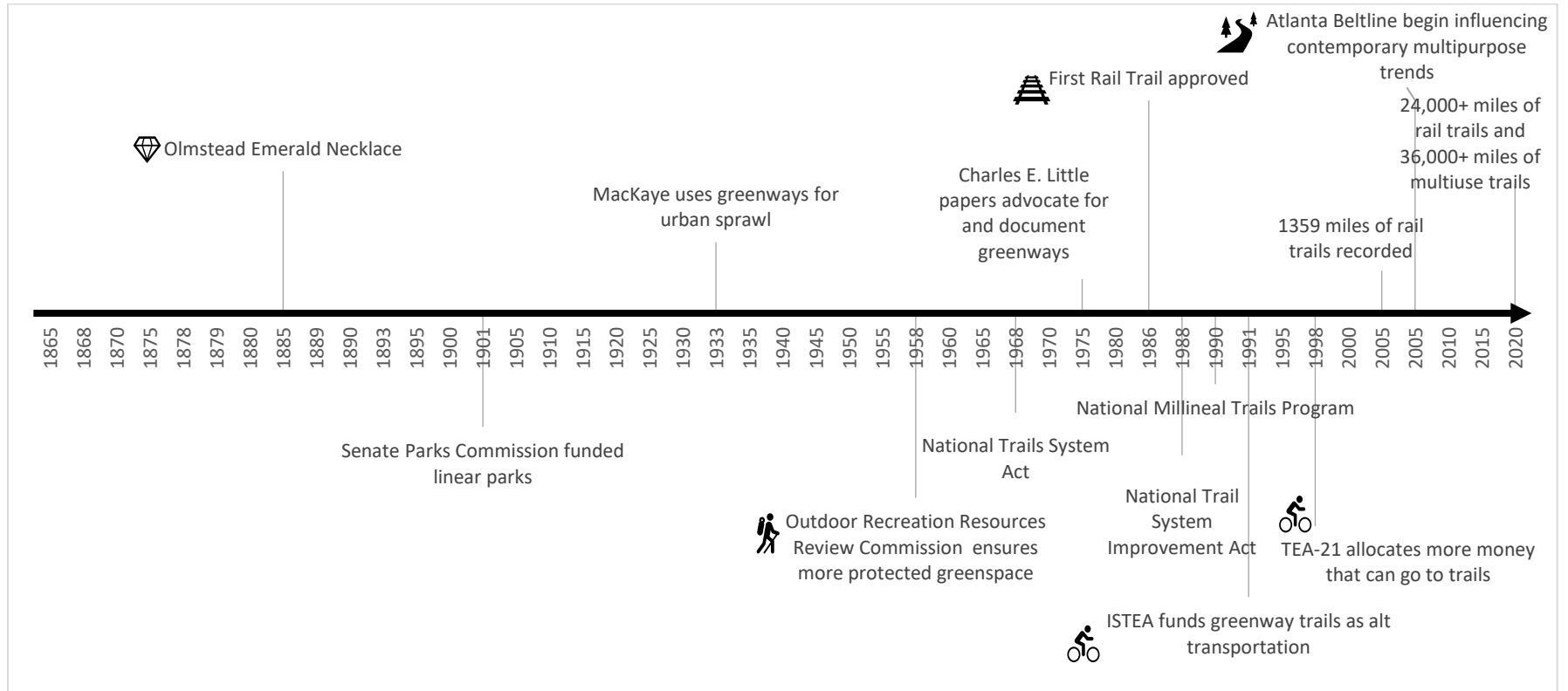


Figure 3: Greenway Trail Timeline



creative license to accumulate capital indiscriminately and the scientific fascination as a mandate to limit participation in knowledge production. A prominent French city planner, Georges-Eugène Haussmann, was notoriously adept at both, and he used them together to amplify their effects (Harvey, 2008). He invested capital in urban development and used the surplus to viciously take land from uneducated working class who had little power to stand against his well-backed, contemporary argument for progress through economic and urban growth (Harvey, 2008). As he, along with the state for which he worked, gained wealth, the working class lost more. They had less power to fight back and less freedom to pursue an education (Harvey, 2008). Thus, the cycle continued and built on itself. Others fought against these movements. Karl Marx and Henry George challenged the neoliberal capitalist logic and offered more social-forward thinking for economic systems (Harvey & Smith, 2006; Blok, 2017). Henry David Thoreau, George Marsh and John Muir challenged the man/nature dichotomy with their relationships to and valuing of land in their writing and lifestyles (Kitchall, 2012). In urban planning, these mindsets are tested with Ebenezer Howard's intricately socioecological planned garden cities and Olmsted's socially minded park systems (Howard, 1898; Martin, 2012; Spann, 1998). A conservation movement began to spread as the Audubon Society, Yellow Stone National Park, and the Sierra Club were all established, and the US Forest Service gained its first appointed director (Kitchall, 2012). These were predominately means of protecting nature from industrialized society. Meanwhile, John Dewey challenged Enlightenment thinking with a very democratic and change-oriented vision of education (Kuklick, 1980; Sandercock, 2003). These undercurrents led to changes in ideology about how land should and should not be developed and slightly increasingly, in who should have a say in their design.

During the early twentieth century, allocation of greenspace in urban areas and social-centric planning gained popularity. Early in the century, the senate designated funding for linear parks. The City Beautiful movement took off, pulling influence from Howard, Olmstead and their contemporaries (Spann, 1998). Planners worked to clear slums and plan for aesthetic appeal (Spann, 1998). The environmentalism movement gained steam as the Grand Canyon became a national park and the Save the Redwoods campaign was underway (Kitchall, 2012). These moves were gaining speed as World War 1 ended and Fordism took hold. The Federal Highway Act of 1916 funded the restructuring of cities and suburbs which allowed for a drastic restructuring of communities that followed the planning wisdom of the Chicago School (Kucklick, 1980). In the 1920's, Robert Moses began using his influence to restructure the United States as Haussmann had restructured France for capital accumulation (Harvey, 2008). His authority grew, and his methods and ideology spread throughout his time in powerful unelected planning positions during the next forty years. So, as many planners were focused on making the city beautiful, a powerful force was countering them with a focus on making the city profitable.

At this time, influential urban planners were meeting and debating what to do about the city (Spann, 1998). When the depression hit, they formed a group called the Regional Planning Association of America (RPAA) (Spann, 1998). They tackled city planning issues and schemed over ways to solve society's ails through urban design. Slum removal and repair were constant challenges, but, with the exception of Edith Elmer Wood, most planners were resigned to inaction in tackling them (Spann, 1998). This is when planners began to instill "socialist inclinations" into their planning practice (Sandercock, 2003, p.). In 1933, the New Deal sponsored Greendale towns where planners could try out their ideas in real time (Spann, 1998).

Ideals were tested, and planners' own classism and racism thwarted the social Edens they aimed to produce (Ahrentzen, 2008; Spann, 1998). Notable planner Benton MacKaye began using greenways as buffers for urban sprawl (Spann, 1998). He advocated for a linked Appalachian trail that would promote regional connectivity and an opportunity for people to form communities bound with nature outside of the industrial city (Spann, 1998). MacKaye's proposition was eventually altered and adopted as a way to facilitate recreation (Kitchall, 2012; Spann, 1998).

After the second world war, highways and suburbanization were re-engineering city scapes. The City Functional movement had taken hold, and with the Chicago Model, modernist planning was becoming more mainstream (Spann, 1998). The RPAA dissolved. Urban planners were trading their social idealism for functional idealism (Spann, 1998). Meanwhile, the government was building the economy with the help of new planning models that expedited suburbanization and further funded highways (Kucklick, 1980).

Housing Acts of 1945 and 1949 introduced new planning philosophy into law. The 1949 act did a couple of really influential things. First, it coined the term "urban renewal" and defined it as repurposing the city for a modern future (Fullilove, 2005; Park, 2018). At the time, it was synonymous with progress and protected discriminatory urban development practices with a sheen of legitimacy (Fullilove, 2005). Second, it gave financial resources to help those development practices along, adding a power behind modernist philosophy (Fullilove, 2005; Park, 2018). With this law, lower class and minority communities had little hope in the insurmountable fight to protect their homes. Subsidized highways and industrial development took the place of neighborhoods across the United States (Fullilove, 2005, 2012; Park, 2018; Smith, 1994).

The resulting social upheaval and burden of their environmental pollution fell on the shoulders of those without political power (Fullilove, 2005, 2012; Kitchall, 2012; Park, 2018; Smith, 1994). The fallacy of the neoliberal narrative that drove these community development efforts has later become apparent, as the promise of economic recuperation proves increasingly empty and the reality of environmental and social destruction incurs a growing price tag (Fullilove, 2005, 2012). Though neoliberal capitalism and positivist science proliferated from the 1930's through the late 1950's with relative ease, the damage they wrought was noticeably accumulating, and more people were speaking out against it.

In the mid twentieth century, Aldo Leopold and Rachel Carson hit the industrial landscape with a powerful one-two punch with their powerful environmentally minded and transformative books, *Think Like a Mountain* and *Silent Spring*, respectively (Kitchall, 2012). Carson's book especially hit a chord. Shortly thereafter, Jane Jacobs fearlessly challenged Moses and the harmful practices he used in clearing the slums for urban development. Then, the 1963 Clean Air Act and the 1964 Wilderness Act were passed (Kitchall, 2012). The moon landing and photos of the world from space offered a new perspective of the world and its atmosphere, and the environmentally fueled Earth Day was established with popular backing and activism to accompany it (Kitchall, 2012). The Federal government began accumulating strips of land to set aside for connected, undeveloped greenspace across the country (Zube, 1995). In this time period, the second wave of greenways was taking form: greenways for conservation and recreation, and citizens became for active in their advocacy for greenways (Hoover & Shannon, 1995; Searns, 1995). The Sierra Club began challenging federal development in National Parks, and they successfully defended the Grand Canyon from being dammed and developed (Kitchall,

2012). Meanwhile, scholars like Foucault, Marcuse, and LeFebvre were speaking out against Modernism and neoliberal capitalism (Sandercock, 2003).

These ideas were pulsing through society when the Love Canal environmental disaster hit in 1979. The case of toxic industrial waste that poisoned a community seemed to have sparked the next movement. The poisoning was denied by those in power, and when the community pooled resources to research and analyze their own community, government scientists dismissed their findings because of who had conducted the research- namely housewives (Kitchall, 2012). After the community fought the government for remediation and reconciliation, questions of who can produce knowledge, who should determine how land is used, and what authority and legitimacy should be afforded to capitalists were questioned in the environmental movement (Kitchall, 2012). In other contexts, Green Peace challenged industrial actors regularly and exposed environmental horrors of capitalist actors (Kitchall, 2012). Through the 1980's and 1990's, systems thinking became more prevalent, and the social justice and environmental justice movements burgeoned. Human-centered planning took the place of modernism as urban planning became more of an expertise than merely a talent or passion (Healey, 2011). Concepts of sustainable development and healthy cities gained followings and the ideas were developed into more concrete definitions and actions (Hopwood, Meller, & O'Brien, 2005). Greenways became a multi-functional infrastructure, specifically provided for in transportation funding through the Intermodal Surface Transportation Enhancement Act (ISTEA) and later the Transportation Equity Act for the Twenty-first Century (TEA-21) (Fletcher, 2014). The Rails to Trails organizations was a part of expanding greenways through the conversion of abandoned railroad tracks (Fletcher, 2014).

Now, the more holistic, systems perspective has connected these movements more tightly. Greenway trails are not only multi-use or multi-functional pieces of infrastructure, they may be a part of obtaining environmental justice, connecting to the land, or enhancing community experience and development. Climate change is an alarm that unites thinkers from different perspectives and incites the need for immediacy in efforts to change the status quo. Disparate histories and distinct priorities of the environmentalism, greenway, land use ideology, and urban planning movements make each unique and worthy of their own focus. However, looking at them together shows how cycles of neoliberal capitalist activity and counter social and environmental justice have collectively taken root across American society within the last two centuries. Currently, a resurgence of social and environmental ideology and activism is fueled as dangers of neoliberal capitalism become progressively more apparent and knowledges from these different sectors converge to work against it (Raworth, 2016).

## **2.2 Roanoke Urban Development and Greenway Trail Development**

Roanoke is a remarkable city in a few respects. It was one of the first six cities in the United States with a master plan (Harmon, 2018), its rapid development and economic growth led it to be nicknamed the Magic City in the late nineteenth century (Dotson, 2007; Harmon, 2018), and yet, despite its progressive take in those aspects of urban development, it languished in its approach to racial equity (See Figure 7). Stubbornly dedicated to ideas of segregation and racial purity, leadership in Roanoke took deliberate and pointed steps towards codifying racism and physically building racial divides into the structure of the city (Fullilove, 2005; Harmon, 2018). An underlying ethos in planning for Roanoke was described by one historian as “blind adherence to a creed that put economic development above all other concerns” (Dotson, 2007). Segregation was a mechanism used to enforce that ethos. Physical, political, and social remnants



from periods of both rapid economic growth and active racial discrimination persist and continue to influence the Roanoke community (Fullilove, 2005; Harmon, 2018).

During the late 1800's, Roanoke was rocketing into prominence as the Norfolk Western Railroad entered the community to set up headquarters (Dotson, 2007; Harmon, 2019, Poff, 2014). Merchants and community leaders had enticed the railroads to Roanoke by waiving taxes, and in doing so, created an underfunded and unprepared government that did not handle the stresses of drastic population growth well (Dotson, 2007).

Workers, executives, and their families flooded into Roanoke and its suburbs (Dotson, 2007; Harmon, 2019; Poff, 2014). In the process, a rapid demographic change ensued (Dotson, 2007). Black people made up very nearly half of the population before the railroad entered, but a year afterwards, they made up only about a quarter of it (Dotson, 2007). Meanwhile, class divisions, especially those between races, were widening. Some white landowners were paid astronomical values for their farmland while Black skilled workers' jobs on that farmland subsequently disappeared (Dotson, 2007).

Streets became worn and eroded and crime and illness became prevalent (Dotson, 2007). Problems with cleanliness of rivers and streams plagued sections of downtown Roanoke, and in keeping with the pervasive practice and ideology of the times, the city covered the streams and developed over them (Aguilar, Dymond, & Cooper, 2019; Dotson, 2007). This was one example of how the idea of using science to overcome nature was put into practice. Also, in this example, dynamics of Roanoke's class divisions are apparent. There was a debate and deliberate decision not to improve water quality by investing in a public infrastructure sewer system that would improve the town's cleanliness, health, and aesthetics (Dotson, 2007). Instead, those with power who were making money from the boomtown set up decided to put the burden of waste disposal

on residents, especially those of the working class. The blame was put on those same residents when the environment degraded (Dotson, 2007). Without clear thought, this type of quick-fix strategy, along with other urban development practices associated with boomtowns, became Roanoke's default modus operandi (Dotson, 2007). Through repeated habit of planning for immediate financial gratification, the Roanoker ethos became that of doing anything for a buck.

This mentality drove white locals to develop and sell land at discounted prices to attract outsiders, without an eye for community or urban planning (Dotson, 2007). Notably, one of these Roanoke-native land owners was Peyton Leftwich Terry, who worked to attract businesses and the railroad into the area. One of his many esteemed positions in the community was president of the Roanoke Development Company, which he used to bring in businesses and then buy stock in them (Dotson, 2007; Roanoke Iron Company, 1891). He actively worked to bring in railroads and iron companies, among others in the late 1800's. Among these was the current location for the Walker Machine and Foundry Company which is located just beyond the edge of Mountain View in the Norwich neighborhood.

Class divided neighborhoods, and race was a secondary factor in the layout of the city. Working class communities lived near the railroad, and wealthy, upper class residents lived near the city center (Harmon, 2019). A separate community was specifically designated for Black people on the edge of town, and it contained row housing built by the railroad company (Dotson, 2007). In 1883, a large property called the Ferdinand Rorer Farm was subdivided into what are now Mountain View housing lots, and these large residences housed many of the railroad executives (Dotson, 2007). At the time, it was called the West End development. The city seemed to be sorting itself out into class divisions with race as a marker of those divisions.

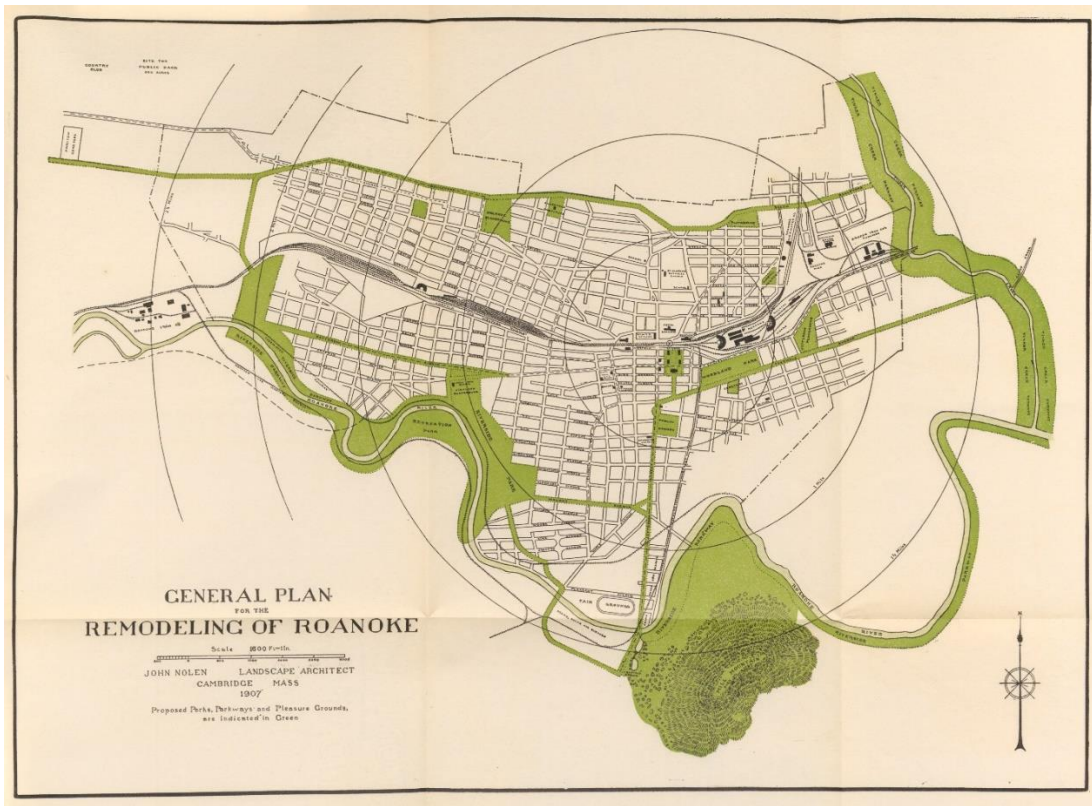
However, as some Black communities grew and flourished, more deliberate actions were made to ensure social order stayed constant.

Cases of Black residents in Roanoke whose murders were tied to racism rocked the Black community. In one case, Roanoke made national news when what is referred to as the Roanoke Riot occurred in 1893 (Dotson, 2007; Harmon, 2018; Wells, 1893). Thomas Smith, a Black resident, was accused falsely of stealing something from a white woman. Rumors escalated and a lynch mob viciously killed Smith along with his guards before his awaiting trial (Dotson, 2007; Wells, 1893). The mob hung his body on a prominent street corner in what is now downtown Roanoke (coincidentally, adjacent to the Mill Mountain Greenway), callously desecrated it for days, and then took it to the edge of the Roanoke River where they burned it (Dotson, 2007). These places, haunted by the emotions that fueled and resulted from the Riot, are part of the unseen foundation upon which Roanoke planners began shaping their city.

The high racial tensions resulted in some tragic policies. White leaders rewrote the Virginia state constitution to exclude black land ownership, and Roanoke's government took action shortly after to make the most of the law (Harmon, 2018). Slums formed and were looked down on and ignored by much of the leadership, but women in the city looked at these as a sign that Roanoke needed better planning. They formed group called the Women's Civic Betterment Club (WCBC) which advocated and fundraised for a prominent city planner to design development plans for Roanoke (Fullilove, 2005; Harmon, 2018).

The landscape architect, John Nolen, wrote an assessment in 1907 that included as a flaw in Roanoke's design, a lack of greenspace. He said that in Roanoke, "there (had) been no realization yet of the great possibility of city-making...of the necessity for the public to own and preserve its most convenient and most beautiful resources in valley, field, and mountain" (Nolan

& Book Traces Project, 1908). Nolen's Comprehensive Plan included parkways along river and more parks in general. These, he said should be planned for and prioritized to protect against the inclinations of industry. He was very clear that quality of life must be planned for and protected, quoting long passages of Olmstead while making the case for his proposed changes. An entire chapter of the 1907 plan detailed plans for parks and open greenspace. In this section, he effectively pleads for city officials to designate and protect land for greenspace and criticizes their decision to allow railroads to run through some of the most valuable aesthetic property in the city (Nolan & Book Traces Project, 1908). Among a long list of suggestions, he mentioned 30 acres along 12<sup>th</sup> street, an area that was to be a large parcel to be bought affordably and preserved for parks (Nolan & Book Traces Project, 1908). Figure 4 shows his vision for Roanoke, with parks connected by green parkway throughout the city.



**Figure 4:** Nolen's 1907 plan for Roanoke (Nolen & Book Traces Project, 1908)

He concluded with an argument that stressed the importance of this greenspace for the relevance of the city. Nolen said, “The town has indeed grown as if by magic. Inevitably it lacks the interest and character that comes with age. But because of the rich gifts of nature it may possess a system of parks and pleasure grounds that will raise it permanently and securely beyond most cities of its class” (Nolen & Book Traces Project, 1908, p. ).

With a progressive new vision for the city that they had instigated, the WCBC seemed more determined than ever to put their stamp on the city. They put on a 1907 Fall Festival to raise money to implement the plan (Hamilton, 1967). Though the festival was put on to help lead Roanoke into the future, it was mired in traditions and discrimination of the past. Only white people were welcomed as guests, though Black men drove carriages and served festival guests (Harmon, 2018). This restrictive mindset backfired on the women of the city, as male leaders were also planted in discriminatory patterns of the past. When the WCBC used the three thousand dollars raised at their festival to print and distribute Nolen’s plan, city officials effectively dismissed the plan. One document said that the only official action taken by the city was “accepting’ the plan with ‘thanks’ and ‘referring’ it to the attention of ‘several departments of the city’” (Hamilton, 1967). It has been noted that some of the principles of beautification, such as communal design of houses and streets, may have been considered in Roanoke’s city design during this period (Fullilove, 2005).

Though much, if not all, of Nolen’s plan was set aside, WCBC leader Sarah Cocke was becoming more active and emboldened. She spoke to women about how to use their position in a marriage to influence desired change in the city and continued to advocate for public health in the community (Harmon, 2018). Notably, she saw public health including segregation, and she

was the leading voice in speaking out against Virginia women's clubs when they supported desegregation (Harmon, 2018).

In 1911, Virginia State Senate passed a segregation law, and Roanoke Common council promptly passed a segregation ordinance of their own in response. Roanoke officials designated a Special Committee of Segregation, and that committee created a city map with marked segregation lines. In these sections, the West End was on the border of white and Black areas of town. As efforts were made to criminalize Black home ownership in desirable areas of Roanoke, grassroots leaders stepped up to confront and challenge those drawn segregation lines (Harmon, 2018). Through legal means, NAACP leaders help African Americans in segregation battles by buying properties on borderline segregated streets, which would protect against white encroachment on their tight-knit communities (Harmon, 2018). The progress they made in this effort was significant, but unfortunately short-lived.

In the early 1920's white city leaders devised a City Planning Commission, which was officially formed in 1926 (Hamilton, 1967; Harmon, 2018). Nolen was invited back to revise his city plan to fit Roanoke's development from the last twenty years which had ignored his original recommendations (Comey, 1929; Hamilton, 1967; Harmon, 2018). This new plan also included greenspace, though it was much more limited than in the original plan. Some of this greenspace came in the form of parkways along the river (Greenways, 2018). Comparing the map in Figure 4 to that in Figure 5, these significant modifications can be seen.

In keeping with the times, Nolen's perspective in city planning had evolved from activism in city planning to more functional perspective. His evolution as a city planner seemed to reflect the oppressive nature of capital development that stifled the RPAA. Harmon reflects on the difference between the 1907 and 1928 plans, "While his earlier plan appeared impractical

and focused on aesthetics, Nolen's new plan focused on practical matters. Through emphasizing utilitarian solutions, Nolen appealed to Progressives' desire for scientific expertise accompanied by a white male desire for commercial and industrial development. This specific, scientific, and practical study showed male city leaders that urban planning could make Roanoke a more efficient and profitable city" (Harmon, 2018, p.81).

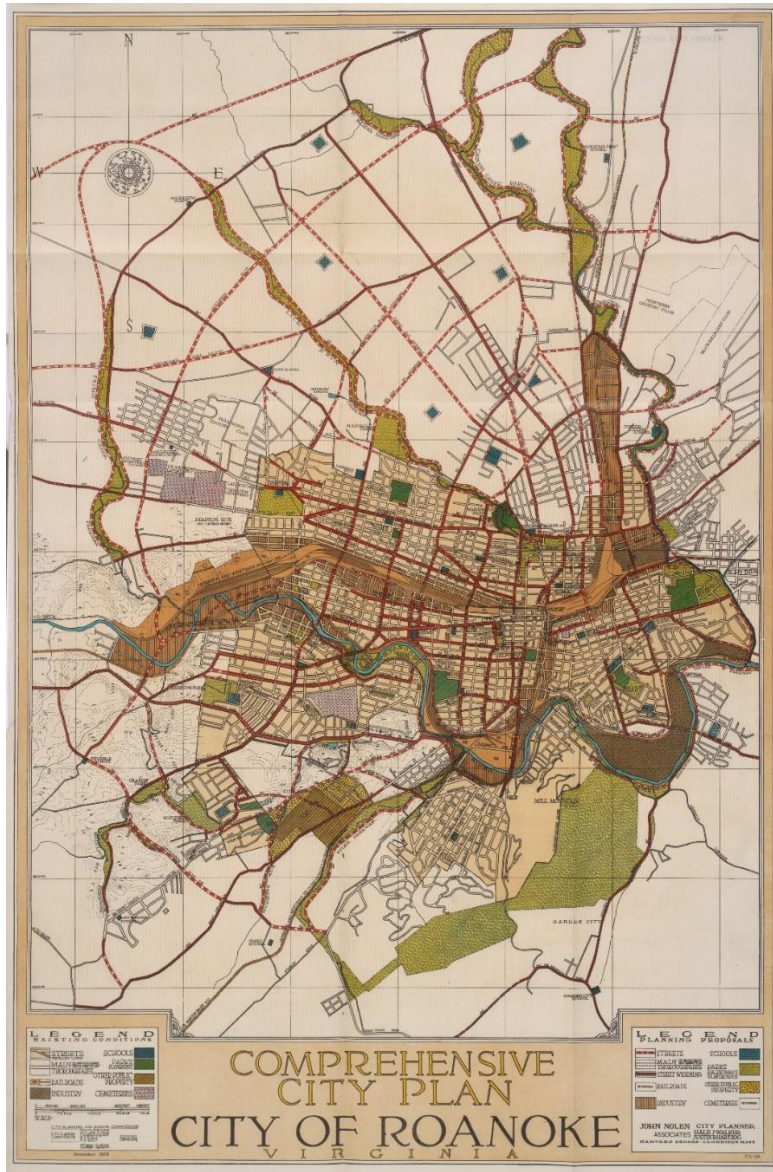


Figure 5: Revised plans show change of greenspace in response to city development. John Nolen Papers (1928). #2903. Division of Rare and Manuscript Collections, Cornell University Library

Other changes in the social climate were also apparent in the new Roanoke plans. Nolen had planned for equitable communities in 1907 by not drawing racially divided neighborhoods and by emphasizing the dire need for improvement to Black neighborhoods and working communities (Harmon, 2018). In 1926, he seemed to give up this fight and draw his plans around established segregated areas (Harmon, 2018). In the second plan, a zoning map included designated Black neighborhoods which were situated in areas which contained a noticeable lack of greenspace (Harmon, 2018).

One of many businesses that was established in the 1920's was Walker Machine and Foundry, which was purchased for \$14,000 (Williams, 1920). This company, built on land purchased from Terry's Roanoke Development Company, was ushered into Roanoke at a discounted price while many similar sized foundries in other cities cost at least twice as much or were reporting losses (Williams, 1920). This business would represent the early ethos of Roanoke. Over the course of their next thirty years, they disputed laborer's right to unions, discriminated against employees, and polluted the surrounding areas, most directly the air quality, with lenient regulations (Chittum, 2015; National Labor Relations Board, 1944, 1979).

The next twenty-five years would bring two redevelopment projects that stayed in line with two themes of Roanoke development that had so far been established: prioritization of commerce over quality of life and discrimination against Black and low economic class communities. In response to the federal Housing Act of 1949, Roanoke instigated their own vision of progress. The Commonwealth urban renewal project of 1955 officially targeted Northeast Roanoke neighborhoods. The narrative given by white city officials was that the neighborhood was blighted and that the neighborhood would be torn down in order to be rebuilt for the community residents, who would get their neighborhood back in the end (Fullilove, 2005;



Park, 2018). What ended up happening was that city development projects went in the space allegedly intended for the neighborhood (Fullilove, 2005). These projects included a major highway, civic center auditorium and coliseum, and a parking lot, and when those structures went in, planners traded the neighborhood project for a public housing project (Fullilove, 2005). Residents of the neighborhood in question disputed their designation as a slum and had evidence to support their claim (Fullilove, 2005).

Two more redevelopment projects followed. The Kimball project in 1966 and the Gainsborough project in 1968 both also targeted Black communities. In the process of redlining neighborhoods, they broke apart social networks, destructed tree-lined streets, and made way for barren, industrial land (Fullilove, 2005; Park, 2018). Homes were bulldozed and purposefully burned to the ground, destroying all social, cultural, and environmental remnants of community. During this time, desegregation of the city was slowly ongoing (Poff, 2016). Progressive white people in Roanoke viewed the series of redevelopment projects as a positive thing that was helping Black people, interpreting it as part of desegregation (Park, 2018). The city formed a biracial group of twelve Roanoke men to convene and decide how issues like Black neighborhood improvements, desegregation of downtown businesses, and desegregation of schools would be resolved (Poff, 2016). Incidentally, the West End School was one of two to accept nine Black students in 1960; the next Black students would not be admitted for another eleven years (Poff, 2016). This may be one reason why the West End became an area with a higher population of low income and minority people. Many wealthy white people moved away from the area at this time, making room for more affordable housing in a low-demand area.

While those planning projects took their effect on the city, a few environmental issues began to crop up. A series of flood events in 1970's and 1980's, culminating in the catastrophic

flood of 1985, endangered homes and businesses in Roanoke (Shabman & Stephenson, 1992).

The streams which had been covered a hundred years earlier played a role in the problem (Aguilar, Dymond, & Cooper, 2019). Brownfields from polluted industrial sites became increasingly noticeable, and planners began to work them into initiatives (City of Roanoke, 2008a, 2008b).

During the 1990's the idea for the RRG emerged as one solution to alleviate the increasing environmental problems. Instigated by a group of motivated citizens, the greenways began as a means to achieving an enhancement of quality of life and beautification for downtown areas. The greenway trails were advocated for and fundraised privately, until the city of Roanoke, recognizing their value and potential, took over their management and development. They hired a greenway coordinator and later established a commission of municipalities linking into the system.

The coordinator, Liz Belcher, took an innovative approach to her administrative role, making a point to form relationships with officials across departmental domains and with residents surrounding the greenway. She valued the role of collaboration and grass roots community participation and questioned traditional means of land management that assumed rights to land (Belcher & Wellman, 1991). She questioned park officials' assumption that efficiency and economy were highest priorities in park management, arguing that "As (park officials) face a future filled with ecological interdependence and intergovernmental cooperation, what they need is Jeffersonian participation, Hamiltonian energy, and Madisonian political savvy. This implies a focus not only on the content of resource management but also on the process" (Belcher & Wellman, 1991). She further recommended grassroots democracy in

planning linear parks, taking the position that local citizens have valuable perspectives and knowledge that help educate park officials (Belcher & Wellman, 1991).

Greenway leadership established networks of communication and collaboration with different Roanoke city and county departments and organizations. One of these organizations was a private funding and volunteer group called the Pathfinders. It has consistently played two important roles in the greenway. These are volunteering to build unpaved trails that connect to the RRG that are a part of the expansive greenway trail network and fundraising for greenway projects.

With all of these working pieces, the greenway worked its way into numerous city plans and began a relatively rapid development in the late 1990's and early 2000's. Some master plans that meaningfully incorporated the greenway and supported it include the Parks and Recreation Master Plans, The Flood control Plan, The Roanoke Valley Alleghany River Council (RVARC) Master and Financial Plans, the Mountain View-Norwich Plans, and City-Wide Brownfield Redevelopment Plan (Greenways, 2018). The brownfield plans prioritized a region called the South Jefferson Redevelopment Area (SJRA), which Mountain View is a part of, because of its prioritization in economic development (City of Roanoke, 2008b). A 2008 brownfield redevelopment planning document described the SJRA in the context of its position in floodplain and the proximity of the Mountain View neighborhoods to mostly "abandoned and underused industrial properties" (City of Roanoke, 2008a, b). In these documents, authors concluded that the area is well contained with natural buffers, like terrain and vegetation (City of Roanoke, 2008a, b). These referenced properties, which are in Mountain View Neighborhood territory, are visible from across the Roanoke River on the section of greenway trail that starts at Bridge Street and ends just before Memorial Bridge. The Brownfield Plan considered utilizing that area as a

park and screening any remaining industrial uses from view to enhance residential areas (City of Roanoke, 2008a, b). The RRG was also a part of major strategic planning in neighboring municipalities and in the region (Greenway, 2018).

In 2010, the RRG crossed the Roanoke River from the Wasena neighborhood into the newly formed Vic Thomas Park. Vic Thomas Park was named for Roanoke's revered, late democratic state delegate who was known to be a leader of conservation efforts (Washington Times, 2006). The park was, according to official Roanoke planning documents, a part of the Mountain View neighborhood. There is a sign at the entry to Vic Thomas Park from Wasena Park welcoming trail users to Mountain View Neighborhood. Incidentally, the neighborhood association would not include the land as part of its official boundaries until January of 2020. While greenway officials touted the park's key role in connecting the greenway to Salem, discussion in the community recognized the potential for surrounding Mountain View neighborhood (Editorial, 2011; Henshaw, 2010).

Vic Thomas Park is named after a state senator renowned in the community for his environmental advocacy. The park also features a rain garden, protected natural area, circuit workout equipment, and an art sculpture garden with work from local artists and a tribute to Ann Masters, a leader in conservation in Roanoke (Correction, 2012). It is accessible from Mountain View with a drive and small parking lot. Black Dog Salvage, a Mountain View based business, borders the park.

After passing through Vic Thomas Park, the greenway crosses over Memorial Bridge to the other side of the River into Grandin Village, goes under the bridge, and then travels alongside the river bordered on one side by a neighborhood called Norwich and on the other side by Mountain View. Most of the parts of these neighborhoods that are visible from the trail are

industrial sites, and fences obscure view from much of the warehouses and activity on those sites. An active railroad line crosses between the greenway and Mountain View side, and there are no marked entrances or exits from the greenway until Bridge Street, where there is a parking lot. Since its inception, it has been accepted as an asset that helps to “revitalize” the Mountain View community and attract visitors to local businesses (Chittum, 2014; City of Roanoke, 2008; Haupt, 2018).

Though it has not always been publicized, the route of the greenway trail from Wasena to Salem has been contested at several points in its development process. This may have been predictable based on their history of land rights disputes. Many of these ideological battles, since the 1980’s, have been in relation to development along the Blue Ridge Parkway and the Roanoke River, debating the value of environmental integrity and environmental tourism versus economic development (Adams, 2019; Fordney, 1994). Today, this is most noticeable in the section of the RRG that is disconnected between Bridge Street, which is the end of the RRG in Roanoke city limits, and Salem’s easternmost section of the RRG, which is nearly one mile away. The connecting section of greenway has been held up since 2015, when Walker Machine and Foundry refused right of way to the city for the greenway, challenged an adjacent property’s right to grant easement for an alternative route, filed suit against the city, and went out of business (Chittum, 2019; WSL 10, 2018). In the meantime, City Council approved the use of eminent domain, if necessary, after citizens urged them to do so at a public hearing (Chittum, 2017). This measure has not been taken.

Roanoke is still plagued with disparate distribution of resources that is remarkable in comparison to surrounding communities (Parece, Serrano, & Campbell, 2017). One of these inequities has to do with healthy living environments, and Mountain View seems to be a

community at risk because of this disparity. Figure 6 shows a risk assessment of the Mountain View neighborhood from the Environmental Protection Agency's Environmental Justice (EJ) Screen website. In this map, it shows that Mountain View is in the seventy to eighty percentile for cancer risk from inhalation of toxins, and that several brownfields exist within the small community boundaries (EPA, 2020). In comparison, wealthier neighborhoods to the south and east of Mountain View fall into the fifty to sixty percentile range or the less than fifty percent range and have no documented brownfields. Neighboring low-income neighborhoods have higher or similar cancer risk.

Though the greenway trails have not been one of the documented urban renewal projects, displacement is taking place because of it. As the trail meanders through the city, it brings gentrification along with it. In areas praised by the city as an example of success, businesses are going in and housing costs are rising. In planning for trails, homes are bought at appraisal value from those who will sell, and there is no plan for replacement housing in the area.

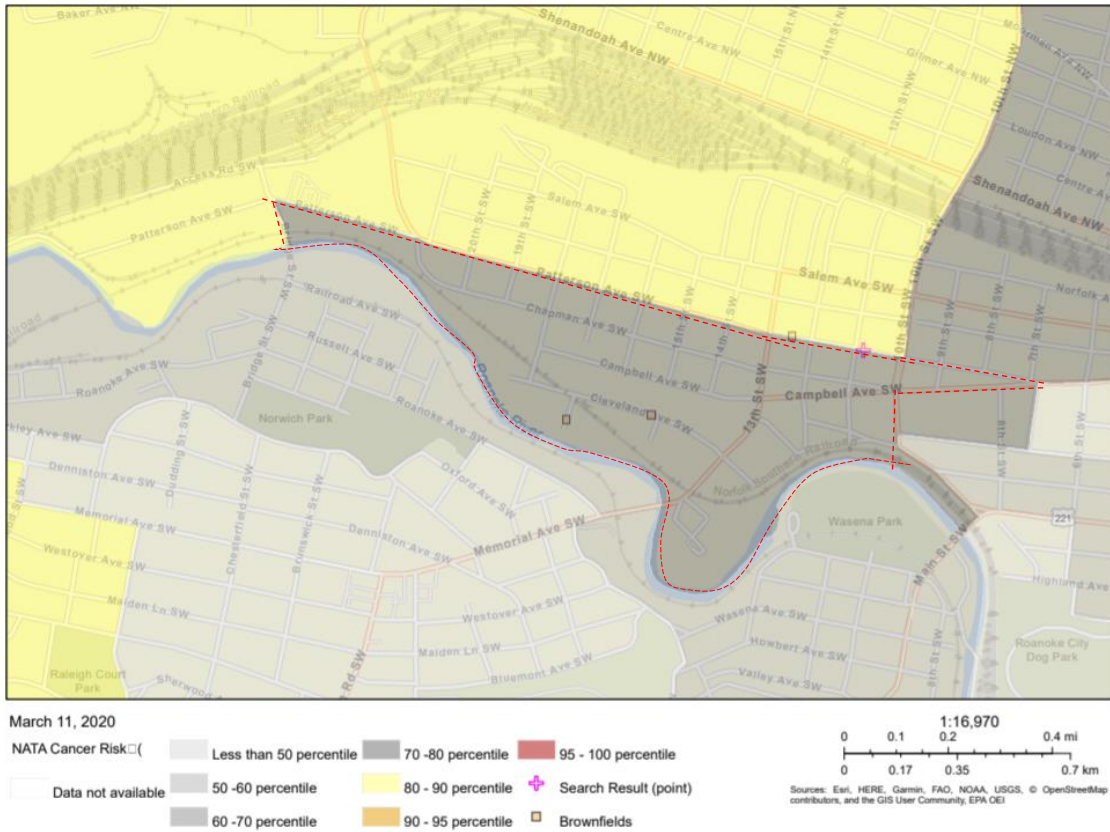
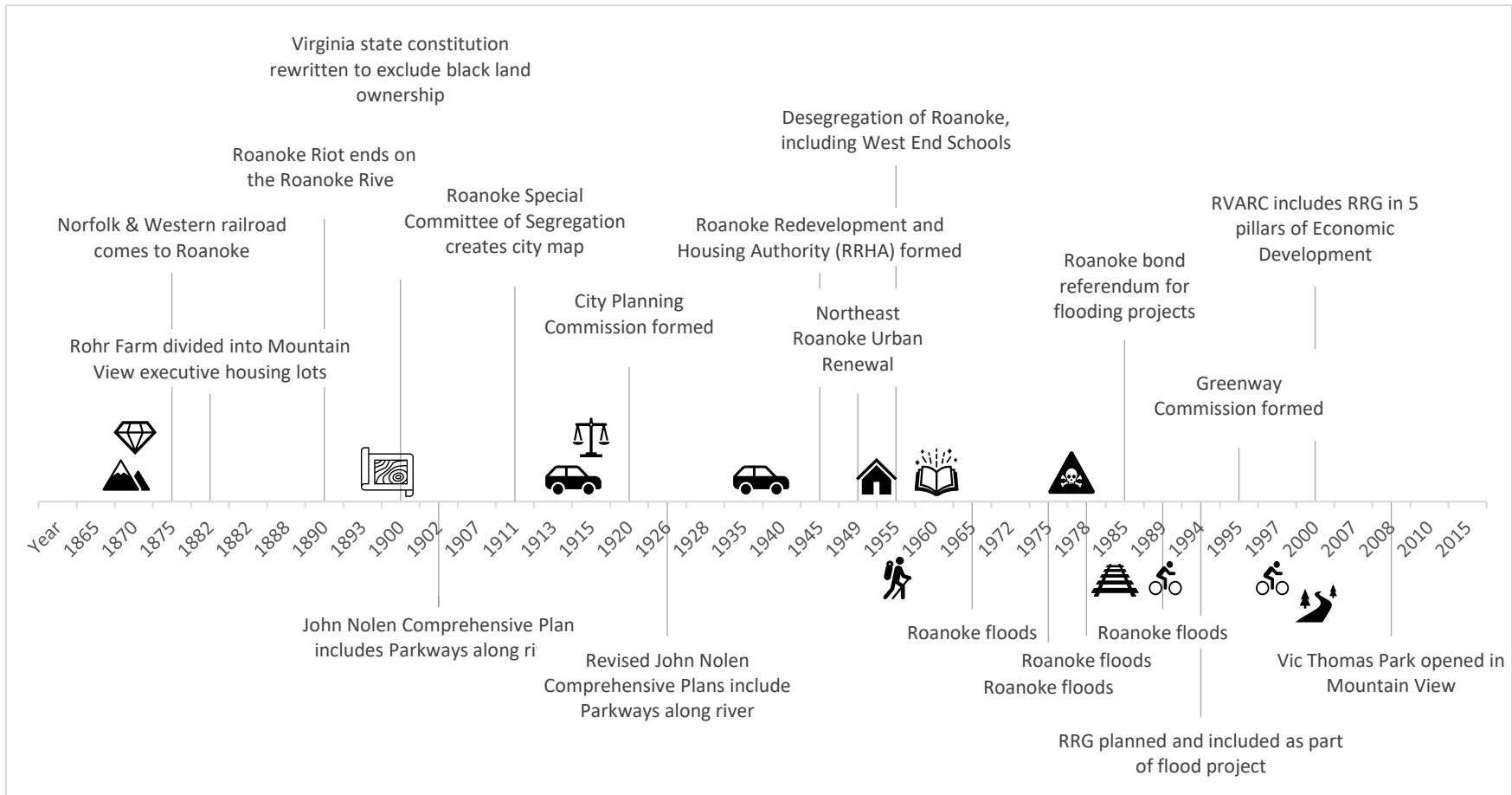


Figure 6: Mountain View EJ Screen Cancer Risk and Brownfields. Red outlined area was drawn by researcher and indicates Mountain View neighborhood boundaries.

In response to some of these practices in the past, the city of Roanoke is currently working on a new 20-year plan that has a main focus of equity (City of Roanoke, 2019). Details of this plan have not yet been finalized nor made public. However, in distribution material presented to the Mountain View Neighborhood Association in November of 2019, equity was addressed in terms of access. There is no direct mention of the greenway as contributing to the plan. The RRG may contribute to equity goals, along with others, either positively or negatively.

Figure 7: Roanoke Timeline in context of broader movements





## **Common Practices of Greenway Trail Development**

Global and local trends and events leading up to the greenway trail movement have shaped the way that greenway trails take shape in communities across the world. Trail users, advocates, and funders look at greenways from a lens that draws from their origins. Greenway trails started out as a conduit for nature preservation and connection to nature (Jongman & Pungetti, 2004). Then, they began to be designed to fit recreational needs (Flink, Olka, & Searns, 2003). As more people and communities were exposed to and familiar with greenway trails, they began to see more diverse functions for the trails as a form of infrastructure. Today, people see greenway trails as infrastructure that supports stormwater drainage, air quality, soil quality, biodiversity, public health, recreation, community building, economic development, and alternative transportation. This is in addition to holding on to their original identity as a means for people to connect to nature and to provide wildlife habitats and paths for their migration. While trails may appear to simultaneously meet all of these community needs, there are specific methods and design features that complement each aim, and these are not necessarily present in every greenway trail. It is also not uncommon that one or more of these aims may conflict with others (Lovely et al).

Different design features on greenway trails or in the processes that oversee their development support different goals that stakeholders may have for their greenway trail. Urban greenway trails may take on vastly different characteristics depending on the planning intentions that direct their design (Ahern, 2004). Which stakeholders have power in the planning process shapes which goals will be pursued and embedded in the greenway process and form. Table 1 summarizes how different physical greenway design features can work toward specific goals. Table 2 summarizes how design features of the greenway process can work toward those goals.

Design features may include physical aspects of the greenway, such as the geographic location of its trail, the topography and terrain of its land, type of surface, the width of the trail, or its flora and fauna. These might also be amenity-like features like benches, trash cans, signs, or restrooms. It may also include how the greenway interacts and intersects with surrounding communities, parks, and transportation systems. All of these, whether intentionally designed or not, communicate something about who the trail is meant for and help to determine what purpose it will serve in a community.

The process, or system, of how the greenway is developed and maintained is also a part of the design that will help to determine how the greenway is used and what purpose it will serve (Ahern, 2004; Roy, 2015). Cooperation between stakeholders and municipalities is an especially defining feature in this multi-purpose, multi-jurisdictional piece of infrastructure (Curran & Hamilton, 2018; Fullilove, 2013; Kowarick, 2019; Rigalon & Nemeth, 2018). So, how power is delegated among stakeholders, who is included in the planning process, and how goals are prioritized and evaluated are all features of the design of the process that may work toward a variety of goals.

Specifically, for example, features that may work towards environmental goals include designing wildlife habitat corridors to promote biodiversity, using natural vegetation and porous pavement to enhance stormwater drainage, and ensuring canopy cover to reduce heating effects and preserve river temperatures (Ahern, 2004; Kowarick, 2019; Mason et al., 2007). This type of greenway development may be led by forestry or conservation departments with the cooperation of nonprofit environmental organizations. Characteristics of a greenway designed for social benefits may include plans for affordable housing, access points that connect to neighborhoods and destinations, welcoming landscape and community gathering spaces (Deyo et al., 2014;

Kowarick, 2019; Lindsey et al., 2008; Rigalon & Nemeth, 2019; Rupprecht & Byrne, 2018).

Economic goals are traditionally met by enhancing commercial and residential development that is connected to the trail, connecting the greenway to tourism, marketing, and designing the greenway for walkable communities that will attract a younger demographic of residents and workforce (Ahrentzen, 2008; Liu et al., 2019; Pivo & Fisher, 2011; Stitch & Miller, 2012).

As shown in Tables 1 and 2, many greenway features could work towards different goals, depending on how they are designed. Because of this overlap, there is opportunity for cooperation among stakeholders that are working toward different goals. Looking, for instance, at the design feature of natural, native vegetation, it works toward biodiversity, stormwater management, pleasant aesthetics and mental health of people (Abraham, Sommerhalder, & Abel, 2010; Akpınar, 2016b; Kowarick, 2019; Mason et al., 2007). Those specific goals are linked to conservation, urban forestry, parks and recreation, and public health stakeholders. Understanding those kinds of linkages can help in two notable ways. First, stakeholders can find others to advocate and fundraise with them for certain features for a greenway and its process. Second, with cooperation, stakeholders can work together to create an amenity that is specified for multiple purposes. In other words, rather than have a feature that is developed for one purpose and partially works to fulfill other goals, the feature can be optimally designed to work efficiently for multiple goals at once. Use of Table 1 and Table 2 together can act as a map for stakeholders to find partners that may work with them in fundraising, volunteering, and designing certain aspects or amenities of the trail.

Examining how process and design features work together towards specific goals is one facet of understanding greenways. Another is recognizing characteristics of greenways that are more standard from place to place. Some of these are central governance, land acquisition,

sources of funding, opportunity for placement, what broadly characterizes a sustainable greenway, and evaluation (Ahern, 2004; Bryant, 2006; Erickson, 2004; Eyler et al., 2008; Flink, Olka, & Searns. 2003). Public support is another important factor which often accompanies land acquisition and right of way agreements (Flink, Olka, & Searns. 2003).

Those in charge of the greenway development and design may be city departments or private or nonprofit organizations. Departments that are commonly at the helm are parks and recreation, transportation, and engineering (Erickson, 2004; Eyler et al., 2008). The department in charge may be indicative of what the intent is for the park, and it influences the scope of greenway design. Organizations are sometimes created and put in charge of greenway operations for practical funding purposes (Erickson, 2004; Flink, Olka, & Searns, 2003; Rigalon & Nemeth, 2013). However, these organizations are typically economic development nonprofits, and do not have the capacity to address multifaceted needs and uses for the trail (Rigalon & Nemeth, 2013).

Funding for greenway trails is largely connected to federal transportation grants. Greenway trails qualify as a form of alternative transportation, and they were specifically included in funding allocated for transportation improvement in ISTEA (Eyler et al., 2008; Fletcher, 2001). Other sources of funding include state agencies, local municipalities, private funding, and grants related to economic development, parks and greenspace, public health, and community building (Erickson, 2004; Eyler et al., 2008). Private funding is characterized by ‘friends of’ groups who are comprised of local residents and businesses (Eyler et al., 2008). Together, these funding sources must cover new trail design and construction as well as maintenance of existing greenway. Commonly, these funding sources are impermanent and vulnerable, because leaders view the trails as inessential (Eyler et al., 2008).

**Table 1: Intersection of Greenway Goals and Physical Greenway Features**

Goal/Intent for Greenway	Greenway Feature or Quality	Sources
Anti-Gentrification	Informal greenspace, spontaneous vegetation Local aesthetics and preferences	Rupprecht & Byrne, 2018 Pearsall, 2018; Rothenberg & Lang, 2017
Transportation	Connection with other greenspaces Connection to destinations  Bicycle facilities at destinations Connection to neighborhoods Traffic safety Bikeshare program and infrastructure	Kowarick, 2019 Flink et al., 2003; Krizek et al., 2007; Krizek & Johnson, 2006; Pikora et al., 2003; Pivo & Fisher, 2011; Shafer et al., 2000 Hanson & Young, 2008 Pivo & Fisher, 2011; Shafer et al., 2000 Pikora et al., 2003 Bhattacharya et al., 2019; Miller & Coutts, 2018
History & Cultural Heritage	Decentralized memorial landscape Historical education and artifacts Cultural education and artifacts Incorporating traditional movement patterns Representation of minority populations in historical & cultural artifacts Representation of local populations in park staff (culture, language, race, age) Representation of recreation and design preferences of local residents Culturally appropriate programming	Kowarick, 2019 Flink et al., 2003; Qvistrom, 2011 Flink et al., 2003; Deyo et al., 2014 Deyo et al., 2014 Davis, 2019 Gibson et al., 2019 Gibson et al., 2019 Gibson et al., 2019
Community building	Connection to social & public activity centers Spaces for people to meet socialize Seating that facilitates interaction Intersecting neighborhoods/cultures Natural vegetation Protection from displacement of current residents and business	Ahrentzen, 2008; Deyo et al., 2014 Abraham et al., 2010; Ross et al., 2012; Schultz et al., 2016 Gibson et al., 2019; Keith et al., 2018 Flink et al., 2003; Schultz et al., 2016 Abraham et al., 2010; Schultz et al., 2016 Ross et al., 2012
Environmental Justice	Pass through heterogeneous neighborhoods Equitable distribution of quality greenspace Connectivity and continuity Connected park space Informal Urban Green Space (IGS)	Kowarick, 2019; Liu et al., 2019 Gibson et al., 2019 Curran & Hamilton, 2018a Kowarick, 2019 Rupprecht & Byrne, 2018
Safety	Few and safe intersections with roads Lighting Call boxes Non-slippery and even pavement Safe design of trail Trusted park guard or police presence Community watch groups Speed limit sign postings Maintenance, debris removal, cleanliness Undisturbed wildlife habitats Visibility	Eyler et al., 2008; Flink et al., 2003 Akpinar, 2016; Eyler et al., 2008; Gibson et al., 2019; Ross et al., 2012 Eyler et al., 2008; Ross et al., 2012 Gibson et al., 2019 Gobster & Westphal, 2004 Brownlow, 2006; Eyler et al., 2008; Gobster & Westphal Eyler et al., 2008 Eyler et al., 2008 Brownlow, 2006; Eyler et al., 2008 Curran & Hamilton, 2018b Flink et al., 2003; Gobster & Westphal, 2004
Recreational use	Access from neighborhoods Interesting and pleasant viewsheds Interesting and pleasant surroundings Water fountains & restrooms ADA accessible Safety, parking lots, cleanliness Appropriate size for recreation	Kowarick, 2019 Lindsey, 2008; Lindsey et al., 2008 Schasberger et al., 2009; Pikora et al., 2003 Flink et al., 2003; Akpinar, 2016a Flink et al., 2003 Akpinar, 2016a; Keith et al., 2018; Pikora et al., 2003 Flink et al., 2003; Schultz et al., 2016

## Lovely\_ The Greenway Trail in Community Development

	<p>Defined space for biking and walking routes                      Availability of sports/rec facilities and amenities                      Cleanliness and absence of incivilities (litter, drug paraphernalia)                      Grassy flat areas                      Gardening opportunities                      Areas for pets</p>	<p>Flink et al., 2003; Liu et al., 2019                      Abraham et al., 2010; Erickson, 2004; Kowarick, 2019; Schultz et al., 2016                      Schultz et al., 2016                      Gibson et al., 2019                      Gibson et al., 2019                      Shafer et al., 2000</p>
Public Health	<p>Natural landscape                      Pleasant and interesting landscape                      Protected greenspace land from development                      Low-cost access &amp; widespread availability                      Access and contact with nature                      Accessibility                      Openness &amp; visibility                      Trees for canopy cover, carbon sequestration, asthma protection, UV protection                      Place for recreational opportunities and shelter after natural disasters                      Low impact surfaces or lanes for walkers and runners</p>	<p>Abraham et al., 2010                      Abraham et al., 2010                      Schultz et al., 2016                      Schultz et al., 2016                      Schultz et al., 2016                      Akpinar, 2016b                      Akpinar, 2016b                      Schultz et al., 2016                      Schultz et al., 2016                      Flink et al., 2003</p>
Connection to nature	<p>Nature experience areas                      Animal farms                      Soothing and natural sounds                      Shade trees                      Water elements                      Interesting flora and fauna</p>	<p>Kowarick, 2019                      Kowarick, 2019                      Gibson et al., 2019                      Gibson et al., 2019                      Gibson et al., 2019                      Shafer et al., 2000</p>
Scenery/Aesthetics	<p>Design fitting with local context                      Landscape diversity                      Viewshed diversity                      Natural, low maintenance landscape                      Wildlife                      Shade                      Cleanliness, lack of graffiti                      Contrast with/ escapes from urban landscape                      Visibility from outside the greenway</p>	<p>Kowarick, 2019; Rothenberg &amp; Lang, 2017                      Qian et al., 2018                      Flink et al., 2003; 2019                      Gobster &amp; Westphal, 2004; Rothenberg &amp; Lang, 2017                      Gobster &amp; Westphal, 2004                      Gibson et al., 2019                      Gobster &amp; Westphal, 2004; Pikora et al., 2003; Schultz et al., 2016                      Flink et al., 2003; Gobster &amp; Westphal, 2004                      Gobster &amp; Westphal, 2004</p>
Accessibility	<p>Quality, traffic free routes for walking and cycling to greenways                      Connection to public, low cost transit routes                      Safe intersections with roads, including traffic calming features                      Access near home, within quick walking time</p> <p>Easily accessible paths                      Benches                      Safe, welcoming, and available to diverse populations                      ADA accessibility                      Provisions for eBikes                      Low impact exercise equipment                      Wheel chair access                      Low glare materials                      Wayfinding signage with large fonts</p>	<p>Gibson et al., 2019; Schultz et al., 2016                      Gibson et al., 2019                      Lindsey, 2003                      Akpinar, 2016a; Gibson et al., 2019; Krizek &amp; Johnson, 2006; Ross et al., 2006; Schultz et al., 2016                      Flink et al., 2003; Gobster &amp; Westphal, 2004; Kowarick, 2019                      Flink et al., 2003; Kowarick, 2019                      Bhattacharya et al., 2019; Flink et al., 2003; Gibson et al., 2019                      Bhattacharya et al., 2019                      Bhattacharya et al., 2019                      Gibson et al., 2019                      Gibson et al., 2019                      Gibson et al., 2019                      Flink et al., 2003; Gibson et al., 2019</p>
Stormwater drainage	<p>Tree and leaf coverage, nearby vegetation, and naturalness                      Pervious surfaces                      Trail works with topography</p>	<p>Schultz et al., 2016                      Kowarick, 2019                      Flink et al., 2003</p>
Heat reduction	<p>Canopy cover, leaf surface area</p>	<p>Schultz et al., 2016</p>
Biodiversity	<p>Existing linear biotypes, spontaneous vegetation, wild urban nature</p>	<p>Kowarick, 2019; Lindsey 2003</p>

## Lovely\_ The Greenway Trail in Community Development

	Habitat network programming Connectivity Landscape diversity Use of riparian tree species Forest canopy cover Hedgerows Wider greenway conservation (300-600m)	Kowarick, 2019 Shafer et al., 2000 Lindsey, 2003; Qian et al., 2018 Lindsey, 2003 Lindsey, 2003 Flink et al., 2003 Mason et al., 2007
Air and noise quality	Greenspace Protected land Tree cover	Reich, 2006 Ahern, 2004 Alexander & McDonald, 2014
Brownfield remediation	Use for natural vegetated area and paved trail	Erickson, 2004
Environmental education	Kiosks & Signage	Deyo et al., 2014
Tourism	Cultural markers and historic memorials Sensory pedestrian tours (i.e. historical & cultural points, nature in trails, parks) Host events, festivals, and fundraisers Long trail distances	Kowarick, 2019; Senes et al., 2017 Kowarick, 2019 Eyler et al., 2008 Stitch & Miller, 2012
Surrounding development	Local business presence Limited and contextually relevant development	Stitch & Miller, 2012 Gobster & Westphal, 2004; Pearsall, 2018

Table 2 Intersection of Greenway Goals and Greenway Processes

Goal/Intent	Greenway Process	Sources
Affordable Housing	Community land trusts Cooperative housing Detailed housing policy protecting low income residents Zoning restrictions & early land purchase Affordable housing development off of greenway Less dependence on corporate financing Incorporating climate resiliency into development Low cost financing or property tax reductions for affordable housing landlords	Draus et al., 2019; Miller, 2018; Rigalon & Nemeth, 2019 Miller, 2018 Curran & Hamilton, 2018a; Immergluck & Balan, 2018; Miller, 2018; Soloman, 2017 Immergluck & Balan, 2018; Kim, 2018; Soloman, 2017 Immergluck & Balan, 2018 Sze & Yeampierre, 2018 Sze & Yeampierre, 2018 Immergluck & Balan, 2018
Anti-gentrification	Strategies that prioritize low income and working-class residents Preservation of local relationship with land and water in greenway design Distance from and limit on corporate control Challenge inevitability of gentrification Cooperation between new and long time residents Community mobilization & control Formal leadership committed to social justice and equity	Rothenberg & Lang, 2017; Stern & Hall, 2018 Stern & Hall, 2018 Rothenberg & Lang, 2017; Roy, 2015 Kim, 2018 Kim, 2018 Curran & Hamilton, 2018a; Kim, 2018; Sze & Yeampierre, 2018 Trudeau, 2018
Job creation	Support local business development Evaluation of local jobs as part of quality of life measure Development of jobs around greenway activity	Stitch & Miller, 2012 Shafer et al., 2000 Liu et al., 2019
Job retention	Long-term resident, worker, and business needs protection Blue-collar union job expansion Manufacturing and industrial zoning protections Commercial development avoidance	Sze & Yeampierre, 2018 Sze & Yeampierre, 2018 Curran & Hamilton, 2018a; Stern & Hall, 2018; Sze & Yeampierre, 2018 Curran & Hamilton, 2018a
Affordable cost of living	Retaining businesses that support low-income residents w/ affordable rent protection Protection from increased taxes Communication to residents about financial benefits	Kern, 2018; Rothenberg & Lang, 2017 Immergluck & Balan, 2018; Pearsall, 2018 Palardy et al., 2018
Transportation	Coordination with and prioritization of transportation department & traffic plans	Eyler et al., 2008; Weber et al., 2017

## Lovely\_ The Greenway Trail in Community Development

	<p>Marketing promotion of bike commuting, esp. to nearby residents            Incentives to employers who provide facilities for bike commuters            City planning includes biking transportation routes to greenway            Bike advocacy groups and clubs formally advise design            Institutionalism and formal power for bicycle transportation            Fostering and support of bike culture</p>	<p>Eyler et al., 2008, Keith et al., 2018            Hanson &amp; Young, 2008            Hanson &amp; Young, 2008            Hanson &amp; Young, 2008            Hanson &amp; Young, 2008            Miller &amp; Coutts, 2018</p>
History & Cultural Heritage	<p>Design that specifically acknowledges cultural trauma and benefits those harmed            Strengthen the historical identity of a place            Acknowledgement of network history            Design that cultivates neighborhood pride            Re-politicization of space</p>	<p>Draus et al., 2019; Kim, 2018            Qvistrom, 2011            Qvistrom, 2011            Palardy et al., 2018            Kim, 2018</p>
Community Building	<p>Promotion of social relationships and lifestyle with greenway            Evaluation of social environment as part of quality of life measures            Visionary leadership and government representation            Collaboration across advocacy and interest groups            Neighborhood cleanup and planting activities</p>	<p>Wan &amp; Shen, 2015            Shafer et al., 2000            Eyler et al., 2008            Eyler et al., 2008; Flink et al., 2003; Liu et al., 2019            Kim, 2018</p>
Public support	<p>Integrated and inclusive resident involvement and public participation in design            Visibility and awareness of greenway process            Dedicated staff for public interaction and coordination            Public ownership and representation in decision making            Design to encourage frequent use            Collaborative land use decision making            Use of visualization techniques in design process</p>	<p>Belcher &amp; Wellman, 1991; Eyler et al., 2008; Pearsall, 2018; Taylor et al., 1995            Taylor et al., 1995            Taylor et al., 1995            Rothenberg &amp; Lang, 2017            Palardy et al., 2018            Ferretti &amp; Degioanni, 2017            Bailey &amp; Grosshardt, 2010; Ferretti &amp; Degioanni, 2017; Nyerges et al., 2006</p>
Environmental Justice	<p>Resident shared use and management agreements            Orientation to long-term residents' environmental goals            Support local activism and justice            Avoid exclusive surrounding development (high end)            Avoid environmental and recreation types of remediation that attract gentrifiers            Diverse social control of greenway            Equitable funding and resource provisions across diverse neighborhoods            Insurgent volunteerism by communities/community ownership of space            Representation in marketing and representation of greenway            Claiming of underutilized empty spaces for greenway connections            Diversity training for greenway park staff and volunteers            Engaging local communities in park and programming development</p>	<p>Rupprecht &amp; Byrne, 2018            Sze &amp; Yeampierre, 2018            Sze &amp; Yeampierre, 2018            Rothenberg &amp; Lang, 2019            Curran &amp; Hamilton, 2018a            Brownlow, 2006            Brownlow, 2013            Brownlow, 2013            Davis, 2019            Gibson et al., 2019            Gibson et al., 2019            Gibson et al., 2019</p>
Safety	<p>Planning around dangerous wildlife            Controlling weedy growth, invisible landscapes            Coordination with transportation department            Maintenance plans</p>	<p>Curran &amp; Hamilton, 2018a; Flink et al., 2003            Brownlow, 2006; Flink et al., 2003            Eyler et al., 2008            Weber et al., 2017</p>
Recreational use	<p>Coordination with neighborhood &amp; city master plans            Liability insurance            Use of local knowledge in design process            Monitoring and evaluation of design and programming for local context            Promotion of uses and possible uses for residents, specific populations            Plan for amenities with power, wireless, water, gas services</p>	<p>Eyler et al., 2008            Eyler et al., 2008            Gibson et al., 2019            Gibson et al., 2019            Flink et al., 2003; Hughey et al., 2015; Wan &amp; Shen, 2015            Flink et al., 2003</p>
Public Health	<p>Promoting physical and psychological benefits in marketing and outreach            Promoting social and entertainment value of physical activity on trail            Partnership with health providers</p>	<p>Wan &amp; Shen, 2015            Schasberger et al., 2009            Schasberger et al., 2009</p>
Connection to nature	<p>Integration of human and ecological systems            Utilization of creative interpretation of human-environment connection in planning</p>	<p>Taylor et al., 1995            Curthoys &amp; Cuthbertson, 2002</p>



## Lovely\_ The Greenway Trail in Community Development

Volunteerism	Mobilization and coordination of friends groups Mobilization and coordination of neighborhood groups	Erickson, 2004 Brownlow, 2013
Scenery/Aesthetics	Fit aesthetics to cultural and social context and needs Regulation of water pollution and use Incorporate interesting views as part of design	Rothenberg & Lang, 2017 Gobster & Westphal, 2004 Flink et al., 2003
Accessibility	High density near greenspace Information campaigns about location, hours, and cost	Schultz et al., 2016 Wan & Shen, 2015
Stormwater drainage	Erosion control plan Plan as watershed or subwatershed basin Mitigate stormwater runoff from greenway Engineer placement and surface composition stormwater drainage	Eyler et al., 2008 Taylor et al., 1995 Ross et al., 2012 Flink et al., 2003
Public land	Follow bodies of water/ flood plains Buy land "well in advance of need" (p.204) Set aside environmental corridors w/ resources (habitat, floodland, woodland, scenery)	Taylor et al., 1995 Erickson, 2004 Erickson, 2004
Biodiversity & wildlife habitat	Minimize manage lands Minimize nearby properties' use of "pavement, building, and bare earth cover" Ecological greenways and habitat conservation plans (HCPs) Careful, effective land use planning and growth guidance Regional planning for ecological networks Mitigation fees and conservation banking as incentives Planner education	Mason et al., 2007 Mason et al., 2007, p.162 Beatley, 2000; Bryant, 2006; Flink et al., 2003; Taylor et al., 1995 Beatley, 2000; Taylor et al., 2015 Beatley, 2000; Taylor et al., 2015 Beatley, 2000 Beatley, 2000
Environment protection & health	Incorporation into city wide ecological functioning goals Regional cooperation for ecological corridors Planning that is responsive to form and process of natural systems Evaluation of environmental quality as quality of life measures Removal/management of invasive plant species Planning around ecologically sensitive areas	Beatley, 2000 Erickson, 2003 Flink et al., 2003; Taylor et al., 1995 Shafer et al., 2000 Flink et al., 2003 Flink et al., 2003
Air and noise quality	Preservation of greenspace Design as ventilation corridor Attention to transportation plans and demands of surrounding area development Monitoring air quality Design for and promotion of greenway as alternative transportation	Reich, 2006 Kowarick, 2019 Ross et al., 2017; Stern & Hall, 2018 Ross et al., 2017 Flink et al., 2003
Water Quality	Cooperation with natural resources and wildlife departments Follow body of water and cooperate regionally Regulation of water pollution Wild vegetation near shoreline	Eyler et al., 2008 Taylor et al., 1995 Gobster & Westphal, 2004 Gobster & Westphal, 2004
Brownfield remediation	Liability insurance Map brownfield areas	Eyler et al., 2008 Ross et al., 2012
Environmental education	User awareness of environmental health and impacts Environmental education for those overseeing the greenway Merging of expert knowledge with local experience Ecological literacy is pillar of decision making, language, actions, & images	Erickson, 2004 Mora & Arenas, 2003 Curthoys & Cuthberson, 2002 Curthoys & Cuthberson, 2002
Multi-jurisdictional partnership	Partnerships with diverse stakeholders Clear project goals and plans Public involvement Regional governance Effective, long-term leadership structure Follow body of water or rail line	Liu et al., 2019; Ryan et al., 2006 Liu et al., 2019; Ryan et al., 2006 Liu et al., 2019; Ryan et al., 2006 Liu et al., 2019; Ryan et al., 2006 Liu et al., 2019 Ferretti & Degioanni, 2017; Taylor et al., 1995
Tourism	Marketing of greenway Regional connection	Stitch & Miller, 2012 Stitch & Miller, 2012

## Lovely\_ The Greenway Trail in Community Development

Workforce retention & enticement	Affordable housing & cost of living Design for walkable communities Coordinate/cooperate with local businesses	Sze & Yeampierre, 2018; Trudeau, 2018 Stitch & Miller, 2012 Flink et al., 2003
Economic measures	Property values Job creation Willingness to pay Net consequences for low income residents' housing and economic opportunities	Stitch & Miller, 2012 Stitch & Miller, 2012 Lindsey & Knapp, 1999 Immergluck & Balan, 2018
Surrounding area development	Development of historic districts and waterfront redevelopment Evaluation of local business income as part of quality of life measure Appropriate to sustain ecosystems and user experience	Stern & Hall, 2018; Stitch & Miller, 2012 Shafer et al., 2000 Gobster & Westphal, 2004
Property value & taxes	Promotion of greenway access in real estate ads Housing near greenway Walkability of connected neighborhoods Segmented and contextualized assessment of value/burden	Eyler et al., 2008 Flink et al., 2003; Stitch & Miller, 2012 Pivo & Fisher, 2011 Palardy et al., 2018; Payton & Ottensmann, 2015; Weber et al., 2017
Market reshaping	Avoidance of viewing land as an investment Sustainability transitions of government and social systems	Bowen, 2018 Brown et al., 2013
Temporary funding	Grants Crowdfunding (with equity restrictions) Friends groups Corporate-community investment	Miller & Coutts, 2018 Miller & Coutts, 2018 Erickson, 2004; Schasberger et al., 2009 Ahrentzen, 2008
Continued funding	Designation as essential service Tax increment and impact fee funding Municipal bonds Plan for maintenance costs	Eyler et al., 2008 Eyler et al., 2008; Miller & Coutts, 2018 Immergluck & Balan, 2018; Miller & Coutts, 2018

Sustainability in greenways is comprised of their social, environmental, and economic processes. Social justice and equity of greenways is complex, but it may be summarized broadly as access, representation, accommodation, and protection from displacement (Brownlow, 2006; Deyo et al., 2014; Draus et al., 2019; Kern, 2018; Kim, 2018; Kowarick, 2019; Miller, 2018; Sze & Yeampierre, 2018). Greenway trails' locations, ADA compliance, and access points, along with accessibility of planning meetings are factors in access (Eyler et al., 2008; Flink, Olka, & Searns, 2003; Rigalon & Nemeth, 2018). Accommodation in greenway trails may be viewed as representation of and welcoming social environment for different cultures on the greenway (Brownlow, 2006; Deyo et al., 2014; Draus et al., 2019; Kowarick, 2019). Protection for local residents who live near the greenway in terms of safety and affordable housing is an acknowledged, but seldom pursued aspect of greenway planning for social justice and equity (Kim, 2018).

Evaluation of greenway trails often revolves around its economic sustainability and development capabilities. Often, environmental performance is a part of this, as in the case of a greenway's ability to provide stormwater drainage and biodiversity or to contribute to carbon reduction (Ahern, 2004; Payton & Ottensman, 2015). However, socially-minded goals are more difficult to fit into economically-minded performance standards. The implications of this trend will be discussed below (Heckert & Rosan, 2016).

### **Challenges and Successes of Greenway Development**

As eluded to above, there are ways that greenway trails may be designed and peoples' interpretations of whether or not a trail is successful or not largely depends on their view on what purpose a greenway is meant to serve. However, there are some greenway trail efforts that have been deemed successes and failures by consensus of public, professional, and/or scholarly

opinion. It is important to understand, in the context of current political, social, and economic movements, what constitute success and failure in actual instances of greenway trail development. The practices and characteristics of those examples can lead to better standards of practice and to awareness of common pitfalls.

### **Common Pitfalls.**

The overarching intention of sustainable development directs its progression throughout the lifespan of a project, so stated goals and definition of success is imperative to making sustainable plans. While many cities have sustainability as part of their master plan, clarity on what this means is lacking (Bowen, 2018; Pearsall, 2018). This leads to conflicting views of what sustainable development means and looks like. Some places adopt smart growth as their model of sustainability, a frame that automatically places higher emphasis on economic goals than others. This especially limits social sustainability because existing communities are brushed aside in the quest for redevelopment and high property values (Bowen, 2018; Pearsall, 2018).

In many cases, protective policy is not enforced or not present to protect social sustainability goals, or it directly works against them. In the cases of the Philadelphia Reading Viaduct greenway, Los Angeles River Revitalization greening and the Chicago 606 greenway, government neglected to proactively address gentrification with policy to restrict zoning codes, control rent and limit tax increases (Kim, 2018; Pearsall, 2018; Rigalon, & Nemeth, 2018). Through under regulation of areas around green space, government is either complacent with the perceived inevitability of gentrification or they actively support it (Rigalon & Nemeth, 2019; Rothenberg & Lang, 2018). Conversely, some governments actively support gentrification through the presence of discriminatory policy, as was the case in Seoul (Bowen, 2018).

Some approaches address sustainability on a project-by-project, or even phase-by-phase basis, with varying levels of and definitions of sustainable outcomes (Bowen, 2018; Curran, & Hamilton, 2018a; Pearsall, 2018). This leaves greenspace and its surrounding communities vulnerable to development and the changing whims of transient governments (Bowen, 2018; Jongman, & Pungetti, 2005). This uncertainty can plague low-income and marginalized communities with anxiety about their future (Kim, 2018). As Pearsall notes, “this piecemeal approach to neighborhood development...seems far more likely to generate conflict than a comprehensive neighborhood planning approach” (Pearsall, 2018, p.207).

It also leads to another pitfall: failing to purchase land for affordable housing and environmental remediation. When well-funded and publicized efforts to develop greenways are announced and planned, abandoned real estate is snatched up for redevelopment and rent prices increase in anticipation of the higher property and rent values (Immergluck & Balan, 2018; Kim, 2018). Land and property needed to execute affordable housing plans need to be purchased proactively, before surges in prices increase and land availability decreases.

Despite greenway development potential for controversy, advocates for greenway trails tend to present an optimistic vision of how greenway trails interact with the community (Bowen, 2018; Curran, & Hamilton, 2018a; Rigalon, & Nemeth, 2018). This may be an attempt at depoliticizing development by greenwashing it, or touting environmental, economic, and social benefits that are seemingly good for all (Bowen, 2018; Rothenberg, & Lang, 2018). Rosy outlooks for trails may also be a way of presenting best case scenarios in order to gain support and approval for greenway plans (Curran, & Hamilton, 2018a). In doing so, greenway advocates succumb to dangerous blind spots. For instance, leaving out maintenance and upkeep costs in greenway trail development emphasizes the relatively low cost of converting rails to trails, but it

may lead to an inadequate allotment of funds in plans (Pearsall, 2018). Further, when advocating for the greenway, they project the successes and benefits of other greenway projects onto theirs, despite differences in context (Kim, 2018; Pearsall, 2018). In this way, they highlight the potential positives of the greenway for communities and overlook the social inequities to present a best case scenario as their probable outcome, a tactic that has backfired in many cases (Kim, 2018; Pearsall, 2018).

Greenway trail planners also tend to compartmentalize their plans (Pearsall, 2018; Rigalon, & Nemeth, 2018). While portraying greenway projects as instigators for positive change in surrounding communities, they balk at the idea that it could be the cause of harm and attest that social policy and planning is outside of their purview (Pearsall, 2018; Rigalon, & Nemeth, 2018). Sometimes the structure of government agencies is set up in a way that makes it difficult, if not impossible for greenway plans to include social justice and equity provisions, because nobody connected to the greenway project has power to enact social changes (Rigalon, & Nemeth, 2018).

Lack of inclusion in the planning process is another way sustainability efforts are stifled. (Bailey, & Grosshardt, 2013; Kim, 2018; Pearsall, 2018; Trudeau, 2018). Civic involvement is often placating or manipulative (Bailey, & Grosshardt, 2013) or leaves out crucial groups that might be in opposition to the project (Pearsall, 2018). Further, lack of inclusion of environmental stakeholders leads to unsubstantial environmental sustainability efforts or construction of greenspace that is not environmentally sound for wildlife habitats, stormwater mitigation, or environmental resilience (Curran, & Hamilton, 2018b; Jongman, & Pungetti, 2005; Stern, & Hall, 2018).

Light greening is a term used to describe the type of sustainable development that gives more of an illusion of environmental sustainability than of actual meaningful change in environment function (Curran, & Hamilton, 2018b). This type of planning is prevalent in commercially focused projects (Curran, & Hamilton, 2018b; Stern, & Hall, 2018). Developers co-opt the environmental sustainability feature as a marketing ploy and give minimal efforts to back it up (Curran, & Hamilton, 2018b). This co-optation that gives priority to economic sustainability may not be realized immediately and can be directly harmful to the environmental sustainability goal and indirectly harmful to the social sustainability goal by excusing displacement (Curran, & Hamilton, 2018b).

Sometimes policies and the messages cities send counteract sustainability efforts. For instance, new zoning and classification of industrial and residential areas can undermine affordable housing social justice efforts (Pearsall, 2018; Sze & Yeampierre, 2018). Messaging may also instigate industry actors to shift to environmentally unsustainable practices in order to move from a location being developed for sustainability (Stern, & Hall, 2018). Messaging may also neglect social justice issues, covering up histories and uses of the land to present a more curated image of the development (Stern, & Hall, 2018).

### **Successes.**

Cities planning aggressively for sustainability declare their vision and intention for sustainable development and create plans that explicitly inscribe this vision into practice (Amado et al., 2010; Brown, Farrelly, & Loorbach, 2013; Immergluck, & Balan, 2018; Kowarick, 2018; Xiao, & Lam, 2017). This commitment is further solidified with the creation of agencies or positions which are dedicated explicitly to sustainability of projects or communities (Immergluck, & Balan, 2018; Kowarick, 2018; Xiao, & Lam, 2017). They also support these

institutions through policy and funding (Brown, Farrelly, & Loorbach, 2013; Kowarick, 2018; Xiao, & Lam, 2017).

Successful processes of planning for sustainable cities and projects often show crossover among subgroups of stakeholders (Bodin, & Crona, 2009; Brown, Farrelly, & Loorbach, 2013; Kim, 2018). Environmental professionals and long-term plans are embedded into all government departments and development projects (Brown, Farrelly, & Loorbach, 2013; Jones, & Davies, 2017). This gradual process of embedding environmental professionals and technology into government projects showed success in Melbourne's stormwater drainage system, where ecological principles are now not only mainstays in policy, they are also a part of Melbourne's place identity and culture (Brown, Farrelly, & Loorbach, 2018; Moore et al, 2018). In greenspaces and greenway trails, connectivity and regional coordination of greenspace is often viewed as a mark of success (Erickson, 2005). An effective planning measure which is implemented with social equity in mind is the allotment of affordable housing units (Immergluck, & Balan, 2018; Trudeau, 2018).

Social justice and equity principles are reinforced through diverse, meaningful and active public participation (Amado et al., 2010; Berke, 2008; Pearsall, 2018). This is true for both planning and oversight of development (Amado et al., 2010; Trudeau, 2018). In Portugal's development of a large protected area into a natural park, residents and NGOs are written into a "continuous, interactive, integrated and participative planning process" which is meant to uphold sustainable development values (Amado et al., 2010). In the case of the Atlanta Beltline, local residents were members of power-holding committee positions designed to equally represent their interests against those of outsiders or Beltline developers (Immergluck & Balan, 2018).



Community involvement is important for checking the vision of the state's view of sustainability, sometimes referred to as greenness (Curran, & Hamilton, 2018a). It also promotes democratic processes that challenge traditional modernist, neoliberal planning traditions (Curran, & Hamilton, 2018b). In these processes, citizen power is also checked on their views of sustainability, as selfish interests may prevail over higher principles in some cases (Pearsall, 2018; Trudeau, 2018).

In the implementation and practice of sustainable development, successful projects are a part of a societal shift in values and culture, moving from capitalist lifestyles to those that center on connection to community and environment (Brown, Farrelly, & Loorbach, 2018; Curran, & Hamilton, 2018; Hopwood, Mellor, & O'Brien, 2005; Jongman, & Pungetti, 2005; Moore et al., 2018). They respect and connect to the larger history and culture of the area (Deyo et al., 2014; Draus et al., 2019; Kowarick, 2018). In instilling new ecological values and reverence of history into the design of community space, communities bridge the gap between what once was and the image of what they want for the future.

Economic stability in sustainable development is represented by job creation, affordable transportation, tourism, business development, technology and industry that coincides with the sustainable development (Immergluck, & Balan, 2018; Xiao, & Lam, 2017). Economic standards of living are represented by the amount of revenue that goes back to community residents through employee bonuses or investment returns and by the development's contribution to jobs in the community (Xiao, & Lam, 2017). In the case of greenway trails, property values and increased taxes are viewed as ways of maintaining economic sustainability and they are often achieved (Rigalon, & Nemeth, 2018; Rothenberg, & Lang 2017). However, those measures of

success necessarily thwart other sustainability goals, so counting them as successes for sustainability is somewhat inaccurate.

### **RRG Development**

The RRG is often changing form, with construction expanding as funds and land rights become available and as connecting trails, sidewalks and bike lanes, and transportation services fall in and out of service. Today, the greenway is 6.7 miles of continuous paved trail running from East to West and 13.7 miles altogether (Greenway, 2018). It is in the process of connecting to the City of Salem at one end and the Town of Vinton at the other. When complete, the mileage will expand to 31 miles of connected trail (Greenway, 2018). In planning documents, the RRG is considered the highest priority in greenway development, being referred to as the “backbone” of the greenway trail system (Greenway, 2018, p.64). It is connected to six other greenways and many streets and bike lanes (Greenways, 2018).

Priorities are focused on trail expansion, based on stated goals and progress toward goals (Greenways, 2018). Some of this expansion is in reference to the RRG, and some is in reference to the greenways, unpaved trail, and sidewalks and bike lanes which connect to the RRG (Greenways, 2018). Many of these projects are simultaneously ongoing in different locations and municipalities (Greenways, 2018). There is also a relatively newer goal of increasing capacity to maintain the growing sections of greenway (Greenways, 2018).

Challenges that planners face are obtaining land right of ways and finding funding, specifically sustained sources of funding (Greenways, 2018). Right of ways are permissions from landowners to put the greenway on their property and usually involve the locality purchasing the land that the greenway will go on. Funding of the greenway is obtained through a combination of money from the locality, the federal government, various grants, and donations

from individuals, corporations, and organizations, such as the Pathfinders for the Greenway group, a non-profit which has volunteer and fundraising roles (Greenways, 2018).

The focus of the Greenway Commission for the RRG is to complete a one-mile section at the west end of Roanoke. This section begins in Roanoke on Bridge Street, which is also the westernmost border of Mountain View. If completed, it would follow the river to Salem, where the trail connects to various destinations including its downtown. The final gap between the localities is primed and ready to be completed, with environmental surveys and engineering plans completed. The hold up, which has been a sticking point for the last four years, is the refusal of right of way from one property owner, the aforementioned Walker Machine and Foundry. The company refuses to negotiate, first saying that having the greenway would threaten their businesses livelihood because of increased environmental regulations. After going out of business and citing the dispute with the City of Roanoke as the reason for their loss of customers, they have started a lawsuit against the city, and the issue is currently in the court system.

### **Theoretical Foundations**

I chose three theories to research the RRG and its relationship with the Roanoke community: Urban Political Ecology (UPE), Actor Network Theory (ANT), and Sustainable Development. The first two help to frame Roanoke in terms of power relationships and interactions among people and place in their community. In differing but cohesive ways, they can provide a look through time at Roanoke's greenway trail development and its implications. The last theory lays a common ideal planning frame over the greenway trails. Sustainable development looks at how the city's need for sustainable infrastructure is or is not met through interconnected measures of sustainability. Together, Roanoke's intent and action with the greenway trail can be assessed.

## **UPE.**

UPE is a theory developed to articulate the economic, political, social, and ecological influences on urban landscapes, namely, uneven urban landscapes (Heynan, 2014). Coming from the perspective that those with power alter the urban landscape to meet their own needs at the expense of others, UPE focuses on how an environment came to look the way it does and what implications are for those who live and act within that space.

Main constructs of UPE include viewing the city as natural, ecological thinking, critical political economics, and a state that creatively manipulates the social and natural environment (Heynen, 2014). These principles are drawn from theories and influential thinkers related to social, political, cultural, and spatial ecologies. In keeping with UPE philosophy, this section first places UPE in sociopolitical context, next describes the aims of UPE, and then will describe its constructs and variations.

UPE emerged relatively recently in the late 1990's as a response to an environmental justice movement that was transitioning from viewing environmental injustices as isolated events to recognizing systematic environmental racism and the deliberate and not-deliberate actions and narratives that propagated it (Desfor & Keil, 2004; Smith, 1991). Influenced by writings on Foucault's political theories, Marxist Political Economy (MPE), feminist theory, Actor Network Theory (ANT), and urban ecology, UPE theory is a combination of criticism of the state with ecological theory and a will to incite change in the political process (Holifield, & Schuelte, 2015).

MPE is an approach to looking at how power is drawn from the values which are placed on commodities (Harvey, & Smith, 2008). It takes a critical look at capitalism using what Marx refers to as a dialectical, or questioning, approach (Harvey, & Smith, 2008). In building UPE, the

use of MPE drew attention to the state's misuse of power and perspective on manipulation of human and environmental commodities for capital gain. This provided a basis for how to understand systematic racism and discrimination that was built into the environment. It helped identify the actors and mechanisms that built that system based on who benefitted and lost politically and financially from those systems.

UPE also draws from classic urban ecology, which was a look at the metabolism of the city as a natural process based on cycles. However, UPE comes from the perspective that the processes and cycles that shape the city are not natural and require deliberate creative intervention to exist as they do (Heynen, 2014). Marxist influences are distinct because they assert that this creativity is directed by those with power and financial influence and does harm to those without power. The marginalized bear the burdens of urban environment manipulation so that those with capital can increase their worth. This historical perspective and inclusion of nonhuman actors, such as political forces, in the analysis fits well with the systems-thinking based theory, ANT.

ANT is a systems perspective which includes time, human and nonhuman actors, and an overtly apolitical stance (Holifield, 2009). By adopting the former two components and leaving out the latter, UPE theorists provided for comprehensive views of political histories and processes (Holifield, 2009). Foucault's perspectives of mechanisms of power (Heller, 1996) and Harvey and Lefebvre's descriptions of how the environment shapes the actor which in turn shapes the environment (Brenner, & Elden, 2009; Harvey, 2008) helped to define some nonhuman forces, or actors, in environmental injustice.

Postmodern feminist theory added to UPE in how it drew attention to marginalized histories and contested spaces. Feminist theory brings its "disruptive assertion of 'minority'

voices” and deliberate attention to historical perspectives, biases, and contexts (Sandercock, 2003, p. 72). This attention and energy directed toward amplifying marginalized voices is viewed partly as important feedback for understanding the system in question. It is also a mechanism for acting to change that system by bringing awareness to its innerworkings, challenging the narratives that propagate it, and validating the experience of those who were harmed by it.

Power is both a consequence and driver of a system, and it can change hands with intentional and unintentional changes are made to that system. Power is defined by agency in the system and may be identified through influence and action. An actor in the system can have influence on how the system acts through ideas and action that are feedback for other actors in the system. In greenway trails these may be creating a cultural connection to the land, prioritizing needs of indigenous people, normalizing collective values, or making declarations and commitments to environmental and social sustainability. A system can also directly exert power through action. In greenways, this may be decisions about where and how to build the trail or programs and events that interact with the surrounding community.

While anyone can harness power, historically, the state and the very wealthy have held the vast majority of power when it comes to shaping the land and metabolizing its resources. Case study after case study show the indelible imprint capitalism and politics have made on the physical environment, often at the cost of resources and values integral to a community’s identity and sustainable function. UPE and this research in particular take the view that this manipulation of the system is both unnatural and harmful to those without power.

**ANT.**

As mentioned above, ANT is a theory that analyzes human and nonhuman actors in a system. Though closely related to UPE, ANT is different in its perspective as it takes a distinctly

systems perspective (Holifield, 2009). Looking at inanimate objects as part of the system and evaluating their influence as part of equation for how the system operates, ANT focuses on the function of the system and its potential action. It is used to gain understanding of “forms and standards” that allow behaviors to exist and cycles to run (Heynen, 2014, p.601).

The base of ANT comes from systems thinking. Guided by influential proponent Latour, ANT seeks to resolve some of the dispute between what is social and what counts as parts of the social system. Social, he contends needs to be visualized as ties and linkages within society, not as one material thing (Latour, 1986). According to Holifield, the deliberate absence of social theory in ANT is to allow room for viewing the social as “circulating accounts aiming (and often competing) to establish the right composition of society, social intentionality, and social action” (Holifield, 2009, p.644). These connections allow a path to changing the way a system works, one important piece of critical research and social change.

Actors in the system may exert different kinds of agency, which Latour contends are difficult to determine. Critics accuse ANT of equating human and nonhuman actors and of not putting social structures into context by explaining different levels of agency (Holifield, 2009). However, proponents contend that the depiction of objects in the system helps to promote understanding of how they contribute to differences in agency in parts of society (Holifield, 2009; Latour, 2005). Ontologically speaking, the ANT perspective understands both human and nonhuman actors to have energy about them that plays a part in the assemblages of society (Holifield, 2009). Epistemologically speaking, the perspective contends that the causes of these assemblages cannot be known, but their functioning can be described (Holifield, 2009). This is useful to use when looking at how the greenway trails affect communities. Because it is included as an actor in the system, relationships between people and place can be examined and their

interactions can be understood as an assemblage of ties within the community- between people, places, and objects.

With its liberal interpretation of actors, the ANT perspective includes the attitudes, technology, ideas, physical infrastructure, and natural environment that are present behind the scenes of the planner triangle. It also accounts for time, a factor that is especially important in socioecological systems but that is often overlooked in planning models (Aka, 2019; Lafuite, & Loreau, 2017).

Sustainability in ANT is geared toward understanding the reciprocal relationship between socioeconomic actors and the natural environment actors (Blok, 2013). These actors may be a part of any or all of the processes of development, including planning, implementation, management, use, and deterioration (Beauregard, 2015; Qviström, 2012). In sustainable development as a development process, analyses center on the actors and interactions that produce long-term sustainability outputs (Aka, 2019; Stroh, 2015). Sustainable development may also be looked at as a description of physical space through ANT, and in this case, analyses center on how actors interact along the physical trail, how they form networks, and how those interactions promote or negate sustainability goals (Brown, Farrelly, & Loorbach, 2013).

### ***Actors***

Actors in sustainable development systems are distinctively human and nonhuman, a deliberate accountability for the way that humans both shape their environments and are shaped by them. This means that physical objects, like streets or trees and intangible things like ideas, policies, or attitudes are included. They all may act with agency, meaning they have power to act and to change how the system acts (Holifield, 2009). In sustainable technological transition networks, actors are categorized as niche, regime, and outsider; these actors may fall into further



categories of frontrunners, project champions, and executive champions (Brown, Farrelly, & Loorbach, 2013). In sustainable development and greenway trail case studies, actors may fit into these same categories, but who will fill which role varies from case to case. For this reason, actors in this paper are arranged in the following categories: stakeholders, physical infrastructure/greenway, policy, and culture.

Stakeholders include people, organizations, and agencies which fall into a few categories: factions of the state, members of the business and industrial community, and residents and those representing local interests. Factions of the state include towns and cities (Kim, 2018; Pearsall, 2018; Qviström, 2012), project managers (Aka, 2019), government officials (Amado et al., 2010; Eyler et al., 2008; Jones, & Davies, 2017), and committees (Qviström, 2012). Members of the business and industrial community are businesses (Beauregard, 2015), real estate agents (Kim, 2018, Pearsall, 2018), lawyers (Qviström, 2012), and architects (Aka, 2019). Residents and those representing local interests may include residents (Amado et al., 2010; Beauregard, 2015; Kim, 2018; Pearsall, 2018; Qviström, 2012), trail users, researchers (Brown, Farrelly, & Loorbach, 2013), media (Brown, Farrelly, & Loorbach, 2013), environmental activists (Kim, 2018) and community advocacy organizations (Pearsall, 2018). Stakeholders may fall into more than one category; stakeholders are viewed as dynamic and multifaceted as the systems in which they act (Latour, 2005).

Physical infrastructure works dynamically with stakeholders. For sustainability, the environment has many components that may be considered actors that may instigate stakeholder action or influence how built infrastructure is developed. In addition to the form and function of the green infrastructure itself, the terrain and climate of the land may be an actor (Brown, Farrelly, & Loorbach, 2013; Pearsall, 2018), remnants and pollution from historical land uses

(Curran, & Hamilton, 2018a, Pearsall, 2018), regrowth and habitation that has occurred in neglected spaces (Jones, & Davies, 2017; Kowarick, 2018), and sensitive biological areas are actors in the system (Beatley, 2000; Kowarick, 2018).

Policy is an actor that directs the pace, character, and tactics of greenway trail development (Eyler et al., 2008; Xiao, & Lam, 2017). It does not determine the success of sustainable development, and in some cases, it must interact with other actors to become conducive to sustainable development goals (Brown, Farrelly, & Loorbach, 2013). In planning, actors may be land use restrictions and provisions (Beatley, 2000; Curran, & Hamilton, 2018a; Stern, & Hall, 2018), alternative transportation acts (Eyler et al., 2008), sustainable development or green policy in master plans (Curran, & Hamilton, 2018b; Pearsall, 2018), initiatives for the support of sustainable development implementation (Brown, Farrelly, & Loorback, 2013), land ownership (Hector, 2005; Miller, 2018), and affordable housing provisions like rent caps or development restrictions (Curran, & Hamilton, 2018a). In greenway implementation and management, actors may include rules and conditions about how the trail may be used (Flink, Olka, & Searns, 2001; Jongman, & , 2005), zoning of areas near the greenway (Curran, & Hamilton, 2018a), and protocol for which agencies and departments work have decision making power over the trails and surrounding areas (Rigalon, & Nemeth, 2018).

Culture is another important actor in greenway trail development, including history of the space, its residents, and their relationship to it; attitudes towards the trail and its land; and traditions of interactions with governing bodies in determining how the land will be used (Curran, & Hamilton, 2018a; Erickson, 2004; Kim, 2018; Qviström, 2012). Community sentiment and values of ecology's inherent and recreational importance are also influential actors (Brown, Farrelly, & Loorbach, 2013). In rail-trails in particular, the relationship of communities

to the railroad has profound historical significance, and when transformed into greenway trails, networks that had been reinforced through that space continue but transform to act within the new context (Qviström, 2012). Similarly, in brownfield remediated greenspace, connection to the industry, land or activism related to the cleaning of that land can be actors (Curran, & Hamilton, 2018a; Kim, 2018). The history of the space and people connected to it includes traditions of urban development (Brown, Farrelly, & Loorbach, 2018; Erickson, 2004); political and cultural events (Draus, 2019; Kowarik, 2018); and the diversity of the area, long-time residents, and new residents (Kim, 2018; Pearsall, 2018). Culture may also be represented by the ideas about how the trail will be used as represented in news articles, policy, and planning documents (Kim, 2018).

Energy that drives or changes a system is referred to in case studies as inertia (Brown, Farrelly, & Loorbach, 2013; Qviström, 2012) and moments (Aka, 2019) or transitions (Brown, Farrelly, & Loorbach), respectively. Paradigms might be interpreted as inertia for a system. In the context of sustainability, the neoliberal paradigm or alternative paradigms, like those surrounding the sustainability movement or “caring city” movement, are guiding forces for other actors in the system (Brown, Farrelly, & Loorbach, 2013; Curran, & Hamilton, 2018a).

Historical practices and embedded systems are also considerable forces of inertia (Brown, Farrelly, & Loorbach, 2013). Aka (2019) refers to moments as attempts at innovation which may be successful or unsuccessful but that ultimately drive the system towards sustainability. Brown, Farrelly, & Loorbach, (2013) determine that changing values towards those of sustainable development require a significant change and may take 25-50 years to take hold, but when that change happens, sustainable transitions are long-lasting.

### *Networks*

Networks develop between different actors in a system when they interact and form relationships (Latour, 2005). A network of actors may become a single actor in another network (Latour, 2005). The unique combination and interaction of actors that make up a network can provide answers about what is driving a system, why it might be behaving counter-intentionally, and where tweaks may be made to alter the system (Stroh, 2015).

Networks may contain subgroups which have various levels of connection (Bodin, & Crona, 2009). If a network has high social cohesion, subgroups are difficult to separate or distinguish (Bodin, & Crona, 2013). Conversely, if subgroups are very separated, there is more adversarial tension (Bodin, & Crona, 2013). Shadow and bridge networks are networks that connect different networks, either through informal or formal connections (Brown, Farrelly, & Loorbach, 2013). Both awareness of system behavior and uniting actors and networks to direct system behavior are important for driving the system towards sustainable goals. Successful sustainable development takes place in systems that unite networks of socially, environmentally and politically driven networks (Brown, Farrelly, & Loorbach, 2013).

In greenway trail development, networks seem to be arranged around neoliberal paradigms, with weakly-connected state actors central to the system. Planners are actors who connect government, developers, the land, and neoliberal practices (Blok, 2013; Rigalon, & Nemeth, 2018). Because of the closely linked nature of government and capitalism in this system, economic networks are strong and systematically reinforced. Residents, history, and ecological actors are subgroups that are typically not as influential as are economic ones in networks like this (Pearsall, 2018).

However, social justice and equity-based networks can develop and become strong. The purpose of this type of network is political activism, and it is formed by mobilizing local and

outsider allies (Kim, 2018; Pearsall, 2018), connecting with a message (Pearsall, 2018), and conveying that message to state officials (Kim, 2018; Pearsall, 2018). Ideal qualities of networks that promote social sustainability in greenway or greenspace development place residents at the center of the network. They include residents and advocacy groups who are well-informed, connected to government and included in development decisions (Kim, 2018). In these networks, residents are active in neighborhood space shaping, through social events, volunteerism, environmental organizing and zoning advocacy and decision making (Kim, 2018). They leverage place identity, which is tied to history, new and long-term residents, and is viewed as evolving. (Curran, & Hamilton, 2018a; Kim, 2018). They use this as an entry point for politicization of space and environment to challenge dominant narratives and advocate for change. Finally, they are well-connected to social and environmental advocacy groups and to trail developers.

Environmentally centered networks which are successful in advocating for and ensuring environmental sustainability share similar qualities. They connect their mission to social and economic missions through science and technology, messaging, and personal connections to the community and government (Brown, Farrelly, & Loorbach, 2013; Jones, & Davies, 2017). They ensure that environmental infrastructure and protection are safeguarded in long-term plans, protective orders, and policy (Brown, Farrelly, & Loorbach, 2013; Jones, & Davies, 2017).

### **Campbell's Sustainable Development.**

As deeper awareness and understandings of the relationship between society and its surrounding physical environment has progressed, so has the practice of community development. When the term sustainable development was introduced in 1987, it captured an intention to be more ecologically friendly, but the realities of what this looked like in practice were unclear (Hopwood, Meller, & O'Brien, 2005; Trudeau, 2018). Though many have defined

this in different terms with different practical outcomes, there is a constant theme in theory about what is necessary to address to achieve sustainability: environment, economy, and society.

Campbell's theory emerged as a front runner for defining what this was in practice. His terms, social justice and equity, environmental sustainability, and economic sustainability, were labeled goals of sustainable development and were depicted as points on a triangle (Campbell, 1996). Each side of the resulting triangle represented the interaction, or tension, between these goals (Campbell, 1996). Notably missing from this picture are the tensions that exist and interact within each goal or point of the triangle.

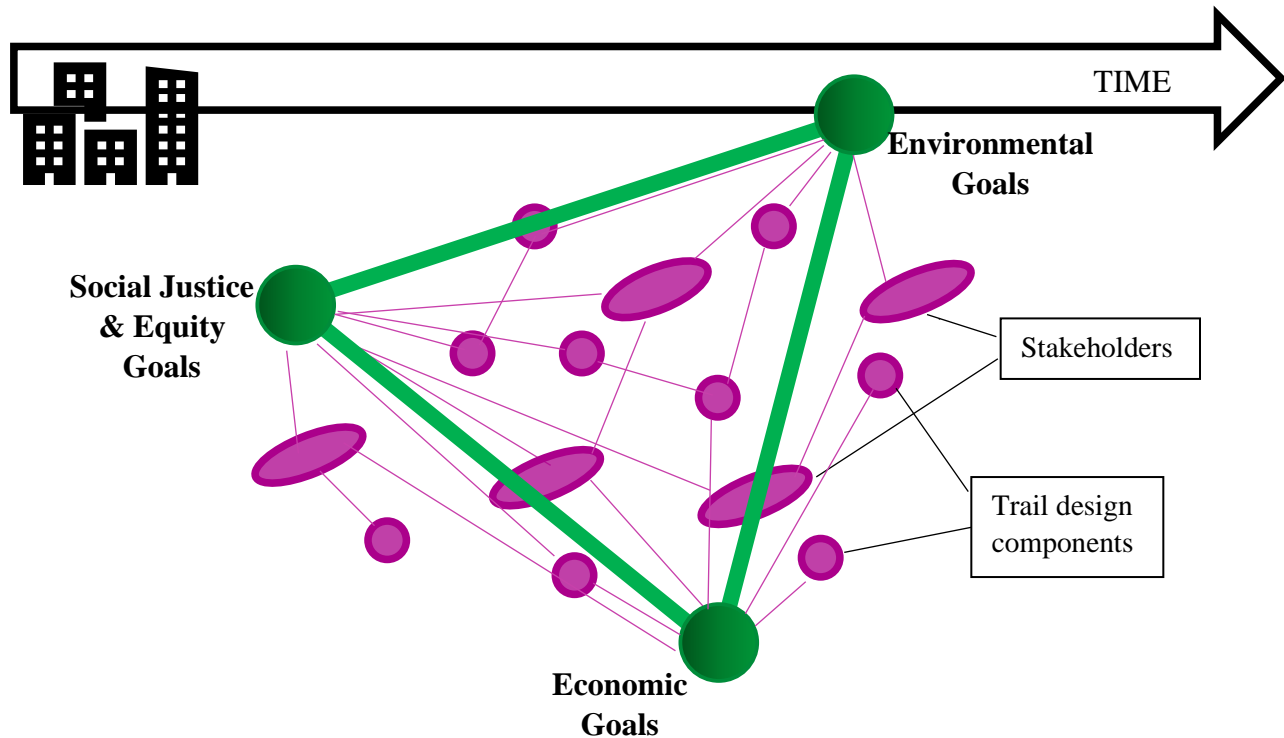
Greenways are commonly and popularly viewed as a part of sustainable development (Weber et al., 2017). As infrastructure that may hold a host of environmental conservation and mitigation benefits, social health and wellness promoting uses, and community building and economic advantages, it is often funded with expectations of meeting much, if not all of this potential (Eyler et al., 2008). However, in reality, greenway and green space development is prone to be economically driven, environmentally limited, and socially discriminatory (Curran, & Hamilton, 2018b; Immergluck, & Balan, 2018).

### **Synthesis of theoretical perspectives.**

These three theories come together to collect a story of what is happening in Roanoke's greenway trail development. Starting with the relatively flat view of the planner's triangle for sustainable development, one can look at the greenway trails on the surface level and see what is being valued, planned and acted on in the development processes (See Figure 8). Next comes an examination of how resources are allocated and how the uneven triangle takes shape. The tensions that exist or that are likely to exist between the competing goals for sustainability in Roanoke then come to light.

UPE then surrounds that picture with context. The long line of history that led up to this make up of social justice and equity, environmental preservation, and economic sustainability leads us up to and closes in on the most immediate picture of stakeholders, power structures, and situational forces that direct and influence the distribution of Roanoke's planning triangle. Adding depth to this picture from all directions, ANT shows the relationships between the greenway trail and the people and places surrounding it (how it is functioning in the community as a physical presence), and it also represents the dynamic relationships in the process of development (how relationships between stakeholders and intentions for trail interact).

Figure 8: Theoretical relationships



UPE provides contextual understanding of the city's development over time. Campbell's sustainability triangle frames understanding of a place at a given moment based on its current environmental, social, and economic goals and the relationship between them. ANT act to provide understanding of how trail structure and stakeholders work to influence those goals and how they are pursued. Stakeholders are joined through common goals and/or components of trail design that work toward multiple goals.

All three theories take a specific look at power and how it affects community. There is a congruence in ontological perspective that there are multiple truths, and hearing those truths are crucial for understanding a community. The theories line up in their view that those with power abuse it and, in doing so, damage the community. Within these theories, there is also a respect for listening to diverse voices from the community. In UPE, power is looked at in how it affects the landscape and how that in turn changes and affects the community on that landscape. In ANT, community members are important in showing how networks and systems operate. In sustainable development, community members are relied on to signal whether justice is being met in community development practices.

Likewise, all three theories line up in their complexity perspective. Complex interactions and dynamic behavior are a part of all three theories. In practice, understanding context is a first step in each of their coinciding methodology. UPE looks at how the circumstances, participants and capital interact to result in metabolism of the urban environment. It distinctly looks at how powerful actors work to manipulate the system and produce self-benefitting political and economic outputs. ANT looks at how actors interact and form complex systems. Together, these theories provide a perspective with which to look critically on development and to discern how to move it towards a more sustainably working system. In the next chapter, I discuss how these theoretical perspectives influenced and guided my methodology.



### **Chapter 3: Methodology**

The purpose of this research is to understand who is benefitting from the RRG in the context of the Mountain View neighborhood, in what ways they are benefitting, and what allows them to do so. The primary objectives of this research are 1) to understand ways in which the planning and development process of the RRG trail reflect the needs and values of its stakeholders, and 2) to show ways in which the physical greenway trail benefits community stakeholders of different levels of power. These two aspects of the study are meant to address the different ways the greenway trail acts as a system: through process and performance.

To address these questions, I used a qualitative methods approach. Semi-structured interviews were used to identify stakeholder perceptions and values, ethnographic methods were used to see how the trail is used (and by whom), and qualitative mapping techniques were used to identify places of meaning and significance on or near the trail. This chapter will address the methods and methodology that I employed while conducting this research.

The application of methodological concepts guide and provide a cohesive foundation for a research design. Before exploring the ontological, epistemological and methodological underpinnings of my research, I define each of these concepts and explain their importance. Next, I build on these definitions in following sections with ontological and epistemological positions particular to my research and practical factors that influence them. I then move on to describe research questions and the research design used to investigate them.

#### **Ontology, Epistemology, and Methodology Defined in Context**

Ontology is defined as “the study of what things exist and what they are” (Bailey, 2018, p.65). Ontological perspectives include ideas about the world and reality. Of particular interest in the socioecological and planning and design fields are questions about the nature of the

relationship between society and environment, how the world operates as adversarial or collaborative, what it means to have agency and power, and how reality changes with time (Harvey, 2008; Hausknot, et al., 2016; Meadows, 2008; Spencer, Pryce, & Walsh, 2008).

Exploration of ontological perspectives also reveals basic assumptions about what there is to be learned or known. This may include distinctions of what can or should be measured. Examples of these distinctions may be whether one should measure an entity or the sum of its parts; ideas, materials, or experiences; and interactions or outcomes.

More broad ontological distinctions include views of the world as having a single Truth or multiple truths. A perspective of the world as having a single reality implies not only that there is one objective truth to be known but also that all research done will be building to an understanding of that one truth (Bailey, 2018; Guba, & Lincoln, 2008). Conversely, viewing the world as containing multiple realities might imply that there are multiple truths to be known, that reality is subjective to its context, and that research works to reveal (or co-create) multiple realities (Bailey, 2018; Guba & Lincoln, 2008; Spencer, Pryce, & Walsh, 2014). This latter approach to ontology is sometimes called “social knowledge” and has closely tied implications for epistemological and methodological approaches (Guba & Lincoln, 2008).

Though some researchers propose that ontology and epistemology are collapsing in on one another (Guba & Lincoln, 2008), there are some key theoretical underpinnings that make these concepts distinctive. Ontological views may be identified by implications for existence itself. Definitions and ideas about what the world is, what is in the world, what those things are like, and how they interact are ontological concepts. They are the basis on which epistemological perspectives and arguments are built, whether or not researchers acknowledge them as such.

Epistemology addresses the question of where knowledge comes from. While this may be viewed as a practical query, it is complicated and political in application. As Sandercock (2003) points out, it is a “justification strategy” which may be used to include or exclude certain perspectives (Sandercock, 2003 p.68). Epistemological questions include who may know, what makes their knowledge valid, what kind of relationship between researcher and researched is permitted, and whether knowledge is found, created, or something between (Bailey, 2018; Sandercock, 2003). The answers to these questions may privilege some groups and discriminate against others, and in many research traditions, it has fulfilled both of those roles (Sandercock, 2003; Schwandt, 2000).

Specific questions that are encompassed in epistemology in the field of planning include those of valid, relevant and accepted forms of knowledge; of uncertainty and adequacy of knowledge; of knowledge in context; and of the relationship between knowledge and power (Sandercock, 2003). In the context of socioecological systems, it may encompass how knowledge is gained from nature, what that knowledge implicates for future action, and how nature-human connections translate to knowledge production (Lykke, 2009). Key theoretical underpinnings that distinguish epistemology as a concept are those that explore ways of knowing. Descriptions of research which describe forms of the nature, gathering, analysis, interpretation, distribution, and use of knowledge are addressing epistemology.

Methodology can be described as the way in which research is conducted (Bailey, 2008). With research questions, theoretical perspectives, and ontological and epistemological positions as boundaries, methods and the manner in which they are carried out make up methodology (Bailey, 2008). In interviews, this may entail which questions will be asked, in what manner the researcher interacts with the participant, how the participant will be compensated, how the

information obtained from the interview will be interpreted, who the information will be shared with, and how it will be used by the researcher or research participants. Methodology includes also the details that are make up those steps and the reasoning that backs them up.

There are key theoretical underpinnings that make methodology distinctive from epistemology, ontology, and methods. Specifically, it can be distinguished as the application of epistemology and ontology in research plans and practice (Bailey, 2008). Methods are part of those plans and practice. Namely, they are the techniques and tactics that researchers use to collect data (Bailey, 2008)

It is important to acknowledge that different fields of study may approach methodological questions differently (Spencer, Pryce, & Walsh, 2014). Fields within social ecology, or fields that work with both the environment and society, bridge disciplines with different ontological and epistemological perspectives (Hausknost et al., 2016; Schwandt, 2000). Practitioners in these fields have the challenge of acknowledging differences in approaches and making sense of how to reconcile their differences while accounting for the complex connections between their fields.

### **Ontological and Epistemological positions**

The ontological and epistemological positions for this research project were influenced by practical factors, including the nature of the research subject and the project's specific research questions. This section describes this project's ontological and epistemological choices, and then it will defend those choices by describing the practical influences for those choices. This will lead to a deeper discussion in the next section about how theoretical thinking plays a part in these ontological and epistemological positions.

Ontologically speaking, an underlying belief in my research is that there is not only one reality out there. In the context of greenway trail development, this translates into an assumption

that the benefits and perceptions of the greenway will differ for different communities. The perspective of someone with power to create and implement the trail will differ and possibly conflict with those who don't have those positions of power and with those who are living near the greenway trails.

The world is viewed as inseparably connected, as opposed to as compartmentalized into realms of the social and the natural. Further, humans and the environment are viewed on the same plane, as opposed to existing in a hierarchy. Dualistic relationships between humans and the environment allow for their relationship to have both conflict and support and for both parties to have agency and exert power within their system. Agency is viewed as an ability to act, and power is viewed as having agency to influence other actors in the system. Each of those qualities is subject to change in actors with time.

In my research, I view reality as changing. It transforms with time as socio-environmental systems evolve. It can be intentionally or unintentionally shaped by actors, but, as a system of actors with agency, it is unpredictable. To instigate intentional change, there must be an awareness and acceptance of the reality as it is, and then action must be taken from that sphere of understanding. At any point in time, reality can be better understood by better understanding actors and their interactions. There are truths about that reality that come from that understanding.

From an epistemological standpoint, I understand that knowledge is co-created with the researcher. Knowledge is created from both researchers and research participants through experience and reflection on that experience. Part of this relies on personal intuition: a combination of sensing, thinking and feeling that represents a systemic view of personal experience. In the context of greenway trails, this perspective is particularly salient, as peoples'

understanding of the trail comes from their journey on it and from their interaction with and sensing of others and of their physical surroundings. Different knowledges can build on one another to create new or more thorough understanding of the world.

The knowledge created is subjective and bound to be communicated and analyzed differently based on who is doing the research. As a female, white graduate student who is looking at trail development, I will go about obtaining and interpreting data differently than others might. Participants will offer information and assistance differently than they might if I were someone else. The relationship between researcher and participant should be authentic if it is to be considered valid. Honesty in presentation of myself, my research project, and its implications is a foundation for that relationship.

Further, there is only so much that can be known about the system being studied. I cannot determine why actors in a system act as they do, but I can describe what is happening and show how that action is supported by the system. I can understand the role of power in that system and find how those in power benefit and perpetuate those systems.

Adopting a systems perspective necessitates feedback from all actors to understand how the system is operating. Perspectives of people in minority racial groups, women, people of different ages, and people from different levels of education and wealth all have valuable knowledge that needs to be shared. Knowledge is valid if it reflects authentic experience.

Knowledge may be shared with the assumption that it may inform others in similar temporal, spatial, social, political, and/or environmental situations. There is some uncertainty in this knowledge because it is specific to context. However, commonalities between research conducted in different contexts can lessen the degree of uncertainty.

Knowledge is viewed as a form of power. Participants who gain understanding of their socioecological context have more power to challenge and change it. Shared knowledge through research publications, grey literature, or media publications can increase awareness of and change attitudes about a subject. These shifts are powerful and can bring about meaningful change when action is taken.

**Character of case influence on positions.**

This research is situated within urban planning, design, and community development disciplines, which have both been shaped by problematic histories of manipulation, exclusion, and discrimination (Sandercock, 2003; Fullilove, 2005; Norgaard, Reed, & Van Horn, 2011). Traditions of planning and design practice were formed with embedded racist, sexist, and elitist ideologies (Sandercock, 2003; Spann, 1998). Culture and society are progressing away from those ideologies, but established policy, procedure, and physical infrastructure continue to reify environmental injustice (Flyvberg, 2002; Kitchall, 2012; Norgaard, Reed, & Van Horn, 2011; Sandercock, 2003). With this backdrop of manipulated landscape and population, there is a need for researchers and practitioners to challenge dominant discriminatory practices and ideas that are embedded in their disciplines.

Arguably less visible in planning and design disciplines are narratives that affect how humans interact with the natural environment. For example, there is a long tradition of distancing human and natural realms. As Finley (2019) elucidates, “The nature-culture binary is a key organizing principle of Western modernity and capitalist society. It is a spatial imaginary wherein nature is located ‘out there,’ external to the realm of human affairs.” (Finley, 2019, p.246). This distancing allows for the idea of human agency dominating environment, which is often thought of as passive, and this promotes the manipulation of the land for capital gain

(Finley, 2019). Indigenous ways of knowing which promote human connection to the land are brushed aside or viewed as inferior to scientific ways of knowing (Minkoff-Zern, Peluso, Sowerwine, & Getz, 2011).

It also acts as a barrier to unification of expertise and collaboration between scholarly social and environmental disciplines (Hausknot, 2016). When scholars view their fields as having a different character and ontological and epistemological approach from one another, it is challenging to find mutual solid ground on which to build. One tact that is used to bridge the gap between these long-separated sectors of life is to adopt a systems approach in research and practice (Hausknot, 2016).

The landscape of the planning and community development disciplines and their histories call for deliberate acknowledgement and confrontation of planning practice ideals in research methodology. Ways in which this is represented in my ontological and epistemological approaches are in views and representations of human-nature relationships and interactions; in views of unequal and unjust distribution of power and resources; and in views of knowledge coming from all actors, or stakeholders, in a system.

The role of the natural environment and efforts to protect it also influences ontological and epistemological perspectives. This is a research area in which the state has explicitly rejected local knowledge as biased and unscientific (Kitchall, 2012). It has also favored 'scientific knowledge' that has a history of promoting the interests of government and extractive industries (Kitchall, 2012). Counter urban development movements emphasize the value of nature and the connectedness of nature and society.

In this context, the theme of power is present in understanding a space and its role as a place. The conversation of greenway trail development necessitates the examination of power of



humans, of nature, of planners, of neoliberal and racist social systems, and of ideologies that reinforce current conceptions of power.

**Theoretical underpinnings.**

Thought leaders who shaped the theoretical underpinnings of the theories I employ in this research also direct my ontological and epistemological choices. Within the social sciences literature, power has been described as power over, power with, and power within (Park, 2007). Power over means the power to control others and the environment, power with is the power gained in solidarity with others, and power within is power that comes from confidence and self-belief (Park, 2007). These categories can be used to explain how different theory and theorists help to shape my understanding of power in research meant to empower community members through research processes. These theories and theorists come from social, and planning disciplines. It should be noted that these theories do not fall into only one of these categories. Rather, the progression of how theories represented and challenged power and how they influenced thinking in the planning discipline, land use views, environmental movements, and greenway development.

***Power over.***

My understanding of how the power to control the environment and the people within it comes from counter-Enlightenment philosophers and theorists. As part of a societal movement, these theorists come from different disciplines, but they converge in their description of how a relatively few exclusive and powerful people shape the social and physical environment for capital gain. These theorists challenge that power by identifying and questioning the logic behind it. They plant the seed that things could, and perhaps should, be done a different way. ‘Power over’ forces are what make community centered research approaches necessary, and the

awareness of those forces help to direct action. Recognition and awareness of this power is a form of power itself; they lay the foundation for actors to act from a place of consciousness. Marxist Political Economy describes how the capitalist economic system metabolizes resources (human and nature) to create more capital for those in power (Dimmelmeir et al., 2016). Marx highlights the role of the value of commodities in this process, with arbitrary value fixed to commodities that can be used to increase power for some and limit it for others (Harvey & Smith, 2008). In the capitalist system, Marx finds that human labor is devalued while land value is enhanced, increasing the value of the land that the state and bourgeois class hold (Harvey, 2008). With this dynamic, power through capital continues to grow for some and shrink for others (Harvey, 2008). LeFebvre has added an important facet of criticism of that system: state land ownership. LeFebvre argues that this unquestioned practice is an important part of colonization that has continued unjust practices (Brenner, & Elden, 2009). His point is especially salient in the context of social justice, where many of the power issues that communities face are related to access to and health of land. Examples of these issues are food security, environmental determinants of public health, and access to green space. John Dewey was another important influence for my understanding 'power over.' He directly challenged enlightenment philosophy and research traditions with more democratic research approaches and epistemological positions (Sandercock, 2003). Dewey made clear that knowledge comes from experience and growth and that thought and action are inseparable (Levin, & Martin, 2007). He further challenged enlightenment thinkers by claiming that knowledge should be produced to make a difference in the world, as opposed to claiming to be neutral (Sandercock, 2003). Dewey's contrasting views help to reveal the elitist nature of enlightenment knowledge production and its oppressive functions.

***Power with.***

My understanding of the ways in which power is challenged through ‘power with’ come from theories and theorists who promote change through views of interconnected society and nature, through collective action and through promotion of equality. Power with is apparent in social and environmental movements. When people realize they are not alone in the problems they are facing, they are validated and become powerful in that knowledge (Greenwood, & Levin; Kitchall, 2011). They are further powerful because from there, they can take collective action to challenge systems of oppression (Greenwood, & Levin, 2007).

The first step in ‘power with’ is peoples’ and communities’ understanding of their connection to one another. Actor Network Theory (ANT) may overtly ignore the role of power, but the perspective implicitly has a quite democratic view of how power works. Looking at inanimate objects as part of the system and evaluating their influence as part of equation for how the system operates, ANT focuses on the function of the system and its potential action. It is used to gain understanding of “forms and standards” that allow behaviors to exist and cycles to run (Heynen, 2014, p.601). According to Holifield, the deliberate absence of social theory in ANT is to allow room for viewing the social as “circulating accounts aiming (and often competing) to establish the right composition of society, social intentionality, and social action” (Holifield, 2009, p.644). These connections allow a path to changing the way a system works, in other words, shifting where the power lies in a system.

Actors in the system may exert different kinds of agency, which Latour contends are difficult to determine (Latour, 2007). Ontologically speaking, ANT understands both human and nonhuman actors to have energy about them that plays a part in the assemblages of society (Holifield, 2009). Again, epistemologically speaking, ANT contends that the causes of these

assemblages can't be known but their functioning can be described (Holifield, 2009). The next step in my mind of 'power with' is the unification of those who have similar experiences and ideas to develop a collective voice for activism. In this vein, postmodern feminist theory combines two important schools of thought addressing power. Postmodernism was an important shift in thinking about power in research that challenged restrictive Enlightenment views of knowledge finding and truth (Sandercock, 2003). In the context of planning, land use, and environmentalism, it challenged modernist views of planning that used elite, expert, male decision-making power to metabolize land in the name of progress, and it encompassed feminist thinking and the beginning of a global movement of indigenous people for sociospatial justice (Kitchall, 2011; Sandercock, 2003). It uncoincidentally ran parallel to the environmentalism movement fueled by Rachel Carson that countered progress through industrialization, extractive industries, and post-Fordism development (Kitchall, 2011). While opposing modernist traditions of theory and logic, postmodern feminist theory questions the exclusion of minority voices in society and in social movements, including the feminist movement (Sandercock, 2003). It also asserts that knowledge is "historically contingent and possess(es) an embodied subjectivity" (Sandercock, 2003, p.72).

Urban political ecology (UPE) combines the ideas of ANT, postmodernism, feminism, and others to characterize the unjust systems of urban land use. UPE is a theory developed to articulate the economic, political, social, and ecological influences on urban landscapes, namely, uneven urban landscapes (Heynan, 2014). UPE assumes that powerful institutions alter the urban landscape to meet their own needs, and in its methods, UPE questions how an environment has been shaped and what the implications are for those living within it. Its ontological lens sees land and its resources used, or metabolized, in the city with tangible outputs which benefit those with

power and financial capital. UPE is intimately tied to social equity and environmental justice. It is a natural fit with those fields because it shows how the land and those connected to it are disadvantaged by external manipulation. It shows patterns of misuse, and it challenges dominant narratives which are used to legitimize those patterns and to take advantage of marginalized communities. Within UPE, Latour, Swyngedouw, Smith and Harvey are theorists who shape my understanding of the powers at play in urban landscapes.

The third step in 'power with' is the power to change through collective power and capacity building. The idea of collective empowerment is championed by notable critical theorists and by critical planning practitioners. As Forester explains, "the transformations at stake are those not only of knowledge or of class structure, but of people more or less able to act practically together to better their lives, people we might call citizens" (Forester, 2001, p.116). Forester emphasizes the need for planning communities' abilities to identify and anticipate of misinformation; this, he says, is a way to counter the way that democratic planning power is routinely thwarted by systems of manipulative power (Forester, 1982). Healey (1999) builds on ANT foundations by emphasizing how collective knowledge is constructed through dialogue across relational webs that "develop coherence as they become 'relational worlds' ... in which people construct their being, their sense of themselves" (114-115). She contends that power is built through this knowledge.

Habermas describes a similar process happening through collective meaning-making in conditions which free actors of coercion and characterized by shared and gained understanding (Greenwood & Levin, 2007). In this process, communities are able to develop a shared language that they can use to challenge existing systems and power structures (Greenwood & Levin, 2007). Freire also believes that dialogue is a means for powerful change and adds that sharing

stories and reflecting on them along the way is a way to change the world through collective, cogenerative knowledge (Greenwood, & Levin, 2007). Flyvberg (2002) demonstrates how these ideas can be put in practice with his research and use of media in publicizing his research to create a dialogue and change collective understanding.

***Power within.***

Freire's theory of power through collective knowledge is only half of the story. Another is the process of gaining power by gaining knowledge and looking at the world in a new way. Foucault touches on the same idea but in a different way. He says that power is out in the world for the taking, but that people are subjects of power because of how they think of themselves in relation to it and how they are caught in collective imaginations of it (Heller, 1996; Foucault, 1983). Foucault's answer is to reject current individual subjectification and reimagine power structures (Foucault, 1996).

Forester explains how this internal transformation happens through experience. He says that community participants in planning processes are challenged "to learn about strategies that will or will not work, to learn about responsibilities and obligations as they assess proposed norms of action, and to learn about themselves and others with whom they might act" (Forester, 2001, p.202). These actions define and change values.

These ontological and epistemological positions are prevalent in the purpose of my research and in my research design. The state's power over, which is the historical pattern of planning in greenway development and in Roanoke governance must be examined. I believe that power with and power within should be enhanced among those most affected by the greenway, and that the research I conduct should work toward those goals. It is important to me that my research contributes positively to the community that gives their time and energy.

## **Research Design**

My research questions were directed towards gaining understanding of my central question: who is benefitting from the RRG, in what ways are they benefitting, and by what allows them to do so? They addressed how power plays a role in both interpretation and development of the greenway trail, and how personal values tied to the greenway reflect sustainable development values, which reflect needs of the broader socio-natural system.

The methods used to investigate these research questions were meant to elicit deep understanding of the answers to these questions by both the researcher and the community participants. To do this, I chose to examine a single geographical area, in depth as an embedded-case study. The case study method is fitting for my research questions because I asked questions that required explanatory responses and context, and that focused on contemporary events (Yin, 2009). Though history is part of the context of my case, I asked how current and historical context influences stakeholders' *current* experiences and perspectives.

The case, or unit of analysis, chosen to answer my research question was the RRG located in Roanoke, Virginia. Specifically, I conducted my research on the RRG in the spatial context of the Mountain View community, a neighborhood which borders one section of the greenway. Imbedded units of analysis were stakeholders of the greenway. Stakeholders were broken into three groups along their lines of formal power in greenway trail development processes: community residents, greenway commissioners, and members of Roanoke's city and regional leadership. The case was temporally bound to current perspectives and experiences, though these were likely influenced by historical events and past experiences. The constructs examined are stakeholder perceived values of and needs for the greenway trail. These were operationalized in the form of sustainable development values and utility, respectively.

The translation of the overarching questions into community-specific questions reflected the historical, cultural and physical context of Mountain View and of its portion of the greenway. They sought to personalize RRG development and implementation to Mountain View, understanding how planners' intentions for the trail align with residents' experiences of it.

Ontological implications from all of these research questions were the presence of multiple realities, the connectivity of human and environment, an assumption that stakeholders distance the ideas of human and environment, and a view of agency in both humans and non-human elements of the trail, including the natural environment. Epistemological implications were that knowledge comes from all actors in the system and that knowledge can be obtained from experience and dialogue with others about their experience.

To investigate my research questions, I examined how planning intention matches with reality of the physical trail and its role in Roanoke's greenway trail process. Qualitative methods included map analysis, ethnographic techniques, and semi-structured interviews with stakeholders holding different levels of power were used in congruence to fulfill this purpose and answer specific research questions.

### **Timing**

Data collection was conducted between the first weeks of December, 2019 and April 2020. There were some participant volunteers who I did not speak to because we were in the process of setting up times and places to meet when COVID-19 safety restrictions began to be recognized in the community and enforced by IRB. Opportunities to follow up and meet with volunteers were cut short, and I could not reach three residents who volunteered to participate. It is also worth noting that this timeline gave me a limited perspective of the greenway because of the season and weather, which are closely related to interaction and activity on the trail, and with



peoples’ perceptions of the greenway. This became apparent during interviews when weather and time of day were consistent contextual factors that participants used when describing the greenway. It was also apparent to me as someone who has used the RRG in all times of the year but was taking fieldnotes for this research during winter and spring months. What I feel on the greenway and how I use it change with the weather, time of day, and time of year.

Table 3 Research Timeline

Steps	Start date	End date
Defend research proposal	Nov. 2019	Nov. 2019
Obtain IRB approval to conduct research	Nov. 2019	Dec. 2019
Recruit Participants	Dec. 2019	Mar. 2020
Data collection: Participant Observation	Dec. 2019	Mar. 2020
Data collection: Interviews	Dec. 2019	Apr. 2020
Data collection: Mapping	Dec. 2019	Apr. 2020
Transcribe interviews	Jan. 2020	Apr. 2020
Code and Memo interviews	Feb. 2020	Apr. 2020
Memo fieldnotes	Mar. 2020	Mar. 2020
Member check interviews	Mar. 2020	May 2020
Write chapters 4-5	Mar. 2020	May 2020
Defend dissertation	May 2020	June 2020
Report back to participating stakeholder communities	May 2020	July 2020

### **Research Questions**

#### **RQ1. How have planning, implementation, management, and user-adaptation of the RRG trail represented the needs and values of residents in Mountain View?**

This question investigates alignment between the needs of residents and the physical greenway trail. Needs are operationalized in the form of use or function that support residents’ ability to live within their community. This may include how the RRG contributes to Mountain View residents’ need for greenspace, physical activity, transportation, affordable housing, community space, connection to nature, or other needs. Further, it compares the perceived

purposes residents see for the greenway to the perceived purposes that those planning and overseeing the greenway think that it should serve or does serve.

This question also asks what values residents have in relation to those who plan and oversee the trail and how those values are represented in the physical manifestation of the trail. Examples of this may include the value of economic development through tourism or business development; the value of environment through protection of ecologically sensitive areas or stormwater management; or the value of the social community through social interaction on the trail or trail-specific communities.

This question addresses both the physical structure of the trail and the manner in which it is adapted for use, and the process of greenway development. Examples of this include ways in which community residents use the trail to their benefit, or ways in which residents are burdened by others' use of the trail. Though a space may be intended for appreciation of art or for physical activity, it may be used as a professional meeting locale or for marketing to potential personal business customers. It may be intended to be used as a safe space for recreation but may be interpreted as unwelcoming or dangerous because of how others use it. Sustainability values may also be apparent in how the trail is used. It may be intended as an area that will promote environmental sustainability but is littered by users, propagated by organized races that use unsustainable practices, or used by people who become patrons of a nearby unsustainable business.

From the ANT perspective, asking this question looks at actors shaping the greenway trail and feedback loops that promote or negate its intended function and form. This will be seen in coinciding or conflicting stakeholder perspectives and behaviors. UPE is represented in the analysis of whose vision of the greenway is actualized and who the trail is benefiting.

Sustainable development is the frame with which actor perspectives and behaviors are organized for analysis. In my methods, this was addressed in the semi-structured interviews, mapping, and in my observations on the trail. Coding and notetaking for needs and values were used in conjunction with trail use.

To answer RQ1, I propose answering the following sub questions, which are implied above:

**RQ1A: What are the perceived uses for and values of the RRG from the perspectives of Mountain View residents?**

This question explicitly asks the first part of RQ1, making it thus possible to compare responses across stakeholders and to examine how power and position may influence interpretation of the RRG's purpose. This question addresses the physical manifestation of the trail and how it is adapted by community members to meet their needs or preferences in everyday living. Examples may include ways in which the trail does or does not connect to meaningful places located on and off the trail, ways in which the greenway is a part of neighborhood identity, or ways that the greenway influences Mountain View residents' everyday activities. In my methods, this is addressed through mapping techniques and semi-structured interviews. The initial map that shows the neighborhood and its relative location to the map is altered by interview participants to show places of meaning on and near the greenway in their community, including places they visit for recreation, shopping, work, and other functions of their daily lives.

**RQ1B: What are the perceived uses for and values of the RRG from the perspectives of greenway planning commissioners and city and regional leadership?**

This question explicitly asks the second portion of RQ1 that is needed to compare perceived needs and values of stakeholders: what the people making plans, implementing, and managing the trail understand the trail's purpose to be. This piece, along with RQ1A, make it thus to compare responses across stakeholders and to examine how power and position may influence interpretation of the Roanoke River Greenway's purpose. Greenway commissioners and planning government officials will answer questions about the greenway from their perspectives as planners. These responses are meant to elucidate how decisions are made regarding placement, prioritization, and design of the greenway. This question is answered directly, through semi-structured interviews.

**RQ1C: To what extent do these residential, planning, and government official stakeholders' values for the greenway fit with social, environmental, and economic sustainability values?**

This question addresses how social justice and equity, environmental sustainability, and economic sustainability are present in the language and actions of Mountain View residents, planning commissioners, and government officials. By asking this question, I compare local stakeholder perspectives with pertinent sustainability values that society at large has deemed important for all. In the context of greenway trails, social justice and equity includes how power is distributed in the development and management of the greenway trail, equitable distribution of benefits to community members, access to greenspace, and provision of affordable housing and transportation. Environmental sustainability means caring for biodiversity of the land, stormwater management, air and water quality, and promoting environmental stewardship in greenway users and businesses around trail. Economic sustainability is interpreted in how the greenway trail supports local business, how governments provide feasible plans for continued

funding for greenway management, and how the trail functions support local economy, especially in terms of individual income, access to jobs and affordable costs of living. In my methods, investigating this question is done through my observations of the trail and activities that I see taking place on the trail, through coding for sustainability values in semi-structured interviews.

**RQ2: In what ways does development and use of greenway space reflect the historical complexity of Roanoke city planning, including class and race?**

This question focuses on how greenway stakeholders understand, confront, and negotiate the complex history of land manipulation in Roanoke, and specifically in Mountain View. I address this question in three ways. The first is directly through queries about whose cultural artifacts are represented on the greenway trail; which populations are invited and welcomed on the greenway trail; which communities are represented and included in greenway development conversations; and how power and agency are represented on the physical greenway and in the greenway development process.

The second is indirectly through coding interviews for power in the community in historical context. This means looking at which stakeholders with direct power in planning process (i.e. planning commissioners and government planning officials) and with indirect power of financial privilege benefit from the greenway. It also means interpreting codes for sustainable development values, understanding that combined environmental justice and social justice and equity benefit historically underprivileged populations.

The third way I address this question is through my own observations of who is on the greenway trail, which cultures are represented on the greenway trail, which uses of the trail match with which stakeholders' values, and ways in which people are invited to or deterred from

the trail. Relevant observations also include accessibility, safety, and any others I encounter along the way that mark accommodation or interference of access for specific populations.

### **Research Location**

Roanoke is a fitting place to examine the role of greenway trails in communities and the role of power in developing those greenway trails for a two chief reasons. First, Roanoke has an actively developing greenway trail system with a rich history. The trail is viewed as an asset and is invested in with many ongoing projects. Second, Roanoke is an urban environment with a complex history regarding its diversity power structures and race relationships. Though greenway trails are relatively new to the city, the governing and social system in which they operate are not, and, as explored in chapter 2, those histories are documented.

Given the complex history of the trail and the complex history of urban renewal in Roanoke, looking at how a current, meaningful, well-valued development project like the greenway trail fits into those histories is warranted. Understanding the ways in which this project, one instigated by and meant to serve the purposes of community members, meets the needs of its diverse residents is important for understanding and directing the future course of the trail.

The Mountain View neighborhood is located just off of the RRG. Mountain View is located to the Northeast of the greenway and neighbors the train tracks that border a portion of the RRG. In 1882, Mountain View was created from the Ferdinand Rohr Farm. The farm owners subdivided their property into housing lots, and in 1888 it housed railroad executives as part of West End Development. It is directly south of what was a designated area for African Americans in 1928 planning documents (Harmon, 2018). Though other neighborhoods proximate to the greenway and near Mountain View are experiencing economic resurgence, Mountain View

remains lower income. It has a diverse population and diverse cultures represented. It has an active homeowners associations which meets on odd months of the year, and on the Mountain View side of the bridge, there is an apartment building which holds residents who are in the process of forming a renters union.

This neighborhood was chosen because of how it is situated adjacent to the trail and to other communities in Roanoke. It is a neighbor to the greenway and is accessible from the trail, making the greenway trail at least tacitly relevant to their residents. Adjacent communities are becoming gentrified, something that may be partially related to the presence of the greenway. Through the lens of UPE, Mountain View has less power than those other communities because of its relatively low economic status and because of its historical value as a low income, racially integrated community. Interviewing participants from this neighborhood is one way to look at unofficial power in greenway development and use in Roanoke.

### **Research Methods**

The methods I employed to answer my research questions are semi-structured interviews, qualitative mapping, and ethnographic participant observation. These methods give way to deep understanding the current social environment with the aid of historical context. They allow room for deeper, richer details, and because of that, more of the complex interactions that are happening between the greenway and the City of Roanoke may be revealed. The urban development of downtown Roanoke has had a deep foundation of research and scrutiny from Bishop's, Harmon's, and Fullilove's works, and it is said to be not unique from development processes in other U.S. urban environments (Harmon, 2019; Fullilove, 2005). It is appropriate to build on this foundation to understand how greenway trails fit into this picture and how more recent planning practices have reacted to past urban renewal outcomes, if at all. Using qualitative

methods that reflect on previous research are ideal for showing this progress. From a critical standpoint, these methods help to amplify the voices of community members who have limited power in the progression of Roanoke's greenway trail.

Conducting research with these methods in this way work to answer research questions in a comprehensive manner. They examine how the trail was previously and is currently developed using map analysis and perspectives of those involved with its development. They find how the trail is serving the community through mapping analysis of how places in and on the greenway are perceived, valued, and supported by stakeholders, through participant observation, and through semi-structured interviews. Concern with power is reflected in each method. Mapping gives power to participants by spatializing their perspectives of greenway trail development. A comparison between people with different levels of power is present in interviews. As a participant observer, I am attuned to power in the landscape of the physical greenway and the processes that shape it.

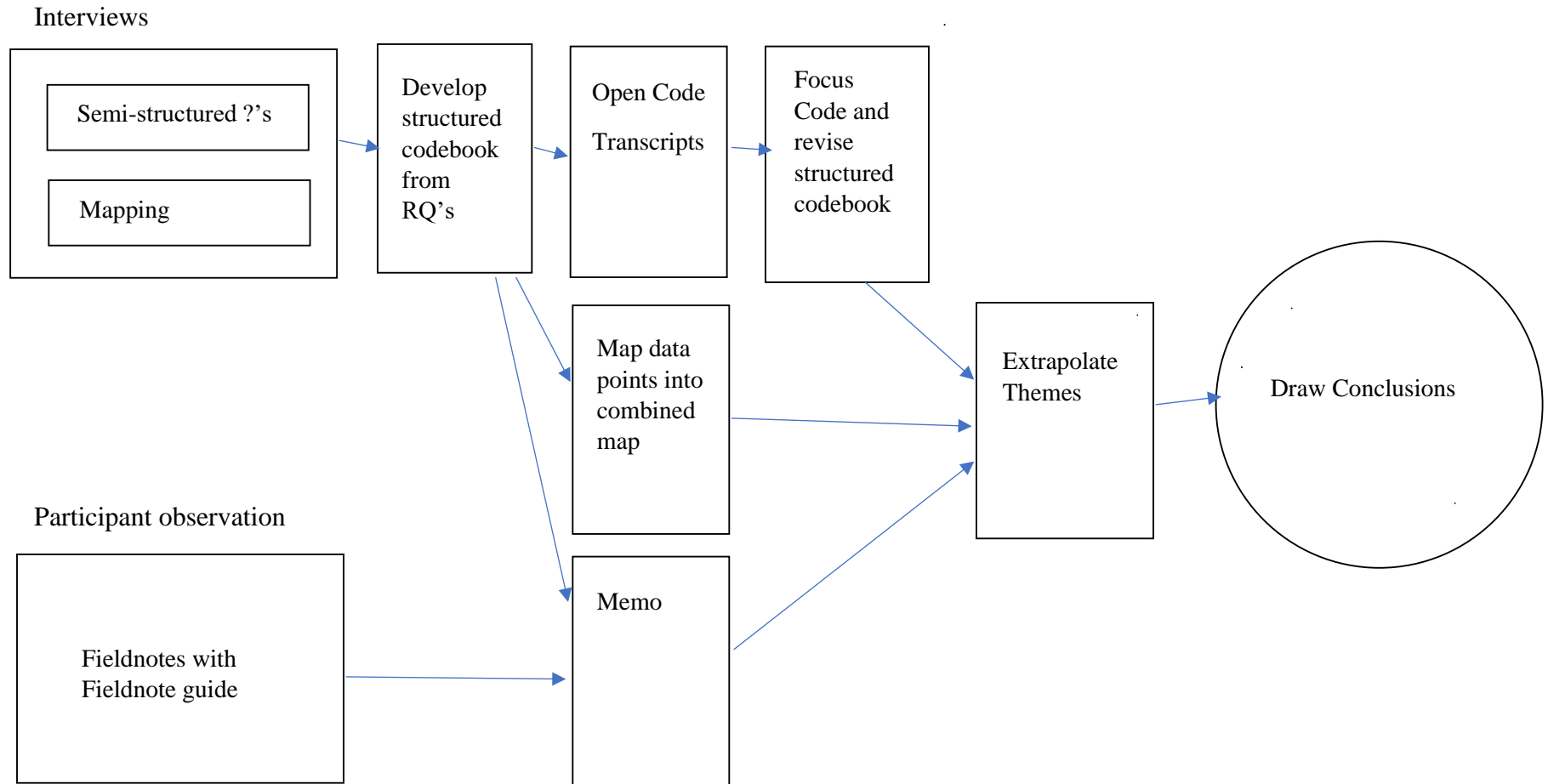
Complexity is accommodated in each method. This was mostly done in looking for changes over time of the greenway and its surrounding area, connections between community members and the trail, and incorporating planning intentions and history as a part of understanding the current greenway. Interview questions included historical perspectives of how the trail has changed over time and how the process of development for the trail has changed over time. The use of qualitative mapping accounts for change, flow, and movement through adding layers and context to static maps (Pavlovskaya, 2009). In ethnographic participant observation, I am recording the change in the trail over time and the change in my experience of the trail and the research surrounding it over time. Further, looking at who is involved and who



is connected in both development and use of the trail is a part of analysis throughout the research.

These methods work together logistically as shown in Figure 9. Interviewing, mapping, and participant observation data are collected during the same time period and, at times, simultaneously. They come together in memos I used to elaborate and understand meaning from combined data. Taken alongside coding data, they form themes. The process of referencing and manipulating static maps during interviews was one part of spatializing data. Participants made concrete references to places on the greenway, and these are not separate from interview data. They are in this way represented in the themes that emerged from coding and memoing. The story map, or combined map data, is a visual representation of interview data that pertained to spatial experience of the greenway.

Figure 9: Research design diagram



### **Semi-structured interview.**

The semi-structured interview method is a way to draw out interview participants' experiences and perspectives through semi-structured interview questions. Interview participants communicate their experiences in their own words, guided by direct interview questions, and put that experience into the context of their surrounding environment (Bailey, 2018). The interviewer modifies and adapts the interview protocol as the interview progresses, reordering open-ended questions and following up on participant responses to follow the lead of interview participants (Bailey, 2018). Also, information learned from one interview may change what is asked in future interviews with other participants. Interview data from a conglomeration of individual participants can show implications of macro-scale events or processes.

These interviews have a critical role beyond generating knowledge for community outsiders. As a form of storytelling, they can bring action-inciting awareness to an issue (Solinger, 2015). Storytelling was a part of this semi-structured interview, because I asked participants to recount experiences and histories. Those hearing a personal account may relate to it and feel less alone or may become aware of a problem they did not know of before. Further, those telling their stories may undergo a transformation. By reflecting on their experience, they may better understand their situation and be motivated to take action to change it.

Ontologically, this method is consistent with that of this research, that there are multiple truths to be told (Bailey, 2018). These truths are subjective and open to critique. By collecting and recording accounts from marginalized community members, non-dominant perspectives are made more visible. Epistemologically, it holds that some truths are found outside of dominant narratives through lived experience. The researcher co-constructs this knowledge in semi-

structured interviews. Both the researcher and participant hold power and influence in this process throughout the course of the interview.

For this research, three different groups were recruited to participate, representing three different levels of power. These are community residents, greenway commission members, and elected government planning officials. This purposive sampling was to ensure a variety of perspectives and to attempt to see multiple perspectives. As I spoke to greenway stakeholders, it became apparent that two regional developmental organizations were important influencers of the greenway and that city management and planning worked equally under Roanoke's City Council. Also, regional development organizations emerged as important stakeholders in the greenway development. As a result of these revelations, the 'elected government planning official' category transformed to a more appropriate and enlightening 'regional and city planning and management officials.'

#### ***Participant Selection and Recruitment.***

Eleven resident participants were recruited from the Mountain View neighborhood in Roanoke. They were recruited from the Mountain View Neighborhood Associations, through community events, and through referrals. I attended neighborhood association meetings and a church-held community dinner and verbally advertised the research study there, with permission to do so. I also accepted referrals from the Mountain View neighborhood liaison, Mountain View Neighborhood Association leaders, and the greenway coordinator.

Five participants from Roanoke's greenway trail commission were recruited. The commission is made up of people from various municipalities and expertise. So, of the representatives available, at most 7 were directly concerned with Roanoke City or Roanoke County. A purposive sample of representatives of different experience and expertise were

recruited. This included planners, administrators, engineers, Pathfinders management, and town officials. These participants were recruited from the greenway commission meeting by the researcher. One, a former greenway commissioner, was referred by the greenway coordinator.

Six participants were recruited from the Roanoke's city and regional governance, which oversees and funds the greenway trails. This included someone from each Roanoke City Council, Roanoke City Management, Roanoke City Planning, Roanoke Valley-Allegany Regional Commission, and Roanoke Regional Partnership. These participants were selected based on their involvement with and knowledge of the trail as well as their representation of different departments and organizations that deal significantly with greenway development. They were recruited by email, verbally at greenway commission meetings, and through connections from the greenway commission.

All of the participants received notification about what the project is, how their narratives will be taken and used, and their degree of anonymity in an email that followed an IRB-reviewed script. All participants were given informed consent forms at the time of interview to review and sign. I verbally reviewed the protocol and answered any questions about the research before the onset of the interview. After the interviews were transcribed, they were sent to the participants for approval. Transparency was key, and there was no deception in this research. My position as a researcher is that I am researching the Roanoke River Greenway's role in Roanoke's Mountain View community, or communities in general. If asked, I was ready to give further details of my research interests and values, but I did not present them as part of my introduction. This is for the purpose of maintaining trusting relationships in my respective communities and to not offend or scare participants away. No participant asked for details other than when I planned to complete the research and how I would share it.

***Interview Protocol.***

Interviews took place in a location of the participants choosing. All but one interview was conducted in person. The last interview took place over the phone and was recorded in a secured Zoom meeting. They lasted between 36 and 120 minutes. There was no compensation for taking part in the research, but value for any participant may be gaining greater understanding of the greenway and its role in their community. The interviews were recorded using a digital recorder, and the researcher took written notes before, during, and after the interview takes place, which was saved as data and contributed to the analysis.

***Interview Questions.***

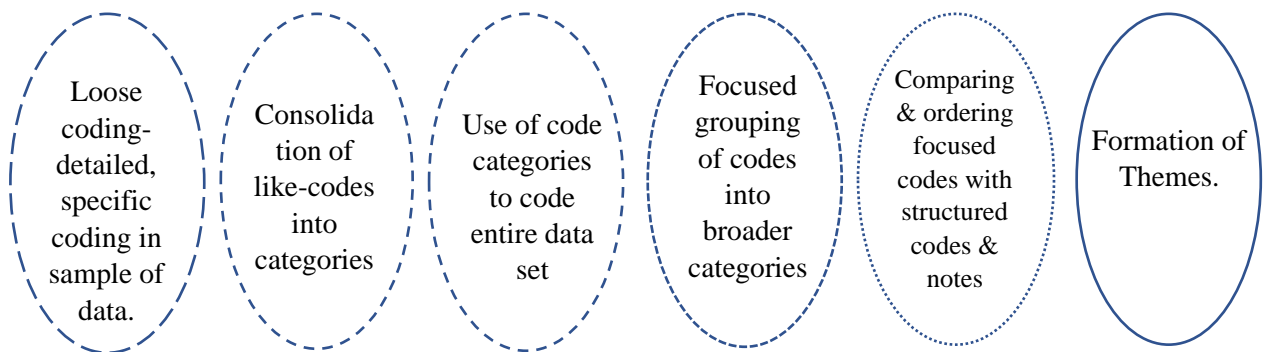
Interview questions in the semi-structured interview were meant to frame the participant's greenway experience and to answer specific questions for research questions (See Tables 1, 2, and 3). Open-ended questions made up the first portion of the interview. Mapping questions occurred near the end of the interview. I asked follow-up questions about responses to questions to help understand and clarify meaning or significance. Initially, I planned for the same number and format of questions to be used for those at the regional and city level of planning as were used for the greenway commissioners. However, after talking to greenway commissioners, whose interviews were all conducted before four of the five regional or city interviews, I quickly realized that some questions were not applicable to regional and city representatives. Therefore, I shortened the list of questions for the regional and city representatives, but did not change the content of the remaining questions. I had two follow up questions that I developed early on in the data collection period that I leaned on consistently in later interviews. The first question was for greenway commissioners and governance, "what do you think other places that are looking to

develop greenways can learn from the Roanoke River Greenway?” and for residents, “What if any hopes do you have for the Roanoke River Greenway?”

***Interview Analysis.***

Prior to data analysis, I developed a structured codebook that reflected the aspects of my research questions and my chosen theoretical lenses (See Appendix 9). In this codebook, I paid special attention to the three sustainable development goals. They will be compared across levels of power. Though the coding method has been criticized for its rigidity and lack of nuance (Augustine, 2014), it is appropriate because it provides consistency between methods and limits the scope of analysis. Coding was done using Atlas TI. The process was for coding is shown in Figure 10.

Figure 10: Coding process



Additionally, themes from the interview were analyzed through note taking, a technique that uses revelations gained through time in research and constant comparison of interviews by the researcher (Augustine, 2014). This technique is important for this project because, consistent with its systems background, it allows for emergent processes and the importance of time in gaining understanding a system. It also allows for flexibility and openness in understanding the research topic.

For interview data, there were 168 codes after consolidation of like-codes into categories (See Appendix 8). Some of these included mapping data that were not separate from interview

data. These collectively formed 15 focused code groups, which were organized by how they answered research questions (See Appendix 8). When examined next to structured codes (See Appendix 9) and notes, these focused groups contributed to 36 themes (See Appendix 8).

***Informed Consent.***

Participants were informed about the research study and about how their interviews would be used. Their responses were anonymous and any identifying information was omitted in publications. There was no known risk in participating in this study. Potential benefits include contributing to knowledge about their greenway trail and community, having their opinions and perspectives amplified through research publications, and increasing their own awareness of how the greenway plays a role in their community and how they can be a part of its development. Additionally, I am providing a digital map to all stakeholders and offer to present it to stakeholder groups and to educate them on how to modify it for their use. Participants and the researcher signed an informed consent form which was reviewed by the Virginia Tech Internal Review Board (IRB).

**Ethnographic participant observation.**

The role of writing in analyzing interviews is further consistent and not separate from the role of writing in the ethnographic portion of this research. Because of the integral nature of the physical greenway trail, it is necessary to observe the trail. This includes recording how the trail is interacting with its surrounding community- who is using it, how is it being used, in what ways it promotes or discourages action in the community? It also is worth exploring how the trail might change its character based on time of year, day of week, or time of day. This can add context to participants perceptions of the trail. So might how the character of the trail changes from one location to another.



Ethnography is an intensive method of research that involves a researcher to imbed herself in the field and to observe, form relationships, and analyze the field over time. It comes from the ontological basis that there are multiple realities, and the epistemological basis that these can be co-created (Bailey, 2018). As a researcher, my observations are part of the constructed knowledge. Though this is not a full ethnography, there are aspects of ethnography that were used. Those are field notes, relationship building, participant observation, and storytelling.

Observation and field notes were a progression. As I learned about the trail, the people surrounding the trail, and the processes that shape it, my knowledge evolved, and my fieldnotes record that evolution (Emerson, Fretz, & Shaw, 1995). Visiting the Roanoke River Greenway trail between October 2019 and March 2020, I recorded in these notes the sights, sounds, and feelings of the trail. They were documented with date and time. They were handwritten, typed, and recorded on a voice recorder, and were based on guides made before entering the field (Appendices 4-7). I observed and recorded interactions on the trail and with the trail and feelings about the trail and its surrounding communities. I also made written records of my first-hand experience in meetings of neighborhood associations, greenway art project groups, and the greenway commission. Again, I also took notes concerning my meetings with research participants.

Relationship building is a part of this research that began before the onset of this research project and continued to build throughout it. In the beginning, these relationships were with those who oversee portions of the trail- the greenway commission, parks and recreation, and the arts commission. Beginning in the fall of 2019, relationships were built with neighborhood

associations and community groups. This was important for learning about the trail, gaining trust in the community, and laying the groundwork for access to research participants.

Storytelling came into play on my end as I relayed the information from my time in the field into my research. Showing how the micro accounts of my experience and those of my participants fit into the macro picture of the greenway trail system came from expressively weaving together all of the field work with interview responses and research data. This is a true account that captures the Roanoke Greenway trail through the lens of UPE and ANT.

### **Mapping**

Qualitative mapping techniques were used to gather information about the greenway's relationship to community members of different levels of power in the greenway development process. Maps, as an "intersection of science, technology, and visibility" are a powerful and effective medium for communicating legitimacy of underrepresented communities (Pavlovskaya, 2009, p.25). Mapping "makes (social phenomena) visible and, therefore, 'real' and significant theoretically and politically" (Pavlovskaya, 2009, p.28). Spatializing Mountain View residents' experiences in this way creates a lasting record which may be used by greenway stakeholders as they work toward meeting community needs, such as access to affordable housing, greenspace, and transportation.

To create a map of meaningful places on and uses of the Roanoke River Greenway, I add interview responses, participant-modified maps, and my observations to existing maps. Using GIS mapping, I first overlaid a neighborhood map of Mountain View that showed street names with the map of the greenway trail. I used a black and white copy of this map, "map A," as a visual reference in interviews.

Map A and an official greenway map of the section of the greenway from Bridge Street to River's Edge, were both used in the semi-structured narrative interview as a device for residents to reflect upon and to add places of significance and need regarding the greenway and its surrounding communities. This included how they use the trail, where they would use the trail if it were present or connected, or barriers for using the trail. It also included local places of value on the trail, such as community gathering places, landmarks, or local cultural connection. I sent interview participants a static copy of their modified map(s) along with their transcript for review, comments, additions, and approval.

Throughout the course of the interview, all participants had the map that showed the section of the RRG from Bridge Street to River's Edge Park. Resident participants also had Map A. They were instructed that there would be a portion of the interview that specifically asked them to reference and mark on the map(s), but that they were free to use it as a reference at any point during the interview. After the interviews, I combined participants' map data which was a combination of written and verbal references to places on the map. I then made a visual story map, Map B, which showed and described places that participants identified as significant and meaningful. This polished map depicted a summary of the actual greenway trail development and features and the needs and values of stakeholders, as indicated in their maps and interview data. How each of these features takes form on the map depended on participant responses and my observations. It included to various degrees, explicitly stated needs for the greenway, places of meaning on the trail, barriers to trail entry or usage, intended development and features, needs and values of stakeholders in areas around the trail, and connectivity to transportation and places of significance in Roanoke. Showing this map as a living and evolving (rather than static) representation of the greenway near Mountain View, and with clearly marked stakeholder-valued

landmarks, this map can represent the temporal and complexity aspects of the greenway (Pavlovsky, 2009).

### **Reflexivity**

In this research, my race, gender, and age are all relevant and important to acknowledge. As a white woman in her thirties from an environmentally safe suburb in Oklahoma, I will relate to experiences of some members of these communities much more than others. I believe that many planners and managers of the trail relate to me because most of them are also white in this community and because I am a runner and trail enthusiast and can relate to them on this level of appreciation for the greenway trails. However, I am also an outsider. I am a doctoral student at Virginia Tech and have never lived in Roanoke. I am more of an outsider to some of the neighborhoods I will be working with in Roanoke. While some are predominately white and middle class, others are racial minorities, and some do not speak English. My ability to connect with these residents is important in hearing their experience with the trail, and finding appropriate and caring ways to work with them is crucial.

Roanoke has a racially charged history of urban development, and though those issues are not predominant in conversations I have heard so far, they are important to this research. In working with a subject matter that includes displacement, gentrification, and environmental injustice, there is a responsibility to present marginalized perspectives with care. It is also important to challenge and critique the power structures that propagate inequity.

I have wrestled with what my role should be as a researcher in this context. I have wondered whether I am a person who should research this question, given my inevitable lack of personal experiential understanding to those tricky issues. In the end, I have come to hope that I

Lovely\_ The Greenway Trail in Community Development

can be a person who is admittedly an outsider on many fronts but who can advocate for change by using that perspective.

## **Chapter 4: Findings**

### **Findings Introduction**

In this chapter, I report the findings from my data collection from the lens of UPE, ANT, and Campbell's Sustainable Development. Many themes arose in the data; the ones presented here are those that are most relevant to my research questions. Built on the structural base of my theoretical framework, I report who is benefitting from the RRG, in what ways they are benefitting, and what allows them to do so.

I identified themes from a combination of interview data from research participants (n=21), field notes (n=36), and map data from participant interviews (n=36), collected and analyzed as detailed in the previous chapter. Pseudonyms for participants and the stakeholder category they represent are listed in Table 4. The structure of my research questions themselves formed the structural codebook (See Appendix 9) and organization of themes in this chapter. For instance, when addressing RQ1C, I describe themes based on how they fit into discussions of environmental sustainability, social justice and equity, and economic sustainability.

Another notable organizational method comes from the separation of participant data by level of power in the development process. I drew some main themes separately from resident participants and greenway commissioners and city and regional leadership. The division between points of view of commissioners and leadership was initially intended to look at the way power functions in Roanoke and how that dynamic influences the process and outcome for the greenway. As I collected data, I found that many of the commissioners had perspectives that leaned more toward the interests of working-class Roanoke residents, and some aligned closely with perspectives from neoliberal governing and ruling class interests. Though there was variation in perspective within each category of stakeholder, it seemed that the commission was

a bridge that ideologically connected the groups. This is especially represented in findings that respond to research questions 1B and 1C. However, when comparing broad stakeholder groups, perspectives from residents are separated from all others, who are referred to as “city” perspectives. This is particularly distinct in the mapping portion of the data.

Table 4 Interview Participant Descriptions

Category	Pseudonym	Details	Length
A	Nellie	6-10 year resident, home owner	75:07
A	Nina	0-5 year resident, home owner	72:27
A	Rocky	10+ year resident, home owner	85:56
A	Leanne	10+ year resident, home owner	35:15
A	Sue	0-5 year resident, home owner	42:03
A	Andrew	0-5 year resident, home owner	45:25
A	Todd	10+ year resident business owner	59:40
A	Ryan	10+ year resident organization director	37:03
A	Isolde	0-5 year resident, home owner	54:42
A	Beverly	6-10 year resident, renter	49:55
A	Katie	0-5 year resident, renter	65:22
B	Brad	Greenway Commissioner	63:33
B/C	Tom	Greenway Ad Hoc & Regional development partner	54:02
B	FL	Greenway Commissioner & City employee	120:02
B	Jared	Greenway Commissioner & City employee	43:47
B	Jacob	Greenway Commissioner, former	86:25
B	Lyle	Greenway Commissioner, new	72:13
C	Robin	City Council person	46:12
C	Jack	City manager, community development	72:15
C	Bob Rightly	Senior City Planning	57:05
C	David M.	Regional development partner	48:21
		Total time	22:26:52

The themes presented in this chapter are presented with the research question they most closely align with. Some themes are meaningful for multiple research questions, and they are referenced and elaborated or specified for each applicable question. Research questions are restated as headers, and a brief discussion of their structural components precedes their

corresponding findings. Table 5 is a guide of the research questions and their corresponding themes. This table will be revisited in chapter 5 as conclusions are drawn from these themes.

Table 5 Research Question and Themes

<b>Research Question</b>	<b>Corresponding themes</b>
1A: What are the perceived uses for and values of the RRG from the perspectives of Mountain View residents?	<ul style="list-style-type: none"> <li>• Recreation, exercise, and transportation</li> <li>• Connection to community (people and place)</li> <li>• Connection to nature</li> <li>• Accessibility</li> <li>• Neighborhood Improvement</li> <li>• Fair negotiation of space</li> <li>• Maintenance and sustainability</li> </ul>
1B: What are the perceived uses for and values of the RRG from the perspectives of greenway planning commissioners and city and regional leadership?	<ul style="list-style-type: none"> <li>• Recreational amenity</li> <li>• Economic development</li> <li>• Connectivity</li> <li>• Community building</li> <li>• Alternative transportation</li> <li>• Environmental health</li> <li>• Maintenance and protection</li> </ul>
1C: To what extent do these residential, planning, and government official stakeholders' values for the greenway fit with social, environmental, and economic sustainability values?	<p><i>Environment</i></p> <ul style="list-style-type: none"> <li>• Environmental restoration and protection</li> <li>• Environmental stewardship</li> </ul> <p><i>Social Justice and Equity</i></p> <ul style="list-style-type: none"> <li>• Fair land acquisition</li> <li>• Affordable housing protection</li> <li>• Environmental Justice</li> <li>• Power of the public</li> </ul> <p><i>Economic</i></p> <ul style="list-style-type: none"> <li>• Generate revenue and business development</li> <li>• More funding needed for more benefits</li> <li>• Government finance of public good</li> </ul>
1: How have planning, implementation, management, and user-adaptation of the RRG trail represented the needs and values of residents in Mountain View?	<ul style="list-style-type: none"> <li>• Who is the greenway for?</li> <li>• For recreation</li> <li>• For accessibility</li> <li>• For community (people and place)</li> <li>• For neighborhood improvement</li> <li>• For environmental health</li> <li>• For economic development</li> </ul>
2: In what ways does development and use of greenway space reflect the historical complexity of Roanoke city planning, including class and race?	<ul style="list-style-type: none"> <li>• Events shaped the greenway</li> <li>• Transformational land use and development</li> <li>• Change in perception of how land is valued as asset</li> <li>• Greenways change historical patterns</li> <li>• Intentional land acquisition</li> <li>• Protect the greenway</li> </ul>



**RQ1A: What are the perceived uses for and values of the Roanoke River Greenway from the perspectives of Mountain View residents?**

I chose to present themes drawn from uses for the greenway first, though these are not necessarily separate from the values that residents assign to the greenway. The ways that residents utilize the greenway tend to bleed into their needs for the greenway and value of it. These insights are a part of answering RQ1, which explores ways in which the physical greenway and the processes that develop it represent the needs and values of residents.

***Practical uses: recreation, exercise, and transportation***

The most prominent theme that arose from resident interviews was of their use of the greenway for recreation and exercise. Walking, jogging, biking, scootering, fishing, knitting, people-watching, gaming, playing sports, swimming, boating and dog-walking were all activities that Mountain View residents participated in on or along the RRG. One long-term resident who uses the greenway regularly took part in a variety of recreational uses. She said,

*Mostly it's really casual walking with the dog. I'll go through phases of jogging. And then it's a little, little more heavy duty than that. But, yeah, usually we're just strolling with the dog; she's sniffing at her pace. Sometimes we'll take the binoculars down and watch birds. (Leanne)*

Greenway use changed for people along with their lifestyle or stage in life. This was especially prevalent in people with children. One resident, Nelli, said she predominately has used and valued the greenway for transportation but found new uses for it as a resource in her neighborhood after she had a baby. She said,

*We would like taking our kid in the stroller and going to do these exercise things in that loop. So, there is a use that I didn't think about before that I did just kind of circumstantial. That was aside from riding a bike. It was just walking through the greenway and like exercise and along that loop with a baby in the stroller. (Nelli)*

Using the greenway for exercise and to improve health was a less common answer, but it was a profound reason for using the greenway and wanting to live near it. One resident wanted to use

it to get her steps in. Another, Belinda, uses it as part of a recommended exercise program to recover from injuries and manage chronic back pain. Her experience with the greenway has centered on improving her health. She said,

*I think I pretty much started walking... I used to cross the bridge and walk the other way that goes to Bridge Street. Because I was trying to quit smoking. So I would walk that back and forth twice and go home. (Belinda)*

She reflected about her current use of the RRG,

*I keep in shape. Exercise is good for my heart. Keeps away the pain in my backside. (Belinda)*

Some residents talked about their current use of the greenway for transportation, traveling to work, school, or to places of interest on or near the greenway. The Blue Cow Ice Cream Company, which is about a mile and a half away from the Mountain View greenway entrance, is accessible from the trail and was a common destination for residents. The Green Goat restaurant and Wasena City Tap Room are within a half a mile and are also well-known destinations for many residents. Nina expressed views common to resident participants who use the greenway as an activity or a destination. She said,

*Sometimes we'll walk down to the Green Goat or to Wasena Tap. I like being able to use it to get to a place. We'll frequently bike down to Blue Cow. So, we'd like to use it as a destination, you know, as a means to a destination, a pleasant way to get somewhere that we want to be. (Nina)*

Less common were participants who use the greenway for commuting. One participant, Nelli, is an avid cyclist and makes a point to use it to get across Roanoke. She said,

*My husband uses it weekly. He takes my kids to school and picks them up from after school in a cargo bike. And he actually has to go to Southeast. So, he comes back on the greenway, he uses the greenway like almost on a daily basis. (Nelli)*

For her, the value of the greenway is largely dependent on how and where she is able to travel. She said,

*For me, just the connectivity, that it provides. You know, right now I can go anywhere Southwest of the city or Southeast by bike, knowing that I have a path. (Nelli)*

Though there were places that many residents traveled to as a destination, they mentioned that their ability to use the greenway for transportation was limited based on what type of destinations were connected to the greenway and how close to Mountain View they were.

Andrew, a Mountain View homeowner, wanted places developed off of the greenway that created a sense of community and identity for his neighborhood. He talked about his vision,

*Well, obviously, if, ideally, these commercial establishments that would have tourist appeal, that would have local appeal, were to grow up along the greenway, or in the vicinity of the greenway, for example, on Cleveland... If that area became part of the greenway... there's plenty of room for commercial restaurants along the other side of that street. That's just an example off the top of my head of an area where that could happen. And then I think it could be just a wonderful it would make Mountain View much, much more attractive. (Andrew)*

His ideas were tied into brownfield remediation in Mountain View, which was a point of interest among some resident participants. Others saw different benefits coming to Mountain View with development off the greenway, including access to jobs and community spaces. One participant reflected on how development might affect residents. She said,

*I think, as far as people that like live here, it would provide some jobs. I think it would also provide...the people who are running it would probably make a pretty decent amount of money. It would also be nice because, like I said, you have a lot of people who just sit on their porches, there's nowhere to really go. The only restaurant that I can think of that's in walking distance, other than Grandin, which is a mile, is Tacos Rojas. So, I think just having more places that people could go would be nice, and I think it would feel a little bit more like a community versus right now I think you do have the three [corner]stores and those seem like kind of gathering points and anytime you go in there there's people to talk to and you get kind of a neighborhood feeling. But other than that, there's not like a coffee shop, there's not restaurants, there's not a whole lot else available. (Katie)*

Many residents hoped for expansion of the greenway to destinations that they could travel to that would increase the walkability of their neighborhood.

*You want to see more destinations along the greenway. You know, like right now you can go get ice cream...But maybe more outfitters for like river recreation, bicycle recreation. More restaurants, more whatever, you know. So, it becomes a place where you can, not only connect to the neighborhoods or sections of the city, but you can also go places. (Nelli)*

Almost all residents wanted a coffee shop on their “Main Street”, which is actually called 13<sup>th</sup> street. Part of this interest may be heightened because there was a rumor that someone wanted to open a coffee shop there. In December when I was at a neighborhood meeting, residents were excited because an investor had made steps toward opening a coffee shop. Later I found out that nothing had come of that proposition. Grocery stores, or improved corner stores were also called for by several resident participants. One participant noted that she always checked the date on corner store food, because once she bought an item that had a 40-year old expiration date. Isolde talked about the importance of a different kind of grocery to her. She said,

*I know we have like three corner stores, but they're all kind of crappy... if they could carry some fruit, fresh fruits and vegetables, and if they could carry like the sorts of food that I would eat, then that would be... Then we wouldn't have to drive to get groceries quite as often. That's what I'm getting at. Like, if we had more businesses that would meet people's needs, then we wouldn't have to drive out of the neighborhood so much. (Isolde)*

Connection to downtown was a common desire among residents. Most did not know about current greenway connections and routes to downtown. Andrew was one of those, and he engaged me in a conversation about how this could be done. He said,

*I mean, it would be cool if you could walk downtown along the greenway, but there's no way to do that. I don't think. That would be very, very cool...But I guess there's no way to do that, right?(Andrew)*

When I told him about the route I knew, he reacted with enthusiasm.

*Oh really? So, I've never done that. That's cool. So, you can walk down this greenway and get to Mill Mountain Greenway and then turn left and go downtown. Okay, so that's cool. That I didn't know about. I thought it ended at Carilion...That's cool. Try that out, for sure. (Andrew)*

Some wanted a more direct route to downtown that would be functional for commuting, rather than for recreation. Katie reflected on her experience and observations,

*It's not always the most convenient, and I definitely think like one thing that would be better is to have a clearer bike path from here to downtown... I think a lot of people rely on the bus, which is slow. So even though downtown is like a 10 minute bike ride, you see, like, people don't do it. And it's faster than the bus by a lot. And it's also free instead of having to pay. When they had those lime scooters that you could ride, you would see there were a bunch up in this neighborhood that people were using to, I think to get downtown. Like the end destination of the scooter, like this scooter had come from somewhere else and ended up here. Like tons of them. So it's definitely like, there is a need for people to come here. And it seems like that's not being served as well as it could be or as like direct as it could be. (Katie)*

Others focused on the connection to Salem and what that would mean for their lives and for their neighborhood. Nelli, a participant who focuses on the greenway for its transportation potential, focuses on the expansion's value in terms of length and connection of the region,

*Well I mean I think connectivity is a big thing.... You know it's in everybody's mind that it needs to be connected to Salem, and there's struggles with land and funding to make that happen. But it would just be so much more of an asset. I mean, it will be a, I don't know what's the mileage, but you know, basically will connect like four jurisdictions soon. (Nelli)*

She elaborated on the socio-environmental implication of that connectivity.

*I mean, I think just that connection to Salem would just make it so much more viable for houses in the neighborhood. Like, if you can tell people that live here that are, you know, people that are passionate about these environmental issues and want to not have a car, you can tell them you can live here, you can go to work in Salem and come back on your bike, then I think that is very important. (Nelli)*

One resident, Isolde, had an emotional investment tied to the expansion of the greenway. She moved to the neighborhood because of the expected connection to Salem. Parts of her identity and belief system are tied to her ability to use the greenway to commute to Salem. She said,

*I think once that part is done, I think the whole thing all the way to Salem will be done. And then I'm golden. I mean, I'll have to... I'll be on roads a little bit in Salem and a little bit here. But barely, you know. I'm not real sporty, and I'm not super brave. So, when it comes to like, I could technically bike to Salem now. But the roads are kind of windy, and there's a lot of traffic, and I just... it scares me. And there's hills... if I need to, I'll get an*

*electric bike. But the greenway's pretty flat, so I don't think I'm gonna need... but we'll see. I don't know how much I'll need that. But it's safer, right? There's no cars there. Hallelujah! Hallelujah! My dream. My dream of no cars. (Isolde)*

Another participant is homed in on social implications and the recreational possibilities. She said,

*It's interesting because the expansion doesn't affect everyday life for me it all, and I probably wouldn't go on any of it. But if we get on our bikes, it's really nice to be able to have that continuity or to have more people be able to get into this area. Check it out. (Leann)*

Residents' abilities to use the greenway trail for whatever means is also sometimes hampered by how well used the greenway is at certain locations during specific times of the day or year.

*I think usually it's a good mix of walkers and bikers and strollers and meandering people and people that, you know, we're trying to just keep on track and passing, but there are days, first warm weekends in the spring, where is just jam packed. (Leanne)*

Conflicts between cyclists and other users were prevalent points of frustration for residents. Though everyone seems aware of the protocol for how to avoid conflict, the system doesn't always work out well. Some people are nervous because of cyclists sharing a path with them.

*I might be walking one way, there's maybe a person like a foot away from me walking the same way, and then there's somebody else walking the other way. So, we're like three abreast on the path and then you'll have a bike not announce themselves and try to weave in between. And that seems pretty dangerous. Especially because I normally startle, and then I kind of like move in an erratic fashion, which is not good. (Katie)*

Belinda had also observed how some users who are not mindful of the passing system affect her user-experience. She said,

*You don't have to worry about cars. The only thing you get concerned with are bicyclers. Not all of them, when they come up to you say 'on your left.' So you have to kind of keep checking sometimes behind you or, well, some people they, even may even though they say 'on your left,' they have those earplugs in their ears, and they can't hear 'em. (Belinda)*

Users also noted the need for designated space for people who were community by bicycle, or who were riding long distances at fast speeds on bicycles. Nina, who knew some cyclists but used the greenway mostly for recreation, said,

*I would create separate lanes for the cyclists. That'd be for sure. Because then it becomes a means of alternate transportation, which I think is really important to, for people to get around. But I think that people should be able to like walk and jog and push their strollers and have their toddlers learning how to walk without getting mowed down by cyclists. (Nina)*

This user, along with others who were concerned about fast or inconsiderate cyclists, expressed understanding that people also should be able to use the greenway to ride bicycles for transportation or recreation. Many also felt that the roads were unsafe for cyclists. However, there were also frustrations that the user conflicts were such a regular part of the user experience and feelings that something should be able to be done to remedy the problem.

### ***Connection to community- people and place***

The greenway is described by residents as a place to connect with people through being in or traveling through a place together. One participant talked about the significance of the greenway's path coming through Mountain View.

*You know, isn't it funny that it's sort of a simple thing, a path, but that's how we communicate, is we make paths and see each other. That kind of thing. That's sort of why I love the greenway. (Rocky)*

The path is a way to relate to people and understand how they form community in Roanoke. People-watching, even if sometimes not overtly expressed, was a common part of the user-experience. One participant explained the value she saw in this activity. She said,

*I walked with my brothers, allow them to see the river and, you know, to have a sense of the people. Because you do see people in the greenway. I mean, you do see people walking and all that. You don't see people walking a lot in streets, you know, unless you go to downtown, and again, it's got to be not middle of the day on a Monday where you would see nobody. You would have to go on the weekends to see really activity. And so, there is...yeah. I like that. Being able to see people. (Sue)*

Others talked about how they felt a sense of welcoming and connection from the friendly atmosphere on the greenway. Nina described the tacit sense of community she feels just from being in the greenway. She said,

*I guess for, for my family, it's just relaxing and it's an opportunity to meet people that we, you know, we wouldn't see, we're much more likely to talk to people we see on the greenway than we are on the street. For some reason. There's something about the greenway that allows people to connect and communicate with each other. And so, I like that. (Nina)*

It extended the neighborhood to the trail, offering a sense of comfort. What the greenway means as a place to residents is more than a place to recreate, it has become a part of community that broadens the boundaries of their neighborhood, extending the area that where they feel like they belong. One participant succinctly summarized this phenomenon,

*I think that there's every kind of people out there. It's not like you have to go and meet any expectations of what you're doing there. Everybody's doing their own thing. They're not judging what anybody else is doing. So, I think it's welcoming in that I don't feel like I have to do anything to be there. I'm just, I'm welcome because it's home, and it's home for a lot of people. (Leanne)*

This became especially apparent after shelter in place orders were issued for COVID-19 in March, 2020. Katie, a renter who went to the greenway to walk, commented on the meaning for residents of knowing this space is nearby and available for use. She said,

*Especially right now. When I was on the greenway during, shelter in place, I heard people talking about, 'oh, I'm really sad. The trail's closed. Because I don't have a yard in my apartment complex, I don't have a place to go. I have a one-bedroom apartment. And this is like a whole, like a place that I can come and walk around and get fresh air and get out of the house. It's like having a backyard, and now they're taking it away.' I definitely heard that sentiment. (Katie)*

Many people described seeing community gatherings and activities on the greenway, including barbecues, family reunions, recreational clubs, and religious activities. Andrew, a relatively new resident, described his participation in one of these traditions. He said,



*[My partner] and I did go to a religious meeting on the river there. Because in the Jewish religion, there's a holiday where, at the end of the year, you throw a piece of bread to like the ducks or something in the water. And it's the bread is supposed to be symbolic of your sins. Or getting rid of the sins. It's silly, but it's an old, old, old custom that has some quaint beauty to it, and they did that there. So, we all met, and it was the members of the Jewish community, throwing a piece of bread in the water. And they said some kind of prayer also. (Andrew)*

One resident participated in a recreational biking club that was formed around activity on the greenway. Nina spoke about how this group formed by meeting at a bicycle shop just off of the greenway and how it fostered a sense of community. She said,

*I mean again it comes down to like hanging out at a bike shop. And just you know, being there. And it's being in a small city, like I remember in 2008 when we were moving here, that like thirst for bikes, or being thirsty for bike culture was like a thing. So, like there's all these people and we really wanted to do stuff and like let's plan bike rides. Let's do stuff."*

She continued to explain how this led her to being more involved with advocacy for the greenway.

*That's how you get involved. That's how you meet people. And that's how you like hear like, 'well let's start a committee' or like, you know, we start doing events, and then somebody else knows about you and then you get involved in this committee. (Nelli)*

One leader of a local organization in Mountain View expressed a similar experience of getting to know the greenway through recreation and then finding ways to incorporate it into efforts to build community. The organization, which works with underprivileged youth, holds fundraising races on the greenway trail and expands their youth populations' horizons through experiential learning on the RRG and the natural trails with which it connects. This participant explained the benefits this has led to in his community. He said,

*We actually have a handful of kids that are on a mountain biking team outside of our organization, because of us biking to the greenway. And getting involved with organizations. Now our kids, we have a group of kids that get scholarships to, you know, ride with this mountain biking team during the summertime. Because, I mean, I can attribute a lot of that to them learning how to ride bikes and us riding down to the greenway. (Ryan)*

This type of linking of community activity and the outdoor environment was touched on by most participants. They described how the natural environment and its effects on people bolsters place making and community building.

### ***Connection to nature***

Many resident participants spoke about the importance of the greenway in the context of access to nature and ability to connect to the river. When describing places that are meaningful, Andrew described characteristics of the greenway that added to his experience of the space. He said,

*Areas where the river is very visible, and it kind of widens in one area, it's just very beautiful there. And also, you cross the river in a couple places. There are a couple of bridges. There are also places where you're walking along you don't see the river. I particularly prefer the places where you do. You know, where the river is next to you. (Andrew)*

It was common for residents to value the connection to the Roanoke River and express a desire for more of this type of opportunity. Nina iterated her need to see and be close to the water throughout her interview. She saw how design that accomplished this might translate to the identity of the greenway in Mountain View. She said,

*I want more deliberate spaces to interact with, whether it's little rentals or places to interact with the water as a whole. I want places. I want it to not be just a trail... I want there to be things for an aging population to go and enjoy the water, because I feel like there's something nourishing about being near water for people's souls, and so I think that that is, you know viewing it as a place of destination rather than a place of transit, that is my hope for it. (Nina)*

Some residents already find places to enjoy the scenic qualities contribute to their experience on the greenway. One participant said,

*Oh, it's lovely. It's open. It has all those paths it has... I love the fact that it has art on it. You know, you have a few sculptures. It really does. It's not just the park you walk in. It's also a vista. You can see the river. You can see work by local artists, like sculptures. You can, I think it's just a unique, really, park, and I've seen many parks in many cities in many countries. (Sue)*

The natural aspect of the trail acts as a place of escape and relaxation for many residents, a break from the rest of the world. Sue continued to explain a view commonly expressed by her neighbors, reflecting that restorative element of the greenway. She said,

*I mean it really is a respite. It really is a green place you can go to, and that's the only one I can think of where I can really walk and feel like I'm not in the city. You know, for those days where you feel like you just want to see nature, it's really wonderful. (Sue)*

Isolde talked about how different 'normal Roanoke' feels from the greenway, which she called 'secret Roanoke'. To describe the difference, she said,

*So, going on the greenway feels... not always, but usually feels like a dip into nature. It feels like taking a bath or something, you're like you're in a different realm. Or swimming, you know, like you're just... you're in a slightly different realm. And it's a beautiful realm, and it's good to be there, and you kind of don't want to leave. (Isolde)*

This experience, however, is something that users make of the greenway for themselves. Some participants would like more deliberate design for this purpose of just being in a space and connecting to nature. Nina was one who had reflected on this for Mountain View's nearest greenway access point, Vic Thomas Park. She said,

*And one thing I wish that there was more of in the greenway is spaces for contemplation. I feel like maybe they're concerned about flooding or something like that, but there're not that many... like Vic Thomas Park, it seems like they want to keep things moving along. So, they don't have a lot of like benches for sitting and relaxing... So that's something that's one thing that I feel is a little lacking is the sort of like resting contemplative element of the greenway or element to a park. There are not that many places that you can do that, especially in summer when it leafs out. There not that many places to sit and watch the river. (Nina)*

Some residents noted the greenway's environmental health, but most did not talk about specific ways that it was contributing to Roanoke's environmental health. Isolde, however, talked about the importance of the greenway for the environmental sustainability of her community and the relationship it had with nature. She said,

*So, my vision is of a green city, right? And like, I want very few cars, I want most people to be walking and biking. I want lots and lots of green space. I want what industry and commerce that we need to have- I know we need that- I want it to be as green as possible in terms of its footprint. (Isolde)*

She continued to elaborate about how she saw the relationship between the neighborhood and the greenway in terms of stormwater drainage, access to clean water, and environmental knowledge and behaviors of residents. This was a unique perspective expressed among residential participants; however, it seemed to fit with perceptions of what some residents felt like the new kind of residents moving into the area valued in both the RRG and Mountain View.

### ***Accessibility for Mountain View Residents***

Another important factor for how the greenway was used was accessibility from the Mountain View neighborhood, including safety and logistical practicality. Proximity to the greenway was a factor in how participants used the greenway. Having a short, safe, or easy route to the greenway was referenced as a reason for using it. Leann explained,

*It always feels good to be outside to have that quick, easy access to being outside. I don't have to think about where I'm going to go or what I'm going to do when I'm there. It's just, you just walk out the door and get some fresh air and some sunshine basically. If I'm jogging, then it's really cool to just be able to get yourself on automatic. (Leann)*

She and others commented that this access was a major factor in their ability or proclivity to use the greenway on a regular basis. Ryan talks about the importance of being within walking distance to the greenway for his youth organization.

*Well, the value is, it helps me get kids into nature, and it helps me get, you know, one of our missions is to teach and educate our kids on things they may not know, or may not experience without us. So, we hike, and we do things that probably majority of our kids would never do if it wasn't for us and for us to be so close to the greenway. (Ryan)*

Bus stops were important for some Mountain View residents. Living near the greenway and being able to take the bus to the greenway entrance made it more feasible for Belinda to use the

greenway when she had health issues. The benches at bus stops and on the greenway gave her places to rest when she got tired or felt pain. She said,

*If I didn't live in Mountain View, I never would have probably experienced [the greenway]... But the one thing I liked about it, when you get on by Black Dog Salvage is when my leg was in a lot of pain. I had to start walking greenway more. The therapist said 'take the bus to the greenway and take the bus home. Just walk the greenway'. So, there are bus stops near the greenway by Black Dog Salvage. There's a garden to our left. And that's for when, there's a bench there, that's where the bus would take me back. And... there's another bench across the street from there, then I will get off to walk the greenway. So, it was convenient.(Belinda)*

Connection to the greenway and to other parts of Roanoke was a factor in many residents' decisions to buy or rent houses in Mountain View. Nelli spoke about how the greenway factored into her decision to move to the neighborhood. She said,

*The way that house, that location being so interesting, was that it was like, I do like to ride my bike for transportation. And I like the idea of being close to where I work, play, socialize, etcetera. (Nelli)*

Another participant said that the greenway was part of her first impression of Roanoke and directed her and her partner's real estate search. She said,

*A colleague of my wife wrote immediately and sent a greenway map and said, 'as you think about where to live, this is the most valuable map I have because the greenways are so interesting and important. So, as you look at neighborhoods in Roanoke, you might want to keep this... and Salem... you might want to keep this map handy'. So, heard about it a good eight months before we moved. (Nina)*

This participant explained that she eventually chose to live in Mountain View in large part because of the RRG. She continued,

*We really liked the centrality of the neighborhood for downtown and Grandin and for the greenways in particular, because we're hopeful that my wife eventually will be able to commute by bike to Salem. And so then we'll have a new entrance for the greenway is close, you know, sort of on the way to Salem as opposed you know, you have... it's closer to Salem than the Main Street Bridge entrance is or the South Roanoke area. (Nina)*

Safe routes and entrances factored into residents' use of the greenway and feelings about their experiences on the greenway. Protection from cars on the greenway was commonly noted and valued by participants.

*Well, I think that it just again, if you are using it to go places, it feels it feels really nice to know that you can get there via the greenway because you know you're going to be on a on a path that's designated for you. You know you're going to have nature...you know can be isolated from cars, you can take your kids with you. I think it's very welcoming. (Nelli)*

Conversely, negative feelings arise when routes to the greenway feel unsafe. Bicyclists in Mountain View consider the entrance to Vic Thomas Park dangerous because of visibility and vehicular traffic. This came up in some interviews and was also a topic of conversation at a neighborhood association meeting I attended, where one resident brought up the topic of needing a crosswalk near the entry to Vic Thomas Park with a city employee who was present at the meeting. Other residents agreed and offered advice on where to cross the street and begin riding on the sidewalk when the city employee said that a crosswalk at that junction was not feasible. Two interview participants who were not present at the meeting echoed these complaints. One said,

*Two other things that I think would be a good, like a specific improvement is that crossing over Memorial Bridge to Black Dog, there's no crosswalk there. So, you either have to cross, it's about two blocks up from the bridge in Grandin, is your last chance to cross the street, or two blocks up at Tacos Rojas. So, like if you're trying to get to the greenway. You have to know several blocks in advance, or else you have to jaywalk, and people coming off the bridge are going pretty fast, and it's a really good place to get hit by a car on both ends. And on a bike, that left-hand turn is really treacherous. I normally get off and walk mine to avoid that. So, that intersection is very hairy for everybody. (Katie)*

Part of the conversation about accessibility for Mountain View residents had to do with how the space was designed and who it seems to be for. Katie observed,

*... it does seem like there's like an economic and racial divide to who uses the greenway and who doesn't. So, I noticed a lot of people at the greenway, like they drove there, so they don't live in the neighborhood. And if you have a boat or a bike, right, those things*

*are expensive, and you need a vehicle that can transport them. So, I see that as an issue.*  
(Katie)

I also noted in several fieldnotes that the Vic Thomas parking lot was full of new cars, especially SUVs. Noting the appearance of trail users, the majority of people I saw presented as white and middle class. There were other ethnicities and other socioeconomic groups represented, they just were not nearly as common. One Mountain View business owner also had formed opinions about who used the greenway and determined that residents from wealthier neighborhoods were people who use the greenway more than Mountain View residents. He explained,

*Basically, the cross section of the neighborhood of the of the age, and what their income is, everything else is probably more likely to use the greenway than more working class neighborhood.* (Todd)

Another participant observed that he thought cultural reasons might prevent some residents from using the greenway. Ryan noted,

*I would say there's a lot of people in the Mountain View area who don't even realize what they're missing down there...I think people just generationally stick to what they know. I would say a lot of them might know that there's a basketball court down there at the park. Things like that.* (Ryan)

He also said,

*We're in a tough neighborhood. So there's not... a lot of places, parents don't want their kids to play outside or go outside.* (Ryan).

Ryan emphasized that youth who lived near the Hurt Park neighborhood in Mountain View are susceptible to being victims of violence and crime, and that even he would not feel safe going to the greenway at certain times of day because of its proximity to Mountain View and Hurt Park. Katie noted that while she feels comfortable going to the greenway, she takes a route that avoids a certain place in the neighborhood that seem seedy. However, she, like most residents, felt safe walking both down 13<sup>th</sup> street and on the greenway itself. She translated her

observations of who uses the greenway into how the greenway may be less utilized by Mountain View residents. She said,

*I also just think, in general, a lot of the people using the greenway, the majority are white versus this is a more like, mixed race neighborhood. And it just seems like I don't know, it's hard to put into words. It's...it feels more like people are coming to this neighborhood to use the greenway than that the greenway belongs to the neighborhood. (Katie)*

Many others echoed this sentiment from a different perspective, talking about how new people moving into the area are the 'kind of people' who use and care for the greenway. Sue said,

*Maybe we have, you know, newcomers that take pride a little bit into their house. So it's kind of property reflects on the greenway not being trashed, you know, so I guess with more and more newcomers in Mountain View and also I think this area, I think it will, we will continue having the greenway. First of all, it will be frequented because it's a kind of population that frequents parks. (Sue)*

Some residents thought that although newcomers may be enticed to the neighborhood because of the greenway, more existing residents would use the greenway if they knew about it. Katie explained,

*I think there are lots of people that sit on their porch, and that's what they do in the afternoon. So, there's definitely people that want to get out of the house, or at least look at outside, interact with neighbors, etcetera, that, because the apartments are kind of small, I think the greenway could offer those people a place to go and have an outdoor experience that they can't have because they have a small apartment. (Katie)*

She thought some intervention might be helpful to introduce residents like those to the greenway.

*I just think some more outreach to the people here, because I think if they could go once or twice, they might see more ways in which it would be useful. (Katie)*

A common sentiment was that greenway awareness for the whole neighborhood could help to inform residents who do not currently know about or use the greenway about the opportunities that the RRG offers.



*You know, we have a diverse neighborhood. And I don't know if I can point out that I know how many people in a neighborhood really use it. I would like to know. That maybe is a concern from like, are we doing a good job, making the people in our neighborhood realize how good of an asset. And maybe there's a job for the neighborhood association to point out that that is something that we need to bring attention to. That is an asset that makes you excited about being there. I think from the real estate point of view, I think that people that are now buying and selling houses there do make that connection, and I think that is brought up as a positive thing by this neighborhood. But as in the residents that've been there forever, like maybe not as close as like 13th street, but maybe this section of Patterson and Chapman, do they even know? Do they even care? (Nelli)*

While recruiting participants, I spoke to some minority, low income residents who volunteered to participate in the study, but who I did not have the opportunity to interview. One African American man who lived three blocks from the greenway spoke to me informally about his experience with the greenways. The following is from my fieldnotes,

*[FIELDNOTE ENTRY] ...he told me a story about how once he was fishing in the river and had caught two more fish than was allowed and he happened to get caught by a game warden who asked him how many fish he had caught and then wrote him a citation for which he had to show up to court. He was charged, I think he said \$50 per extra fish in court in a really condescending way. He told the story with lots of detail. I asked where he was when it happened and he said he was on the Tinker Creek Greenway. I asked if he fished on the RRG and he said not usually, that it wasn't his place, but he went there sometimes.*

To me, the brief conversation with this Mountain View resident brought up questions about why he chose to go out of the way to a greenway when he had one within walking distance. It could be something as simple as better fishing, it could be more welcoming to him, or some combination of factors. It was clear that he had both a connection to the greenway and negative, or what seemed to be unfair, experiences in the greenways that he wanted to talk more about. Unfortunately, this participant was unable to be reached after this meeting, in part because of the COVID-19 timing and in part because of the intermediary he wished to be contacted with.

### ***Neighborhood improvement***

The connection between the presence of the greenway and improvements to Mountain View's safety, reputation, and aesthetics was apparent for long-term resident participants. Rocky talked about how he saw the transformation. He said,

*Actually, I'm blown away by it. It was almost immediate. The feeling of, of interchange and people enjoying themselves. That's all a neighborhood needs. You know, just. It so happened that it was spring when they opened it, which was, boy, a time when everybody wants to get out. And so really, and they hadn't walked these streets, I think they were a little curious. And they probably heard some good things about it, maybe some bad things, but, you know, they saw that they could, you know, they weren't going to get killed and all that and found new ways to go downtown. (Rocky)*

Ryan was also present when the greenway arrived in Mountain View. He shared Rocky's view of how the greenway increased traffic to Mountain View. He said,

*Well, it definitely brings more people to this side of town, I think. I think it gives people a reason to actually come across or, that Memorial Bridge to the other side of town, because you have to come over the Memorial Bridge if you're coming from the Grandin side to go down to get to the entrance. I guess you could get it from the other side too. But it does bring more people to the area. Which makes people care about it more. (Ryan)*

This view that the greenway changes outsiders' perceptions of Mountain View was common.

Leann also reflected on how the RRG strengthens other resident efforts to revitalize the neighborhood. She said,

*I think it has been key in changing the perspective of Mountain View and others. There's been a lot of other things that we've been trying to do other than the greenway to help that. (Leann)*

For homeowners and business owners, this improvement has a financial implication. Todd, a business owner located near the greenway spoke about changes he saw after the greenway came through Mountain View,

*I really obviously, always thought it was a great thing with it from utilizing the short pieces that had been put together over the years for recreational purposes with my family, but I really never put a thought on the economic impact that it might have. And simply because of the fact that I was co-located right at an intersection of the greenway.*

*It's obvious to me what a huge impact that it can have. My neighborhood is improved radically, which improves property values. (Todd)*

A newer resident talked about how she understands the greenway's added value to the neighborhood. She said,

*I think it really lifts the neighborhood. It makes the neighborhood more sexy. I mean, I don't know how to explain it, but it, it really does add something. Especially for a place like Mountain View where we don't have a Main Street to speak off. You know Wasena now has a little Main Street. Grandin has a Main Street. We're trying to have a main street. (Sue)*

Comparison between development and investment in Mountain View and adjacent neighborhoods was common among homeownership participants in Mountain View, and almost all homeownership participants had something to say about the care their neighborhood receives in comparison to others.

*I would give the city bad marks on not upholding building codes. Slum landlords are...we still have them here. Because of the older days when this was like, not a good neighborhood, you know? That they didn't even, the slum landlords would just get these places and just make five apartments out of em, rent em out, and not really keep them up or anything. And that kept that attitude, of how it's not a good place and kept that going for a long time. The city plays, I think, important role. I mean, if you can't do it in South Roanoke, why can you do it here? We're human beings. (Rocky)*

Care was tied to reputation in participants' minds, and the historical status of Mountain View being a low-income neighborhood was a lot of how residents perceived outsiders seeing their neighborhood. Though residents felt safe, they were bothered with the presence of slumlords and that others perceived their neighborhood as dangerous. One participant said,

*People still have an idea that Mountain View is associated with crime, prostitution, drugs, whatever. When we moved here, one of the guys who moved us into our house. Said, 'oh you guys picked a bad location here.' We love this location. But this guy thought the because of this historic association, and also there are, you know, people around here that are renting that have issues. That's okay with me. We haven't encountered any crime at all, zero. Zero. (Andrew)*

As he continued to talk, he reflected,

*I don't want to be in a neighborhood that has that reputation. (Andrew)*

This reputation and the leniency that seems to go along with it are viewed as a threat to the value, cleanliness and safety of the neighborhood. The perception permeates across resident status. One resident, Belinda, spoke about a time when a new tenant who lived in the same apartment building broke into her apartment and sexually assaulted her. He was a recent felon, but the landlord had rented the apartment to him without running a background check. Her vision for the neighborhood and the greenway centers on safety.

*I'd like it to be a safer place, and I'd like to see where I am on [Street name]... there's at least three or four buildings that have been abandoned. They're empty, and they could be used to fix up, and either rent as a house or apartments.(Belinda)*

To her, this was a sign of the area being cared for. She brought up this connection in another anecdote. She said,

*See when I first moved in, like Chapman Avenue, they say has... was improved. There was a lot of drugs on that street, and the police really enforced it and cleaned it up. But starting now they... some say it's getting back to, there's drugs on the street. (Belinda).*

Attention to the needs of residents in Mountain View was a direct link many resident participants had to future hopes for the greenway's influence on the neighborhood. It was the most salient form of desired community change and the common thread among discussions of neighborhood development and improvement.

### ***Fair negotiation of space and resident needs***

Understanding resident needs for the greenway means understanding the community ties present in Mountain View. For some residents, notably those who have fallen on difficult financial times, Mountain View is a place to count on others and to live in a place where you feel like you belong. Rocky called it a place for second chances. Some of this identity was tied to the

neighborhood's low income residency. He talked about his recovery from time he spent in jail as a low-level drug offender.

*I felt a kinship towards my neighbors and everything. And I'm well past it. But as for me, I still do feel a kinship. I used to flinch whenever I saw a policeman, I don't now. I'm beyond that. If you beat somebody for a long period of time, it takes them a while to recover from that. So it did, but it's all right, it was alright. I took care of myself in many ways, okay. I feel like this neighborhood, allowed that for me, because I got this [house for] \$12,500. Rented it out for 100 bucks, split utilities. And so I can, I was able to go back to college to get my undergraduate and then master's degree in Tech. (Rocky)*

Belinda talked about how after being situationally homeless she chose to move to an apartment in Mountain View so that she could be close enough to people in the community that supported her. To her, walkability is more than convenience, it's a staple of her support system. Speaking about her response to the assault, she said,

*I moved away. I stayed in a neighborhood, near my church, which I like. So I thought about going to the Terrace Apartments, but then pretty much on bad weather, I would have to depend on a ride to church. Or I could walk it on good days. (Belinda)*

The thought of low-income and long-term residents being displaced with the future movement of Mountain View was concerning to many residents. Many wrestled with the tensions from incongruent visions of a revitalized neighborhood and a diverse and equitable neighborhood. Andrew covered a lot of these bases when he expressed,

*I think that when you don't see pride of ownership, when you've got renters in a place that's being rented, I guess kind of bottom dollar...then it definitely makes the neighborhood less attractive. It would affect your real estate negatively. I mean, in the larger scheme of things, what I'm talking about is something that has a negative connotation. Which is to say, the a lot of people today talk about integrating neighborhoods, bringing people of all kinds of diversity, bringing people of all kinds of backgrounds together in one neighborhood. Leaving aside issues of stupid things like skin color and stuff like that. But who on earth would be idiotic enough to judge a person that way? But when it comes to the way a person lives, if a person is physically violent, abusive, which drug users can be, if a person is prone to breaking the law, you know, stealing to support a drug habit, let's say. Those kinds of things. I am not particularly again, I don't know what to do about those problems. I think they're medical issues. I don't particularly want them in my personal space. (Andrew)*

Striving to to explain his thinking, he continued, venturing into territory that seemed to pit his personal values against his personal preferences, looking for a way to reconcile the two.

*So I'm saying something that I think is not very politically correct here. I'm saying it with a little bit of feeling of self consciousness. But it's the truth. Now, do I want to live in one of these suburban, McMansion farms or whatever you call them? These places where every house is big and beautiful with a lot of land. And everyone drives a pretty car that's just been to a car wash? No, that doesn't attract me. Everybody's the same. It's not interesting to me. And you don't see anybody walking in the streets in those neighborhoods. I don't like that, personally. But you see, what I'm saying is, I like a certain kind of diversity. But I definitely don't like the idea of broken windows, crime. (Andrew)*

Nina expressed concerns about her role in the progression of the neighborhood, outwardly broaching the topic of historical inequities and their role in her current living situation,

*So, I think that there have been complicated scenes from our history. But I also think that there is not... I think our neighborhood was not a historically black neighborhood. And from what I can tell, the house that we live in was never a black owned home. I sort of like went back and, you know, because I'm very interested in, 'are we gentrifiers?' or, like, 'what is happening?' Like, what has this space been, and what has it become? You know. And what is our role in it? So, even though I think that the neighborhood, parts of the neighborhood are now historically, are now like primarily, either black or immigrant, it's still been a mixed neighborhood, and even you can tell that the history of the churches there, that it's been more, a lot of Southwest Roanoke has been... there's been shifts and changes, but it hasn't been, it's not it's not the same story. It's not... It's a story that is sort of secondary to and affected by the terrible things that happened in the center of the city with 581. (Nina)*

Katie believed that displacement in Mountain View due to its increasing value, which she sees as being tied to the greenway, is already happening. She noted that she has witnessed many low income residents being evicted throughout the time since she moved in almost two years ago and has gradually seen that pattern slow as the properties are being renovated. She has feelings about the injustice of the system.

*I don't worry for myself, because I could move somewhere else. But a lot of the people that live here can't. And I'm not sure where they're going to go ...And it just feels like the people who are gonna kind of win in this situation, and who are going to benefit the most are all of these landlords who own all these houses. And there's just a sense that people don't really care about these properties, right? They don't mow the grass. There's trash.*

*Like even in our yard, when we moved in, there's a giant pile of just construction debris, right? And you say like, 'Hey, you need to come get this', and they just don't. And it's not just our house, it's a lot of houses. So it does feel kind of like it's a neglected neighborhood. And still, it's valuable. And you just see people who've been sitting on these properties, not taking particularly good care of them, not really caring about their tenants. And as soon as it's the right time to sell, they're selling and making a big profit. And like the people that live there are kind of out of luck. (Katie)*

She also shares conflicting feelings about saving up to buy a home in Mountain View, a place that she has developed an emotional connection to as a renter. Like Andrew, she recognizes the contradictions in different parts of the neighborhood that she values. She said,

*It's hard because part of what has made me like the neighborhood more is that in some ways, you do see people taking more care of the neighborhood. And some of that is because of people who've moved in. And some of it isn't. But it's just hard. I would just like to see some protections for some of these people that have lived here forever, and who haven't been treated very well. And I don't know how you would do that. But it seems like there should be some protections in place so that you can't just like throw people out who've lived there for five years and now can't rent anything else in the neighborhood. That would make me feel better. I don't know how that would work. (Katie)*

### ***Maintenance and sustainability***

The resident participants were mostly happy with the physical RRG. All expressed a sense of hope that the greenway would remain well-maintained and well-used. Part of this is surface level, and it pertained to better management of dog waste, mowed grass, cleanliness, and smooth surfaces. Sue shared one of those sentiments,

*My main concerns is, I hope it remains clean. I hope we don't get graffiti everywhere. I hope people don't trash it. That's my hope because you know, there are some great parks that have been trashed. I hope that they stay on top of the maintenance and that people respect it here. (Sue)*

The next level of maintenance discussed continued popularity, use, and safety of that use.

*I hope that they can be extended the way that it is planned. And I hope that they'll be continued use of it, and that it'll stay safe. (Leann)*

Finally, residents wanted assurance that the greenway would be protected and maintained in policy.

*I mean, I just hope the city figures out how to make... how to have the maintenance and sustainability of the greenway built into their visions and budget and all of that. (Nelli)*

These feelings were tied to the attachment residents feel to the greenway as a part of their community and their lifestyles. Resident participants reluctantly expressed concerns, but did hope that the greenway could persist and thrive in their community.

**RQ1B: What are the perceived uses for and values of the Roanoke River Greenway from the perspectives of greenway planning commissioners and Roanoke government planning officials?**

The primary purposes of the RRG, from an administrative perspective, are to serve the Roanoke community as a recreational amenity which contributes to quality of life and to provide a basis for economic development. These purposes are thought to benefit residents living near the greenway and the entire City of Roanoke and its New River Valley region. Having a long, connected pathway was seen as a conduit for those purposes. Secondary and sometimes unexpected benefits were supporting and building community, acting as alternative transportation, and promoting environmental health.

***Recreational amenity***

Regional and city leadership, city employees, and greenway commissioners often referred to the greenway as a ‘recreational amenity’. The language was pervasive through city employee descriptions and definitions of the RRG. Jared, a greenway commissioner and city employee, hit all of the predominate descriptions when talking about his view of the greenway,

*I would describe it as an accessible park amenity. I would describe it as an economic driver for the region. I see it as a regional connector and bringing communities together, bridging neighborhoods together, only because it weaves in and out of, you know, very distinct neighborhoods. And I think it opens path ways for for greater connections between people. It's just, it's a gathering space. (Jared)*



Robin, a member of Roanoke's City Council, explained the role of the RRG in Roanoke planning,

*It has become a centerpiece of all of our parks and rec planning, and of our outdoor recreation amenities and offerings that the city really talks about and emphasizes in all aspects of urban development. (Robin)*

Though multiple functions of the greenway are used by leadership and commissioners, many people distinguished that recreation took priority over others. One regional partner distinguishes between the RRG's role in recreation and transportation, indicating that planning must be intentionally geared toward one or the other,

*It's an urban trail that's 10 feet wide paved. And it's a more of a recreation destination rather than a transportation alternative. That's an argument that we often have, is it for transportation or is it for recreation? (John)*

Specifically, those overseeing the greenway see it as a place for families to recreate together. Brad, a greenway commissioner clarified his view of the greenway commission's mission for the RRG after indicating that there is sometimes pressure to direct the greenway towards more transportation-oriented management and design. He said,

*So far the focus, it's been primarily the position of the greenway commission, is to keep the greenways to the basic principles, which was for bicycles and for walking and for family oriented activity. (Brad)*

Robin iterates that sentiment when talking about the value of the RRG to Roanoke residents,

*It's a free, I mean, all of our parks are free, but it is a free park that families now expect that they're going to be able to go out there. And they're going to be able to safely ride, walk, run, jog, and recreate with their family. (Robin)*

She sees the recreational aspect of the greenway having benefits for quality of life and implications for community health.

*Well, the buzzword is quality of life. Right? How do we create better quality of life for our citizens? How do we encourage citizens to get outside to be active? We know that there's health benefits to that. What can we do to make the outside more accessible to*

*everyone? So for me, my view is that the biggest benefit of the greenway system is the health benefit to the entire community. (Robin)*

The idea of 'recreational amenity' seems to encompass all quality of life factors that have to do with recreation and exercise, including physical and mental health, walkability, and sense of place. Some of these points, common among greenway commission and leadership participants, are presented as bonuses of the recreational function. One greenway commissioner said,

*I think it has a health benefit. When you develop a healthier community and improve the environmental community, you cut back on the number of people who are ill, or heart situations, or whatever. It kind of builds everything else to improve the quality of life. (Brad)*

The lifestyle that the greenway affords through access to recreation is tied to marketing of Roanoke. Many city and regional planners are focused on developing Roanoke by attracting people to the active, outdoor lifestyle that they are marketing. Lyle, a greenway commissioner and resident who lives and works near the greenway expressed that perspective,

*You know, you look at, it's kind of like anything. It evolves over the years, and development is evolved, and people want pedestrian-friendly and walkability and being able to bike and green space. Whereas 30 years ago, 20 years ago, that wasn't valued near as much. (Lyle)*

A city employee, Jack, talked about tuning into that desire to have an enjoyable lifestyle tied to outdoor activity as a way to plan for Roanoke's future,

*I mean, it's all a matter of, do you have the amenities and the product that addresses what people are looking for. And you gotta, to me, as a city and a community we have to be thinking about, what are the trends in what people's lifestyles are. What type of lifestyles are people who are going to be building this community for the next 20, 30 years looking for? Well, we know more active lifestyle. That that quality of life, quality of place, sense of place, are much more important than necessarily, I have the biggest house on the block. (Jack)*

Greenway planners and management also felt that community pride was a part of the value that residents gain from having the greenway. FL talked about the meaning of having an identity tied to the greenway,

*This has changed the face of Roanoke. And I think particularly Roanoke River Greenway has changed how Roanoke feels about itself. You know that this is something everybody's proud of. And so, you know, there... 20 years ago, there was a tendency to talk Roanoke down, and I think now there's a more of a tendency to talk Roanoke up. Yeah, that this is a great place. The greenway's definitely helped do that. (FL)*

Those involved with the planning and development of the RRG have different motivations and opinions about why the quality of life aspect is important. However, they all believe that it is the primary goal for the greenway and are invested in producing that outcome.

***Economic development: business development, property values, tourism, and access to jobs***

Though recreation is the most direct function of the greenway, planners and management see economic development as being nearly as important. It was talked about most frequently and in great detail. The identity that is formed by promoting Roanoke as a place for outdoor activity and connection has directed branding and marketing of the city. Jared talks about the ties between this image and economic development for Roanoke and its regional partners,

*What we've seen is that, and as we position ourselves as an outdoor destination that really focuses on active living, that we hope to attract talent to move here first, and that the jobs will follow the talent. That employers will go to where people want to live, as opposed to the traditional model of an employer picks Anytown, USA, and people move to the job. What we're finding is that people value their leisure time. They value their quality of life. And they want to move somewhere that they can do the pursuits that they like, that they love so much, and then find a job after that. (Jared)*

FL elaborated,

*When Roanoke Outside started, you know, I often say, the whole mantra of economic development has become Roanoke Outside. You know that, 'we are an outside Mecca, and people should come here because their employees are gonna want to come here and their employees are gonna love it.' And, you know, the whole tourism, built on: McAfee's Nob on the county logo! McAfee's Nob on every bloomin' billboard. (FL)*

For the city, this can translate into increased property values and tax dollars, which are thought to benefit individual businesses, homeowners, the city and region, and indirectly, trail

users when taxes are used to further the length and quality of the greenway. Bob Rightly explains how the greenway is understood to be a part of this,

*I do think there's economic benefit both in commercial uses and then property values. So I would wager that you could do a study on property values adjacent to the greenway and find that they have now gone up probably only in the last few years, but gone up with adjacency to the greenway. (Bob Rightly)*

Jack explained in detail why and how, from a planning perspective, the greenway increases the value of surrounding areas and incites investment. He drew a diagram that he related to Maslow's Hierarchy of needs. He explained that at the bottom of the pyramid was a foundation for the greenway which was emotional attachment. He talked about this base in terms of the greenway,

*First, in my opinion, it is seen as an emotional value. Which means, the public go down there, and they have a positive experience. Because they want to hear the river. They want to see the river in its natural state. They want their kids to be able to go down there and put their feet in the water, which you can do... And so it's a positive experience. (Jack)*

Next, he explained the second tier of the pyramid, the financial investment immediately off of the greenway which he calls the 'economic response',

*Secondarily, as we've seen, it will also continue to serve a purpose of stabilizing and improving the community conditions adjacent to it. Meaning property values, investment opportunities, tax revenues, all the things that that make the world go round. And, that's really the, secondary and broader benefits of the greenway, that take longer to realize...(Jack)*

Finally, he explained how all of that activity culminated in widespread city benefits. He drew this as the top of the pyramid,

*That then develops then the total economic response, which is, we see properties that were abandoned get utilized. And once they get utilized, then the next state, the level of investment happens. Which, in [Wasena's] case, were the buildings here along Main Street...And so, it begins to build in terms of activity, which then has fiscal benefits to the city. But also has benefits to those who are already invested down there because their investments... as more people invest, their investments become more valuable.*

Jack explained the view of how the greenway fit into economic development models for the city and how those fit into ideas about how residents benefit. He went on to say that as the greenway expanded, more community hubs like the Wasena example would develop off of or extend toward the greenway. Not all greenway commissioners or people in city and regional leadership positions had a vision of economic development as the end goal. Some talked about attracting a young workforce to the area to stimulate the economy. Jacob described this function,

*The demographic of Roanoke is very old, and the region I'm speaking of is an old community. We need to work on that demographic of 25-45 year old. That's where we're lacking. And the studies show that greenways and downtown living and things like that help attract that group, that 25 to 35 year old group. And that's a good thing. You need that for growth. (Jacob)*

One participant talked about a more direct kind of economic development for residents through access to jobs. She said,

*What it offers for transportation just makes economic opportunities for people. Because if you don't have a car, you have a very limited scope of where you can work because you can't get there. If you have to wait for the bus to get there. Sometimes it can take you an hour and a half to get there by bus. But if you lived in Salem at Riverwalk, and you wanted to work at downtown Roanoke, you'd be able to get there. I mean, maybe you don't want to in the rain. But if you can ride your bike seven miles and get there, it really expands your economic opportunities, your employment opportunities... So, from an economic development standpoint, it's not just more businesses along the trail, not just more tourism, but more employment opportunities for the people who live here. (FL)*

Discussions about these economic benefits often came when speaking about the value of the greenway to Roanoke. Economic impact of the RRG was prevalent throughout interviews, but was viewed as being dependent on several factors. This was motivation to make the RRG a quality and exceptional greenway that offered a unique experience to its users.

### ***Connectivity***

Connection between jurisdictions and expansion of length, or connection to different areas across Roanoke is seen as a vital part of both recreational value and economic development.

Unsurprisingly, the delay and uncertainty around the connection from Bridge Street to Salem is a frustration. Jack explained the reason it was detrimental to the city's economic development by referencing his development hierarchy,

*So, the emotional support, all the things that we're building on the rest of this, we're still in this stage (from Memorial Bridge to Bridge Street). But without this being complete, it's hard to move to the next two levels of investment. (Jack)*

Talking about the areas surrounding that section in Mountain View and Norwich neighborhoods, I asked if the idea was for there to be nodes developed along the RRG. He said,

*That would be that would be the intent, is to, as it develops, that activity and frequency of use and frequency of the experience would lead to... maybe not of the same size but comparable to its location, would happen along there. But that [connection] is not there. It's a drag, man. It just drags the momentum because that one section isn't there. (Jack)*

From the purely recreational view, many city and regional leaders and greenway commissioners thought more users could find more recreational value if the greenway was connected. Jack gave an example of why he believed this to be true,

*If you find the serious jogger, serious runner, the serious bicyclist, they're interested in 'how much of a continuous, uninterrupted trail can there be?' For them that one mile gap is very, very critical for the greenway's continued success as an amenity from their perspective. (Jack)*

The ability to travel places while recreating was also viewed as valuable to residents. Jared said,

*[Having connectivity on the RRG] means that you could get from effectively Green Hill Park, down below Salem, all the way to Explore Park, on your bike or on foot, you know. Just having that that ease of accessibility, that's a pretty cool thing you know. Especially in you know through the city which is an urban center in a very rural part of the state to have that type of development and recreational amenity is phenomenal. (Jared)*

FL gave an example of what kind of recreational possibilities could open up with more greenway mileage,

*Ideally it would be all connected. So, it would function as a continuous route through multiple jurisdictions. So ideally, Green Hill Park would be connected, the piece in*

*Green Hill would be connected to the piece in West Salem. And ideally, you would be able to get on in Green Hill, and go all the way to Explore Park, which is 30 miles. So ideally, we could have the easiest marathon on the Roanoke River Greenway at the same time that Pete's having the hardest marathon on Mill Mountain. Ideally. (FL)*

She also saw the potential value for residents in connecting Salem and Roanoke for commuting purposes,

*I know people in Salem, who want to be able to ride their bike to Carilion to go to work. They worked at Carilion. And they're like, 'I wish you would hurry up and finish so I can ride my bike to work.' There are a lot of industrial parks along the greenway corridor. And, you know, we've touted that as we've tried to get money, of the potential for people to ride their bikes to work and stuff, because there's so many industrial parks that are along the river. So, there's that big transportation component. And I think it kind of, if it were all connected, you have that much more potential for it to be used as a transportation route. If you can go all the way through on your bike. So, you know, people who now drive from Salem to Roanoke, would have the option of riding their bike. And so that'll make some difference to those people who are willing to do that. We already see that on the greenway. (FL)*

The community building aspects are also tied to connectivity. Though this wasn't as emphasized as much as other points, accessibility to diverse populations was noted by many commissioners and city and regional leaders. David described an aspect of this sentiment,

*But I think the greenways, I think how they connect the neighborhoods for both walking and biking and running, they kind of become this, again, this, this equalizer that connects all the different neighborhoods. And I think that's what people want to see more and more, is how their neighborhoods can be connected through alternative, you know, I guess... I guess transportation patterns. (David)*

### **Community building**

Economic revitalization was one way that that commissioners and city and regional leaders understand community building effects of the RRG, but they also see the personal community ties that are fostered through relationships built on and around the greenway. The greenway was commonly described as 'for everyone' or a 'common good'. Robin spoke about how it functions in this role,

*I do think the Roanoke River Greenway is a linear park that is family friendly, recreation-oriented and creates... I think it's actually one of the most diverse places in Roanoke right now, which I take a lot of... It makes me smile to see that it has become a place where everybody can join together. And even though people are using the park for their own personal reasons or endeavors, it is a common ground where there are no barriers to entry to using the park and even hopefully, we're doing a good job of making it ADA accessible. So, there's literally no barriers that anybody can come out and use it at any point in time. And I think that's really important. (Robin)*

Interaction with people and the ability to support and build healthy community connections is a value they see happening mostly organically. Festivals, running and biking clubs, sports leagues, and gathering space were all mentioned as part of community building. Jacob summed up many of this type of community building activity and talked about how it created an environment that could deepen relationship experiences. He said,

*One of the other benefits is you see people socializing on the greenway. It's just like, you might... I have a bicycle group. And I have a group that I do something else with. Well, some people have the greenway group. And their greenway friends. Or I'll see somebody out, and I'll speak to them and they'll speak, and my wife will say, 'well who's that?' 'well, It's somebody that's on the greenway all the time.' And you see people walking together on the greenway. It typically is two women maybe walking together, and just chatting like crazy. And I think it's a social time and they're not looking at their devices and chatting with each other. Interacting. Or you can see a husband and wife that are going down there, maybe they're talking about what happened during the day. And then you have the social events. The running that's on a regular basis, Tuesday night. Organized by the bicycle shop and also by the people who wear the shoes. (Jacob)*

The greenway was also commonly described as a sort of infrastructure for exposure to diversity of age, class, race, ethnicity and physical ability in Roanoke. FL said,

*The greenway is the melting pot of Roanoke. It has more diversity on the greenway, on Roanoke River Greenway, then, you know, almost any place else. Because I mean, it's free. So that breaks down an economic barrier, anybody can use it. And so, you see people. You see homeless people, you see, spandex crowd, you see a huge range economically. You see a lot of mixed racial... racially it's very integrated. We always laughingly say that you have to have a passport to get to Salem, and I think that that perception of barriers would get down. It would be less barriers. But Roanoke River in particular, there's an apartment complex that is here that houses a lot of refugees and immigrants. And so, they're real close to the greenway. So, you can go down the greenway and hear a lot of different languages. More than you would anywhere else. (FL)*



Community building was also expressed in attachment to place and identity with place.

Robin, who regularly uses the greenway, said,

*It's really just become that place where everybody can meet and connect on the greenway. It is, I think I said this early on, you know, one of the most diverse places in Roanoke, on the Roanoke City Greenway on any given day. People feel comfortable there. We don't have a lot of place and run out that people feel comfortable just living just being, you know, people feel like they have to be an identity or have an identity everywhere else that they go, and here you can just exist.(Robin)*

Community building was also described in terms of place identity and viewed as connected to Roanoke's natural environment. Many people mentioned this in passing, but a few focused on this in the way that city employees focused on economic development. Lyle was one of these,

*I think people value natural beauty and scenery and green space right in their backyard, being able to go sit by the river, sit in a park, have a big tree canopy and feel like they're in a really natural setting right in the City of Roanoke. I think green spaces, you know, the world's only getting busier and more developed. So, in my opinion, green space, you know, continues to grow in importance. (Lyle)*

The value of the scenic quality and emotional response to it was a focus for David. A part of what he wanted to achieve with the greenway was highlighting nature on the RRG to build an identity around Roanoke's environmental quality. He said,

*And so, it's like, how do we get... how do we shift from a rail town to something else? And so that's kind of what it's been. It's recognizing that one of our greatest strength as a community is the natural beauty of where we live. The mountains, the lakes, the rivers. (David)*

FL talks about how she sees access to an enjoyable outdoor environment impacting residents on a personal level,

*Sometimes I kind of collect emails that people will send me. So, I had one time from a lady who said, 'I took my kid down to the greenway. And I really didn't have any high expectation. But I had the hardest time getting 'em to come back', because they had so much fun. And, 'gosh, isn't this great kids like the greenway, you know, getting outdoors?'* (FL)

No matter what their stake in the greenway, commissioners and city and regional leaders thought popularity was important for the success of the community building effects, and they saw a need for increased awareness of the greenway throughout Roanoke. Jack was one of many who expressed this sentiment,

*I think one of the things that we need to continue to do is reinforce with the neighborhoods that...have immediate proximity to it, how important it is from a marketing point of view. So, we need to continue to build momentum in the Mountain Views, the Old Southwests, the Wasenas, the Raleigh Courts, South Roanokes, and all those neighborhoods that are immediately adjacent, continuing to reinforce how important of a resource and amenity it is to them, because they gain the most benefit, because they're approximately closest to it. Again, not saying that the greenway shouldn't be perceived as an amenity city wide. It is, but the intensity of benefit, the intensity of valuing it is directly proportional to, to your proximity to it. (Jack)*

### ***Alternative Transportation***

As noted above, transportation as a function of the RRG is debatable, and it is not the focus of most people leading the greenway's development. However, it is part of how they see a small section of people using the RRG. Jack talked about the progression of this sort of understanding. He said,

*I think we didn't realize back then when we were looking at it as a recreational amenity, that over time, people would see it as another way to move about that part of town. (Jack)*

Jared represented the predominate trend of adopting it as transportation infrastructure based on how it is used by residents but not necessarily by how it is intentionally designed. He said,

*We promote it not only as a recreational resource, but also a commuting resource. So, a lot of people will use it to get from their home to work or their home to coffee shop or whatever. (Jared)*

A greenway commissioner was more explicit about how the greenway functions in Roanoke for commuting. His view seemed to be shared by greenway commissioners and regional leadership who were not employed by the City of Roanoke,

*I'm a bicyclist. I will use the greenway to go from one area of town to another, because it's safe and keeps me off the road. But we are never gonna have this be a big commuting route. I mean, it's gonna be, the number of people who use it to commute to work, to and from work, is going to be very small. It's just, in the way this town's built up, you're not going to see a lot of people there. There are some, but it's probably going to be one or two percent of the users. Somewhere in that neighborhood. We'll never get to 5 percent or 10 percent. So, it is a recreational, it is primarily for recreation. (Jacob)*

The use of the greenway for transportation was viewed as an anomaly. Participants believed people could use the greenway for whatever they like, but transportation would not likely be most people's choice. Other than enhanced connectivity, there was not a discussion of what would make it better for transportation.

### ***Environmental Health***

Environmental health does not seem to be a predominant focus of the commission, city, and region as they plan and prioritize, but it does have an inextricable connection to some of their process and prioritization and to how people interact with the greenway. Robin talked about this dynamic. She said,

*There's also environmental benefits as well. Having the tall grasses by the edge of the greenway that are planted in order to help with the water filtration run off from the greenway down to the down to the river, trees that are planted along the greenway to make sure that we have a tree canopy within the city that's helping us with shading during the summer. Wildlife habitat protection. You know, the Roanoke River is a great fishing spot, stocked. And there's other, I think there's a blue heron along one stretch of the river that I see all the time.... So, I'd say, I don't think that was the wildlife protection and environmental protection was not the primary reason why the greenway is, I think, protected today, but it is certainly a part of it. (Robin)*

Most participants expressed benefits for the environment in terms of how it was better understood, valued, and cared for by trail users and the region at large. David summed up this idea,

*I subscribe to kind of a conservation through recreation philosophy: the more you're able to get people utilizing it, the more they... People care about the things that they care about. You know, so they're more likely to pick up trash and things like that. They're*

*going to care about the water quality, because they're actually engaged and using it now. I think the greenway has led to that. (David)*

Though design for environmental sustainability may not be a central driving force for today's greenway, that has not always been the case. FL talks about how promoting the environment was one of the first reasons for greenway development

*Actually, quality in life and environmental preceded economic development. The environmental people have always been big supporters all along. As soon as the greenway started getting built... you know, anybody who was a user recognized the quality of life. The economic development people were the last ones on board. (FL)*

She talked about some of the ways that protection of the environment is still built into the design of the greenway,

*I mean, there are two...three focus things we have focused on from the environment standpoint. One is clean water. And I think we've done a huge amount in relation to that. The stormwater division in the city of Roanoke is doing a huge amount. Sediment is still a big issue. And that's erosion and sediment control violations, like Mountain Valley Pipeline, pouring sediment in the river... So, that's, that's been a big issue. Erosion and sediment control is a really big concern for the water quality in Roanoke River. If you have too much sediment it suffocates the fish. So, water, soil protection, E&S- erosion and sediment control. (FL)*

She continued and spoke to how she has seen the importance of environmental protection communicated from Roanoke residents,

*And then the other one is, one of the things that happened with project was the tree canopy stuff. So, when they built the piece out here, the Corps of Engineers, in spite of all our input, cut down all the trees and people went ballistic. 'How could you cut down all the trees along here?' So, they went ballistic enough that on the next section they didn't cut down the trees. They left the buffer and put the flood bench behind it. So, the Roanoke River has seven species that occur nowhere else in the world. And it's because it's not a cold water stream, but it has cold enough water that it supports micro invertebrates and stuff that are food for these fish, different kinds of fish that don't occur anywhere else. Log perch is actually federally listed. But in order to keep those micro invertebrates, you gotta keep the temperature. And if the temperature of water goes above 76 you start changing what lives in it. So, they gotta have the shade on the river. That's been one of our big pushes with the greenway, is you got to keep the shade on the river. (FL)*

At greenway meetings, commissioners regularly included reports on required VDOT required environmental assessments, which seemed to be a rather mundane process at this point. Commissioners expressed a sort of knowing that if the assessment did not work out for one route, they would just have to try some other placement for the trail. After a greenway commission meeting, a commissioner who is involved in environmental engineering in another jurisdiction talked to me about the stormwater drainage of certain trail material and about planning procedures in place to protect the log perch, including construction outside of breeding seasons and restrictions on certain proximities to the river in some places.

### ***Maintenance and protection***

Like residents, maintenance and protection of the greenway were seen as needs for ensuring the lasting value of the greenway. Robin said,

*Well, I mean, first of all, maintenance is key. So, it doesn't do us any good to have this paved greenway and then not be able to maintain it. You know, when we have floods and when we have other things that start to wash away pieces of the greenway, we have to be able to have the funding to come in and fix it. (Robin)*

This maintenance was linked to by many participants to protection of both the physical condition of the greenway and the political backing that funds it. Jack said,

*Well, again, in its simplest form, we want to make sure people maintain that connection with the greenway. So, you have to keep reminding them of how great the experience is, make sure they're out there experiencing it. And with that, there comes this, don't say protection, but this, 'I bought into it. So therefore, I'm going to make sure that when... if the time comes for the council to need to reinvest in or invest more, more funds into it, I'm supportive of that because I kind of... I kind of become attached to it'... once you have that attachment, it means something to you, and it will motivate you, especially if it's if it becomes threatened in some way, to say 'Don't touch that!' (Jack)*

Others express the importance of creating a structure that makes that government funding less vulnerable to situational variances, like the state of the economy or politics. David gave some examples,

*When it comes to the greenways, we're spending a lot of time now talking with chief administrators and elected officials and saying, 'Hey, you know, we've... people like to build the shiny new things. Like the new sections of the greenways, but they don't necessarily like to fund the maintenance of them.' And so, we're really trying to raise awareness that these greenways have a lifespan or you know, are you are you budgeting maintenance of these? Are you allocating, that you're going to have to replace this asphalt soon? And making sure that they are adequately funding that going forward. Which they're currently not doing. And so, that's something that we're lobbying and championing for. Getting them to understand that they need to be able to... need to make sure that they're doing that. (David)*

This kind of advocacy is not lost on those planning greenways. As noted above by Robin, the City Council is committed to maintaining the greenway. Also, the focus on maintenance was a common objective expressed by greenway commissioners. Brad said,

*The major change that I've seen since I came into the commission is that even though there still is a large focus on capital projects to expand the greenway and complete the greenway, there's more of a focus now on maintenance of it. (Brad)*

**RQ1C: To what extent do these residential, planning, and government official stakeholders' values for the greenway fit with environmental, economic and social sustainability values?**

Some of the values that participants have and apply to the RRG fit within Campbell's Sustainable Development framework of environmental sustainability, economic sustainability, and social justice and equity goals. Of those that are a part of these goals, some are compatible, and some are contradictory with one another. This analysis will not be discussed here. Instead, this section is simply organized into parts of each sustainability category with notable distinctions, if they exist, between different stakeholder groups. The prevalence of different kinds of values are also noted.

**Environmental sustainability.**

The personal values, or ethical stances, that people hold for the RRG that reflect environmental sustainability are environmental restoration, reduction of carbon emissions,

environmental stewardship, and protection of the environment. These are linked to aspects of the greenway which they value. For all participants, environmental quality was mentioned secondarily or in the backdrop of other functions of the greenway, though it meant a great deal to a few participants, especially among resident participants.

### ***Environmental restoration***

River cleanup was noticed and important to almost all stakeholders. It held different meaning to them depending on their priority for the greenway. Isolde viewed river cleanliness as a matter of public health and a manifestation of her environmental principles. She recently volunteered to be a water keeper, which she explained is the name given to people who train to monitor the riparian health of the Roanoke River. She spoke about making time to be a part of the water keeper group was important to her. She said,

*Well, I think again, it's those sort of environmental values that animate a lot of my decisions. I want to live in a world where the greenway is supported and strong. And I want to live in a world where people like me look after the river. (Isolde)*

FL partly saw river clean up as a sign that the greenway was successful. She said,

*It's cleaned up the bloomin' river. Huge amount. I mean, at one time, there was one year that Clean Valley Day... Clean Valley folks really focused on tires, and they took 3000 tires out of the river. So there's been a lot of river clean up. The river's much healthier now than it was 20 years ago. And part of that is people can get there, and they see it.(FL)*

She also sees river restoration as a mission that helped her rally support for her projects. She talked about how it was a big part of the focus early in the greenway development process. She said,

*We started in probably 2000 doing canoe trips for elected officials. And we did it because we said, 'here's this project. We're talking about Roanoke River Greenway'. They don't even know where the river is. Okay, so they've got the sewer project and the flood project and the greenway project. We're all talking about the river, and they don't even know where the river is. So, we started running canoe trips from Salem to Wasena, usually. And we took elected people on... we would invite them to go. And the first year we did it*

*was the first year that Ralph Smith was mayor. And it was his first day in office. And he clearly had never been in a canoe and turned over five times. And news cameras were up on the bridges. You know, when I got done with that trip, I said, I will never do this again... Ralph Smith came to me the next spring and said, 'When are we going canoeing?' And I was like, 'oh my god, I gotta do this again? You were our problem child.' I mean, literally. He had never been in a canoe. He was scared and rightly so- he turned over 5 times. But he went back. So, we did it did it again, did another section. He said 'I want to see the whole thing'. And we had done from Salem to Wasena. And then we did another piece. And another. But what he did was he went to his Kiwanis group and said, 'we've got to start picking up the trash in the river.' And every year on the Fourth of July, that group's like 100 people, he would organize for them to go clean up trash. And it was just because he had never seen it before. He didn't know that about the trash. And once he did know, then he started doing what he could to help correct the problem. But he was the mayor, and he was the mayor for four years, and he went canoeing every year because he wanted to see the whole river.*

To David, the greenway and its effect on the river represented opportunities to get the public engaged with the outdoors and healthy lifestyles tied to physical activity.

*So, I think single handedly it's probably the best thing to happen to the community, because it raises the awareness of kind of healthy, active lifestyle living. And then as I said earlier, the gateway... it leads to other things. It leads to, now they want to see trails, they want to see the river improved. You know, so now a river that was a dirty river is now being improved, because people are utilizing and seeing it and caring more about it. (David)*

Brownfield and industrial remediation were tied to personal values for some stakeholders.

Isolde explains her perspective,

*What I find attractive about the greenway is that I feel like it's moving in the direction of my values. Because my values, value connection with nature over things that harm nature. And so the industrial has been done in a way that harms nature. I know we need some of that, but I think we can reform it and do it in as green away as possible. But so, seeing that happen in the greenway from industrial to natural, does reflect my values about the value of nature and how we need to be in harmony with nature. (Isolde)*

Many residents believed that the state of unremediated industrial areas represented their neighborhood in a negative light. Talking about an industrial area of Mountain View that borders the greenway and was part of the city's brownfield remediation plan, Sue's hopes for the greenway centered on transformation of brownfields on Cleveland Street. She said,



*It's an area that looks condemned. And apparently it's been that way forever. And we think it's probably because there is a problem of contamination. I don't know. So they're not doing anything with it... That's pretty dystopian. (Sue)*

Non-vehicular transportation was something viewed by some residents as an ethical choice and a lifestyle choice they were eager to make. Nelli talked about the topic with enthusiasm,

*It's just been my sort of my focus and my passion... But, you know, I've always had the interest on sustainability. So, in [my profession] sustainability means bicycle and pedestrians and greenways means infrastructure for bicycle and pedestrians. So, cycle related. (Nelli)*

Other participants looked forward to contributing to environmental health by living in a walkable community or biking instead of driving.

### ***Environmental Stewardship***

Formal volunteerism related to the greenway and the meaning of that was something talked about by FL and Isolde in regard to river restoration (above). Many residents expressed the importance to them of participating in more informal stewardship. Belinda was one of many Mountain View residents who talked about cleaning up after other people and sometimes after their dogs. She talked about the meaning of that,

*The only thing I do, is when there's been a flood, and the water's receded, there's usually, and what bothers me, I think that sometimes people when they fish, they just... I've seen them just leave their bobbers, and it goes in the water and when there's flooding, it goes over the bridges, or when it recedes, there's a lot of bottles and stuff. So, now and then I'll stop and clean them up and stick them in receptacle... I believe in keeping the environment clean. And I'm for... I don't like the thought of what's going on with our government and the way he pulled out of the climate change, and I think we need to be involved in it. Try to clean up. (Belinda)*

### **Social Justice and Equity.**

Social justice and equity values were expressed by planners predominately in the context of free access to greenspace and health amenities, public participation in greenway planning, and

recreation and fair land acquisition. Residents cared about those issues, but also about some aspects of affordable housing, environmental justice, and questions of who the greenway is for.

### ***Fair land acquisition***

Residents and planners alike tied a lot of personal meaning to how land was acquired for the RRG. Nina said,

*The history, the sort of the human history of what has happened in a place is important to me to the sense of the justice of the space, and, you know, the history of it. So that's, I mean, I don't know how the land that's a part of the of the greenway was affected by that. And I don't know the history of how that land was acquired. And whether that was done justly and who owned, like which entities owned the space that was right on the river? That's not something that I've lived in Roanoke long enough to know. But what I know about the history of the land use right now has been somewhat reassuring. (Nina)*

Jacob talked about the meaning of fair land acquisition from the perspective of the greenway commission and Pathfinders organization, which he is a part of. He said,

*The city buys rightaway from people here. We have one locality that just has out of principle, they won't do that. They won't buy. They'll come to you and want you to donate the property, but they're not gonna give you any money for it. And I think that's what is wrong. But that's where this Pathfinders organization, we have gone and bought the land because the locality wouldn't do it. So we bypass, it wasn't... We're not bypassing regulations. We're bypassing philosophy, I guess. And it's a stumbling block in several different places, because, they're not gonna buy their rightaway, and the person's not gonna give it to them. I think that's an unreasonable expectation and as far as a condemnation, that's a lose-lose situation. I think condemnation is the most invasive thing that a locality can do, and I would not want to be a part of it, or be associated with that at all. And the localities agree with that. (Jacob)*

Others in the greenway commission and city and regional leadership shared similar sentiments about the importance of fair land acquisition. Though leaders felt it was significant and in many ways justified that residents petitioned the City Council to use eminent domain to take the land Walker Foundry refused to sell, they are reluctant to use that power. Robin said,

*It was something that was an option that was considered in trying to complete the last mile, and yet never acted upon because eminent domain is just such a... such a nasty term, sometimes. When you're talking about taking something from somebody else that was legally owned by somebody else, right? So you don't ever want to go down that route*

*of eminent domain and trying to acquire land but you also at times have to, in order to piece things together, for the benefit of the community, if you've got somebody who's really digging in their heels, sometimes things like that, that's why eminent domain is an option. (Robin)*

All but one participant in all of the categories who mentioned this particular land acquisition expressed frustration with Walker Foundry, and there was a predominant sentiment that they were remarkably unreasonable in negotiations for the land.

### ***Affordable housing protection***

While greenway commission and leadership participants actively confronted and addressed direct displacement from the greenway, they did not express concern over indirect displacement caused by property value increases in the neighborhood. Katie's concern about affordable housing for Mountain View residents (above) was the most closely aligned with affordable housing principles. She talks about some of the personal meaning to her,

*You definitely see some pretty big changes from when we first moved here. But I also see, like, there's definitely, I guess you would say like gentrification, right? So, you have people that have lived here forever. And then you have people that are new who are buying houses here. Partly because of its location, right? ... So it is a desirable...like for people who are just starting out, it seems like, or who are retiring, they see this as an investment place. But that makes it hard for the people that already live here, because they don't really have... there aren't other places in this like half of town that are any cheaper than this, and as prices go up, you can't help but think that they're gonna get pushed out...I feel conflicted about buying a house. Because that's just like adding to the problem that I already see. And it just feels like the people who are gonna kind of win in this situation and who are going to benefit the most are all of these landlords who own all these houses. (Katie)*

### ***Environmental justice***

City and regional leadership, greenway commissioners, and residents place a great importance of equal access to greenspace, though the picture of what this accessibility looks like varies. Free and unrestrained access to the RRG and its connected network of greenspace was a design quality that represented environmental justice values to most participant stakeholders,

*I use the term earlier: equalizer. And I think that's the role that this and amenities like it play is that we're not catering to any one demographic or any one group. This is a park amenity that is you know, universally accessible to... to anybody. (Jared)*

Greenways were viewed as a conduit for equal access to fitness and health promoting opportunities or to free transportation,

*I refer to greenways as gateway resources. You know, they... and equalizers as well, because it doesn't cost anything to use them. And then... so they're easy access. And so, for a person that maybe isn't kind of living a healthy active lifestyle but wants to get into it, it doesn't cost them anything to you know, go for a walk on the greenway, and hopefully that leads to you know, they're meeting weekly with their friends, or they join a running group, and they're utilizing the greenways from that aspect. Or they're using it as a transportation node to you know, to and from, you know, work and home, things like that (David)*

The free quality represented democratic ideals to many stakeholders,

*You know, like, I really like that it's publicly accessible and free. That's important to me. To sort of just a sense of civic liberty, for there to be a space that is beautiful that is owned by all that is free to all. That's just important to my sense of enjoyment of it. Like it just, it gets to feeling a little gross to me, just the idea of privatized and private entry spaces feels a little bit sad to me. So I value that one of our most beautiful features connects the city and is...you know, that we can be trusted with a nice thing. (Nina)*

The significance of the greenway for representing values of equity seemed closely tied to its placement. The RRG was talked about for its role as a unifier of parts of the city that have been divided by the river across class lines,

*So, the other thing about the social and a little bit the economic is that Roanoke River... I mean the Roanoke River divides the valley, right? You got north over here, and you have the south. And the neighborhoods are even named that. And their address has that in it: do you live on such and such a street Southwest, versus Northwest or Northeast or Southeast. In all their postal things. So generally speaking, south of the river was higher, economically. North of the river is more economic... it's lower income than south of the river. But what [the RRG] does, is it pulls them together. So, the city is actually... So, I mean, you've got these bridges, right? So, that's now a way for these people to get on the greenway. They don't have to come down to a street to get on it. They can get on it right there. (FL)*

Advocating to bring the RRG into Mountain View signified that bringing together of different classes and races for Rocky. He felt like standing up for his values of justice by

working towards getting the greenway to come through Mountain View was worth facing conflict and criticism. He said,

*Well really it's just, that's how I like to live. I don't like enemies and stuff like that. But on that issue, I had to draw a line of fairness really. (Rocky)*

Though race was not usually spoken about by participants, discussions about places in the city that are known to have higher concentrations of minority and low-income residents were discussed as part of equity. Though not directly a part of the RRG, connected greenways that went through those areas of town seemed to relate to how people felt about the equity of the RRG. FL talked some about how those social dynamics represent underlying values of some in city leadership,

*I would tell you truthfully, that at greenway planning, we tried to have routes in multiple quadrants and jurisdictions. So, we wanted to have a greenway in Roanoke County, and a greenway over here. But I'll be honest with you, we were doing it for political reasons. Lick run, you know, that we did early on, went through Northwest. We got some grief about that. 'You're going to put a greenway where people get mugged?' But it got built, and it goes all the way to the mall and has its own little sign over 581. And so, by doing it, the city addressed that equality. What they now call the environmental justice component. 'Well no, we built a greenway for you folks. It's not just... we didn't do it just for South Roanoke or Wasena. We built one in Northwest.' (FL)*

Many planners talked about equity in terms of the entire greenway system rather than the RRG alone. Because Lick Run Greenway goes through low income neighborhoods, and it is connected to the RRG, the greenway system is equitable. While a few participants noted that the greenway is mostly populated by white people, one participant commented on the racial disparity and the desire to change it. He saw outreach for the trails necessary and noted the importance of placement of trails for accessibility to different communities,

*You know, the outdoor recreation world is full of white people. You know, it just is. But there's a big movement to change that, to improve the diversity of the users, introduce 'em to 'em. So we've had, we have different programs that we help fund with boys and girls in the Big Brothers, Big Sisters. But if you go out on this greenway, 10 years ago, you might see, you know, different people of color on the greenway. You know, now when*

*you're out there, I'm blown away by the diversity of the users, the shapes of the users. You know, it's not everybody super fit, you know, in spandex and riding their bikes or running, you know, seven minute paces. It's all walks of life that are out there using the greenway. And that's kind of, I think, lends itself to how open the community is. And that's why you see these other communities that don't really have the greenways, that's why they want them, so they can just access it from their community. And that's why that connectivity of it is so important going forward. (David)*

Not all participants noticed lack of diversity on the RRG, and most thought that it was diverse and took pride in that quality of the greenway. It spoke to the idea people held about the greenway being for everyone and was tied to principles of equitable value for diverse populations in Roanoke. Lyle said,

*You go look at the greenway at a busy time, and you see such a diverse group of people using it. Diverse in ethnicity, diverse in income, diverse in fitness level. So, you see, like, all these different kinds of diversity on the greenway. And I think that shows the wide spectrum of, of people, citizens that are using the greenway and benefit on a regular basis and choose to go do that. And I think it just speaks for itself on the quality of life. So, of all the values of the greenway, what does it add? I think it adds most quality of life. Over anything. (Lyle)*

### ***Power of the public***

On the greenway commission, the consultation of the public and the governments response to public input was a highly regarded aspect of the development process that also represented the democratic ideals of greenway stakeholders. For some, it defined a core part of the greenway's purpose and function,

*As it is today, it's a citizen demand. You know, people are enough of it's done, that it gets a huge amount of use. And, you know, people are expecting it to get finished. It's an expectation. (FL)*

For others, it was a representation of the role of public infrastructure. Brad explained public participation as a necessary and welcomed part of the greenway development process,

*You know, not everybody is in love with the greenway. Not everybody wants the greenway. But you want to hear their point of view and their side, but also as to why not, or look, if the greenways going to come through your area, how would it be more acceptable to you? (Brad)*

There was an idea that through open, public participation, the greenway would represent the community. John was one of many in city government to espouse this belief and express pride in the city's process that incorporated public input and consultation,

*We have public meetings, so the citizens can come out and review what's proposed and make suggestions. So the idea is just to make a big network so that you could go from one place all the way across to some other place on a greenway. Eventually, so there, the plan contains a lot more than what could probably be accomplished, but they're all of, you know, includes everybody's ideas as to what would make a good network. (John)*

Though Sue had not heard of nor participated in greenway commission meetings, she has attended meetings for the new Wasena Bridge that is a part of the greenway and for the art project that will be on the greenway under Memorial Bridge. She also believed in the value of public participation in the design of public infrastructure. She said,

*There is something very special about Roanoke that I've never encountered anywhere else...So everywhere people that make the decisions are, you know, the urban planners and the people who work for city hall and those people. And they don't ask anyone's permission, you know, It's all of the decision are done by committee, by people who are professionals who know what they're doing, you know, maybe one or two big donors would be at the meeting just because he's a big donor and they want to honor him and maybe say things. But an average citizen like me, like someone who really doesn't have any knowledge of anything to be able to come and say, 'Oh, that's a good idea' or 'oh, that's, you know..' To kind of participate in the conversation. That's unique to Roanoke. I've never seen before. It's a place that's a hell of a lot less socially stratified, you know... where really anyone can come. Actually, we worried that many, many, many people should come for our meeting don't come. Meaning people who are not necessarily educated the same way, who are minorities, who are, you know, don't feel like coming. Either they don't know, or they work hard and they don't have time. But I feel it's wonderful that really, really average citizens like us can come in and give our opinion on anything. (Sue)*

### **Economic sustainability**

Different interpretations of economic sustainability are present in Roanoke stakeholder values, and some of these are not necessarily congruent. Some perceive the purpose of the greenway is to generate revenue for the government, businesses, and by trickle down, to

residents. Sustainability is viewed as ability to generate money from greenway development.

Others view the role of government is to fund things like the greenway that have non-economic value to the public.

### ***Greenway can generate revenue and business development***

To participants in leadership positions in greenway development, the greenway's function as a revenue generator came across as being most influential in garnering support for it. Though David expressed belief that the greenway was important in many ways, he seemed to think that its economic value to the city was most pressing to those who are in positions that fund and design it. Speaking about the motivating factors for implementing greenways in Roanoke, he said,

*Trails and rivers are more than dirt and water. That they're actually economic generators and tools for economic growth when we kind of curate them, you know, when we're strategic with them, when we invest in them as well.(David)*

One big factor in the greenway being viewed as an economic success is its influence on real estate values. Those developing the greenway understand how the greenway is important to the city through its ability to generate income. FL said,

*So, there are those benefits of economic development along the corridor. But for the city, I mean, and all of those count, okay. You know, the bike shop Underdog, Roanoke Mountain Adventures, the River House, Green Goat, Black Dog... All of those are important to the city, that economic development. But the change in real estate values, financially, is a huge thing to the city. And people have invested more money in those houses. And as those values creep up, that's tax money to the city. It's been a really big economic impact is to see that real estate growth. And people willing to invest in these houses. (FL)*

The long-term view of what makes the greenway useful for economic development has to do with population growth, particularly in the younger age groups, as described in earlier text by Jacob. Another long term view is the perspective of return on investment over time. One



Mountain View business owner talked about how he sees the justification of economic costs because of the RRG's economic value. He said,

*Well, anytime you get a you get a value out of something you feel like you want to you know, there's no... they don't get a...There is a bill. Let me put it this way, somebody's paying for all this stuff. And whether it's through federal government money or local taxes or whatever else. Obviously, I'm underwriting some specific portion of it in some way. But I think I get a bigger buck for it, I get a bigger return than most people do simply because of the fact that I'm located right on it. So that makes me more interested in participating and promoting the greenway, obviously. And, you know, as a person, that's just from the fact that I think it's a good thing. (Todd)*

For Mountain View residents, this idea has manifested in the possibility of what they see as needed, locally-directed business development, and for homeowners, property value increases. The expectation of those investments comes from their location on the greenway. Todd explains how those ideas are tied together,

*In the real world, where there is a lot of economic activity and growth, you're looking at places near a light rail location or something like that... Well, this is what we got. We're the right sized city for quality of life. And we're not going to, there's not going to be some explosive growth here. So, then you're looking at drilling down into what are the things in an urban neighborhood that you would... sets it apart from another urban neighborhood. And things like the greenway, a park, or you know, typically it's a school. (Todd)*

Residents look to their Wasena and Grandin neighbors as examples of what the greenway means for development of their community. Nina said,

*I think it's one of the things that will help the neighborhood in the end. Because I think that if Vic Thomas is managed well, I think that it's probably one of the best places to access the river. To the same way that Wasena, I think part of what has been driving the development of Wasena, is all the good connections to the river that at that end [of the neighborhood] to the greenways that it provides. (Nina)*

Katie talked about how she sees those business might function with the greenway and be a successful part of community development. Her description speaks to some of the motivations she has for economic development along the greenway and how she views its purpose.

*I also think because there's so many people who come here, just to use the greenway, or at least that's my perception, it does seem like there could be more businesses... along there like Tacos Rojas. You see a lot of people sometimes coming from the greenway to get takeout there, or you also see them on their way out from downtown to go out to the county. Like people are stopping here to buy things, and I think there could be more businesses that cater to that because you've got a lot of people coming here. But I don't see people taking advantage of that audience other than Black Dog and Tacos Rojas... I think like, as far as people that live here, it would provide some jobs. I think it would also provide like the people who are running it would probably make a pretty decent amount of money. So, I think just having more places that people could go would be nice, and I think it would feel a little bit more like a community... (Katie)*

This description captures the essence of resident participants' desires for economic development. They described it as a way to enhance the community and to be a positive force for connection among its residents.

### ***Possibility comes with funding***

There is a belief that the ways to make the RRG more meaningful to the community require more funding for capital improvement or investment along the greenway than the greenway has, and that Roanoke does not, at least for now, have the financial capacity to do this. Andrew said,

*It's an experience to sit there and have a glass of wine and people are walking by or people are playing in the park or whatever, and the rivers flowing. That's a lovely, lovely experience. And it's not I'm not saying we can do it. I'm not saying can be Basel on the Roanoke. I'm saying we could offer an experience, if we had the money. That is, it would be in some ways comparable to that.(Andrew)*

David talked about this from a managerial standpoint. He said,

*So, the greenway, again, will always be taken care of. It will always, you know, be maintained, and they'll constantly keep adding until they connect them all. But other projects will rise to the, you know, above them on a funding list sometimes. And so that's what I think needs to happen is adequate funding... To make sure the maintenance is being taken care of and that the you know, the capital improvements are being funded, as well, to the greenway. (David)*

These sentiments capture the dynamic between peoples' desires for the greenway and their realistic expectations because of Roanoke's size and wealth. They reveal a belief that the greenway's funding is of marginal importance and limited feasibility for Roanoke.

### ***Government finance of public good***

Another view is that the greenway can and should be funded by the government and that its funding should not be dependent on return on investment.

*Government exists in order to find the things that otherwise don't have a business model that would fund them, right? There isn't a way that we can charge a toll on the greenway, and determine what people are willing to pay to use that. Because the second you start trying to charge people to use that and create a for profit business model out of something like a greenway system, then the whole thing is going to collapse on itself, because there's not enough funding there to support it. So, that's why government is in place. Is to help fund those types of public amenities public good, public projects that don't have a monetary value that can be determined in a free market society. So, I don't really have a good answer for you on how do you determine the value. (Robin)*

There seems to be a belief that economic sustainability is represented by continued sources of funding from a variety of sources. This continued funding was believed to be essential and possible to obtain with enough work and ingenuity. The ability to consistently find and obtain funding opportunities was considered one of Roanoke's strengths in greenway development.

Explaining what he thought others could learn from Roanoke's greenway process, David said,

*How the Greenway Commission and Liz Belcher, the greenway coordinator, how she works to find the different funding opportunities, how they leverage those with the local governments. I think is something that other communities are always asking them about, is how you actually funded it. And I don't know the intricate details of that, other than I know that communities are always talking to her and finding out how she was able to fund these different projects. (David)*

Planning and funding for future was a principle that infiltrated perceptions of economic sustainability in many different realms of management and use. This was represented in Robin, FL, David, Nelli, and Brad's comments expressed earlier that line-item budgeting of the

greenway and its plans for the future were important in ensuring its ability to last. Jacob talked about what brought about this change in belief and what he sees as some of its the implications.

*...there was a mentality that in local government, for example, they treated the greenway the same as they did Goodwill or the United Way. It was just, they considered it as a charitable organization. And they may or may not fund it. And we finally got to the point through talking and meeting with the people in the localities, that the greenway, the funding of the greenway, became a line item in their budget, and in most cases, it's a line item in the Parks and Recreation budget. In other words, it's a required payment on their part and wouldn't function if they didn't pay it. The benefit is that Liz Belcher, for example, can spread her ability to all of these localities. So, the localities don't have to have a particular greenway coordinator. She works directly with their department to help them come up with the funding, and the locality looks after the maintenance. (Jacob)*

A lesser held, or arguably non-existent, belief was that provisions for affordability, such as affordable transportation and housing, are important to the sustainability of the greenway. FL talked about the meaning of having the greenway to the economic support of workers, but did not necessarily connect it to greenway sustainability, the sustainability of Roanoke at large, or a way that government could support financial sustainability among the working class. She said,

*So, having employment opportunity, I mean, like, Wasena, Grandin. Those clusters, those neighborhoods, provide employment opportunities. And if you move over here, and you need to get there, having the greenway there as a means getting there is a big opportunity. (FL)*

As noted earlier, she identified a community of low-income residents living off of the RRG in Salem who she particularly had in mind as beneficiaries of increased access to employment.

**RQ 1: How have planning, implementation, management, and user-adaptation of the Roanoke River Greenway trail represented the needs, types of use, and values of residents in Mountain View?**

This question is focusing on how parts 1A, 1B, and 1C come together in the design and function, so themes from each of those sections are applicable for this one and are used in its analysis. With the understanding that those sub questions are a part of the overarching RQ, this section focuses on the physical design of the trail and aspects of the process of development,

maintenance and usage that represent the uses, needs, and values of Mountain View residents, as perceived both by the residents themselves and by those who have power in greenway development. This section is organized by uses, needs, and values for the RRG identified in parts A, B, and C. First, I address one theme that influences all of the uses, which is who is the greenway for, a topic that came up in perceptions of residents and greenway authority figures.

***Who is the greenway for?***

The greenway holds different meaning for different stakeholders. Mountain View residents view the greenway from the perspective of how they use and experience it and for how they would like it to function in their community. Stakeholders involved in the development of the RRG generally have more of a wide ranged perspective, largely looking at the greenway for what it provides for the city as a whole, or the collective of all Roanoke residents.

Proximity to the greenway was significant for receiving the benefits provided by the greenway. It seemed to most participants, that the closer you lived to the greenway, the more you got out of it. For nearby residents, this meant being able to exercise in a safe and friendly environment. It meant being able to use the greenway for transportation and being connected to nature. From the perspective of those developing the greenway, it has been resident-centric, by being accessible for people who live throughout the city and to be maintained in a way that makes them feel safe. Robin talked about the greenway beneficiaries in terms of those who know and use the greenways and those who have yet to discover the benefits of the greenways.

Referencing community buy-in and input, she said,

*It's got to be from the whole community. It can't just be from the people who are interested in greenways. It has to be from the people who eventually are going to use the greenways, even though they don't know right now, that they're going to use it. So how do we find those people, and target those people and say, 'Look, this is going to make an impact on your life, it's going to their positive health impacts their positive social*

*impacts. This is something that we want to make sure is available within your neighborhood. (Robin)*

Though one regional partner thought that the greenway brought a significant benefit to the city as an economic development conduit, he felt that many may be less convinced of the high worth of greenway, because it does not really affect their lives in a meaningful way.

*I think if you interview different people from different backgrounds, you may find that the greenway isn't as important as it's promoted to be, or that some segment thinks that it is. (John)*

Another thinks that the greenway is so resident-oriented that it misses out on opportunities to increase functionality for tourists and other outsiders.

*I think it's been built for residents first, as it should be. But as our tourism industry begins to grow, some attention might need to be given to how it's... how a visitor would utilize it, that really doesn't know anything about it. (David)*

Though there is no explicit declaration of purpose for any one group of people, many greenway planners expected and intended for the greenway to be used by a certain demographic. They commonly talked about using the greenway to attract a young workforce, or to attract tourists who were specifically interested in coming to Roanoke to use the greenway trail system. This was also tied into conversations about the type of development that surrounded the greenway, both for businesses and for properties.

*So, it seems to be creating a whole new interest, especially with younger people to come into the area and to utilize the greenways and to recreate within the area, which then brings in money. (Brad)*

Residents also picked up on the vibe, often commenting that the greenway was for sporty, athletic, or outdoorsy people. This can show how the perception of the greenway being for exercise-related recreation may make some people feel more or less welcomed on the greenway. There were a lot of participants that expressed a sort of feeling of being the exception on the greenway because of not being athletic. Andrew was one of these. He said,

*I'm the least athletic person in the universe. I don't play any sports at all. I'm not that kind of person. But I do use my elliptical for workouts, but that's all. Other than that, could I go there and read a book? And I wish I could say I do, but I don't, generally. I'm not the ideal user of the greenway, I love having it available. And I'm not really an outdoorsy person. I like sitting in my chair here and working on my computer. Most of the time, that's what I do. But I do love to be able to go there, and I do go there. (Andrew)*

While some may have an idea in their minds about who uses the greenway the most, there was a belief among most participants that the greenway is for everyone. Planners described intentional design processes that accommodated use for a variety of physical abilities, including ADA accessibility and physical ability levels. One example of this is the terrain, which participants mentioned as a marker of how the greenway could be used. Brad said,

*You want it designed in such a way that, again, most everybody can use it. Retired people, children, and so on. You don't want to make it so difficult. On the other side, but you also want to make it something that someone who is a little more advanced also wants to be able to utilize it for exercise and to enjoy. So, it's kind a balance that you're looking at. (Brad)*

Many residents noted the easy yet engaging terrain, in various ways. One said her son enjoyed the effect of gentle sloping on sections of the greenway. Another said she thought neighbors would enjoy the greenway because of its accessible design. While I was on the greenway, I noticed the greenway being used for roller blading, skateboarding, and running that seemed to make distinct use of the shape of the path and its terrain in Vic Thomas Park. Other inclusive accommodations were noted by greenway commissioners and city and regional leaders, notably ADA design and vehicle access to parks. Jacob says,

*So, you'll see people picnicking here, maybe grandparents and things like that. So that was an additional benefit in my mind. It's good that road was there, because the people that are populating this park during the days are ones that would not walk there. But because there is transportation, they will do it. (Jacob)*

The utility of the trail for any given person was genuinely noted by many participants. Speaking commonly from the perspective of diversity in user ability and user type, participants

saw the greenway as a universally relevant and advantageous for Roanoke residents. Nelli commented,

*Now that it is there, like everybody sees the benefit of it. Like the person who walks the dog, the person that rides their bike for recreation or exercise, or the person who pushes a stroller. Like everybody sees the benefit. (Nelli)*

When asked who the primary users were, Jared also thought of people in terms of age and of how they preferred to recreate. He said,

*I don't know, it's such a broad cross section of people. Everybody uses it. I mean, families use it to take kids down there. We have seniors that walk down there. We have cyclists, some that should probably be on the road, but are on the trail too. (Jared)*

Electric bikes, commonly referred to as ebikes are a part of the greenway conversation that tends to land on the question of who the greenway is for and what purposes it should serve. Currently, no ebikes are allowed, but there is a discussion among community residents and leaders over whether this restriction should remain in place. One greenway commissioner explained that the reason that this debate exists has to do with the traditional intention for Roanoke's greenway design. Brad said,

*What about ebikes? And should those be allowed on the greenway? Because on the greenway, no powered vehicles are allowed other than using a wheelchair that's powered or whatever. Also, about the scooters that are coming into the area, and should those be allowed? So, the usage is, you're getting some pressure to change the usages on the greenway. But so far the focus, it's been primarily the position of the greenway commission, is to keep the greenways to the basic principles, which was for bicycles and for walking and for family-oriented activity. (Brad)*

Any resident who knew about and mentioned the ebike restriction was against it. Nelli disagreed with Brad's position. She said,

*I think right now there's a big dilemma on the use of electric bikes on the greenway. And it is based on ideologies of those people in charge of the greenways. And I think this is not only happens in Roanoke, but everywhere. Like this, it's just that reflection of the culture. (Nelli)*



Nelli thought ebikes should be allowed on the greenway because they aid in its function as a transportation corridor. She saw restricting ebikes as a limiting factor in the potential of the greenway to work for the community. Nina feels that the ebike rule personally affects her family. She explained,

*Apparently the park board made a ruling that you can't have motorized cycles. It's not a law. It's a park board ruling. So, you can't have motorized cycles on the greenway. But, like, if my wife wanted to commute to Salem, we would probably want motorized assist for that length of commute regularly. And they say that it's likely to, they're likely to be able to change it. Because this is someone who's like going to work professionally, and it's just the length of the ride that needs a little bit of a motorized assist. But apparently, the max speed for a motorized bike is less than what competitive cyclists often do. You know, people who are like road cyclists are often going faster than the fastest motorized bike would take you. (Nina)*

Bob rightly explained how he and his departments view the question of ebikes,

*Currently, the greenway doesn't allow electric bicycles. And I think some of us (not all of us) have come full circle on that discussion. Because the reality of electric bicycles is not what I initially thought it was. Particularly since you have different types of ebikes. But what I'm seeing and hearing from and other places is that you're having a lot of seniors that are using electric bicycles in order to get out and get the same health benefits that they might have gotten when they were younger out running. So... and then the studies are coming back saying that people on ebikes actually are getting as much of a workout, which was not my initial interpretation of them. But they're actually just, it's a more moderated exercise, but they're actually riding longer. Some people are getting as much health benefits from it, which is interesting. Particularly when you talk about, you know, that senior population, which we are becoming more and more of. Or falling more and more into. (Bob Rightly)*

Greenway amenities are also seen as a marker of who the greenway is for and what purpose it serves. Most participants observed that the majority of pavilions, playgrounds, bathroom facilities, and places to access the river were between Wasena Park and River's Edge Park. Some questioned this intensified focus on this section of the greenway, or at least noted that other areas needed to be more fully developed and improved. Katie thought that investing in more amenities along other parts of the greenway, especially from Memorial Bridge to Bridge Street could help relieve user conflict and overcrowding. She said,

*I also think like right now it's pretty densely... like the activity that I see is all like Vic Thomas and Wasena Park versus that whole stretch on the other side of Memorial Bridge to the parking lot is really underused. And like I don't know. There's stuff all over on the other side, there's water fountains, there's pavilions, there's grills, there's swing sets, there's playgrounds, like all of the offshoot things are on that side, which means everybody goes to that side. And there'll be days the parking lot is full on both sides. Versus there's this whole other section that almost nobody is ever on. And it seems like if they could add some of those same things over on the other side, it would spread people out more. So it'd be a little less crowded and there'd just be more things to do, right? So, like if somebody is using all the picnic benches in Wasena Park, you could go down to the other one and get a picnic table. It just feels like it's unevenly developed. (Katie)*

Who is accessing the greenway in different parts of the greenway is significant for understanding both who it is meant for and who is utilizing it. South Roanoke, which is located near River's Edge Park, is described as a wealthy neighborhood, or a neighborhood with influence. Talking about areas of importance, FL said,

*South Roanoke. I wouldn't leave them out. So, it's definitely, you know. If there's one place that's gonna get maintenance or attention, it'll be that piece because the parks themselves are important to the city. And the people are people with influence...the users are people with influence. (FL)*

Current improvement of River's Edge and its future connection to downtown via the Jefferson Street corridor are part of the many projects that mark the importance of the greenway in this area. Bob Rightly explained the impetus for some of these enhancements,

*They're envisioning that whole Jefferson corridor South of downtown to be sort of the innovation corridor. And so, they want to continue to have spin off businesses and research hopefully gets translated into different businesses or even light industry. So, in continuing education with more students. So, they are really focusing a lot on that corridor. So, it's great to connect all those future users and current users more readily to the greenway. (Bob Rightly)*

Conversely, John talked about the perception of disuse among users in the part of the greenway that connects Memorial Bridge and Bridge Street.

*I think this other section is not as used as much and probably has less meaning to the people that live around it. That probably also tends to be a lower income neighborhood that maybe doesn't use it as much as some of these other areas down here closer to the hospital. (John)*

Economic development around greenway is evidence of who the greenway is set up to benefit. Currently, it seems that the primary intention of leaders in the greenway development process are to increase property values around the greenway, promote greenway related or proximate business development, and attract outsiders to the city, either to live or to visit as tourists. This kind of economic development is viewed as having benefits that reach all Roanoke residents, though most directly affecting property owners, businesses, and government. Though many people noted these kinds of economic benefits and not others, most did not overtly talk about how this was thought to be beneficial to residents. Jack clarified how he sees the relationship. He said,

*It's kind of a, you know, the old saying about a rising tide raises all ships. Well, once you begin this momentum upwards, you begin to see all sorts of benefits to the community whether its fiscal, emotional, recreational. Begins to take a holistic approach of a benefit to the community. (Jack)*

Katie's observation of this process in Mountain View contradicts Jack's idea of the universal benefit of this kind of economic development. Her observation that landlords were not taking care of people or properties and that they were taking advantage of gentrification. She saw long-term, low-income residents being harmed by this kind of development and landlords who care little about Mountain View and its residents reaping the benefits of neighborhood improvement.

*The first year we lived here, you could always tell when it was the first of the month because people were getting evicted. And they were always like piles of stuff on the street around the first of the month. And I have actually seen that take a huge nosedive in the last probably six months. Like, there's a lot less of that. I think partly because, you know, some people were evicted, and then the houses either sold, or now it's being remodeled, or I don't know exactly what's causing it, but it does seem like there was a pretty big round of evictions. And now there's not so much, but there's also more people that have bought houses or like apartments that are being renovated. (Katie)*

Aside from landlords benefitting from selling their properties, Katie noticed that a certain group of privileged residents were rewarded in this process. She noted that they seemed to be young couples starting out or retirees. She also connected them to the greenway.

*A lot of the people you see who are buying houses are either like young couples or retired people. And it's like the people I see who have moved in since I have, like, fit in more with the greenway vibe. And it's like you see similar people. (Katie)*

To me, the assumption of the greenway's ability to function as a universal good seemed like an underlying context to participants' narratives. The intended beneficiaries of the greenway had not been explicitly stated by anyone, and there was no limit as to who could physically access the greenway. So, without critical thinking about how the greenway is operating and who the desired economic development function would benefit or harm, greenway advocates could espouse its value as a universal good.

At first, after speaking with greenway commissioners, I thought that this modus operandi was unintentional and would be rectified if examined and understood. I observed,

*[FIELDNOTE ENTRY] It is easy to forget that social justice and equity is beneficial to all, and it is not clear that it is not being provided for. The trail is free to all and accessible in many locations in town. The conflict of increased property value and taxes and affordable housing is not the domain of those typically involved in greenway planning...not remedying brownfields or industrial areas, and not providing access from low income areas. It's not even a thought. Despite the lack of recognition [of these aspects of social sustainability in greenway planning], I think that the people I have talked with would change their course of action if made aware of the deficiency. I don't think any of them would want to become the next Beltline. They would want their greenway to keep its positive role with positive perception status.*

However, after speaking with some participants at the city and regional leadership level, I saw the situation differently. It seemed that the process of creating attachment to the greenway was known well, that city leaders knew the importance of the greenways to individuals in surrounding neighborhoods. It also was clear that the city understood and desired the near inevitability of property value increase and revitalization of neighborhoods along the greenway,

with the primary beneficiary being the city who collected tax dollars from homeowners and businesses. The intersection of those two effects of the greenway was not acknowledged but could hardly be missed: that low income residents who grew to be dependent on the greenway would be forced out of their neighborhood and its accessibility to the greenway because of the kind of economic development the greenway incited.

*[FIELDNOTE ENTRY] It was like he was telling me building block by building block how economic development happens, but when it came to the implications of the economic development process, he was silent. I can't see them not knowing what is going on [in terms of social injustice]...To him, it was all presented as positive. Why is affordable housing not a part of the conversation? Why is there no gravity or sympathy in talking about the implications of how an area is changed when it is "improved"?*

Talking with renters in Mountain View, I could see how this process was taking shape in Mountain View, with the most negative effects being placed on the most powerless residents. It was also a burden for all residents unwilling participants in an unjust system and wanting a healthy community dynamic.

### ***Design and function for recreation, exercise, and transportation***

The greenway development process and the greenway itself are designed to build and enhance the greenway for various activities. Though most involved in the greenway have similar views about what the goals of the greenway are, there is some discussion on why those goals are important or the ways in which they should be pursued. The primary purposes of the greenway are recreation, exercise, and alternative transportation.

Indicators of the greenway as an outlet for recreation and exercise are the amenities and design features on and near the greenway. The parks bordering RRG are often considered part of the greenway. They feature soccer and baseball fields; basketball, tennis, and racquetball courts; a skatepark; a pump track; a parcourse; and playgrounds. They also have some access points to the water for fishing, swimming, and wading. Pokemon Go, a phone application game, has

several gaming spots located on the greenway. The playgrounds at River's Edge, Smith Park, and Wasena Park mark these areas as especially family-oriented.

The light grade and smooth surface of the greenway are amenable to multi-modal recreation for a variety of user abilities, and many places on the greenway are ADA accessible. Mile markers every tenth of a mile help those who are using the greenway for exercise know how far they have traveled. There are also signs along a portion of the greenway that talk about how physical activity contributes to health.

The organization of how the greenway is planned leans toward recreation and exercise. Budget and management is placed under the purview of Roanoke's Parks and Recreation department, an influential regional partner that is focused specifically on marketing Roanoke as a place for outdoor recreation, and, so far, the greenway commission is focused on family-oriented recreation. Ebike regulations are intended to protect recreational users and reinforce its purpose as a recreational destination.

Transportation is supported by a safe environment that is free from vehicles, a smooth surface for biking, connection to bike paths off of the greenway, and a long, uninterrupted path. The way that the greenway connects to other greenways throughout Roanoke helps it to be better used as access to destinations, though there are not many destinations that residents use in their everyday lives that are located directly off of the greenway. A shared trail with recreational users, user conflicts, speed limits, and hours of operation are limiting factors in its ability to function as a transportation corridor.

For Mountain View residents, connection across Roanoke is valued, but accommodations for safe travel to downtown on the greenway or as part of bike paths that connect to the greenway are limiting factors in its use for transportation.

*If you have a bike, you can take the greenway most places. It's not always the most convenient, and I definitely think like one thing that would be better is to have a clearer bike path from here to downtown. But it can take you where you want to go, which is really handy. (Katie)*

Some participants with power in greenway development acknowledge the weaknesses in the connections off of the RRG. One participant had a vision for how the greenway could be improved through its linkage through downtown. He said,

*The greenway technically goes through downtown. I think you really have to be creative to figure that out. So, I've always wanted us to see better, perhaps signage or perhaps even better design of the greenway through that area. So, people can understand how they're supposed to go through downtown. (Bob Rightly)*

In summary, transportation was a way that participants saw the greenway being valuable and useful, but it was not viewed as the primary reason that the greenway exists. Participants felt that increased connectivity, better signage, e-bike allowance, increased path widths and lanes, and design in general geared toward transportation would increase the efficacy of the greenway trail for transportation. Some stakeholders who are part of the RRG development process are advocates of using the greenway for transportation, but they are not a majority and they are not the most closely involved in its design and maintenance. Residents see their ability to use the greenway depends on more deliberate connectivity to places and destinations.

Connectivity through downtown, Roanoke neighborhoods, and the New River Valley region is important for much of the greenway's function. Recreation, exercise, transportation, and tourism were all considered to be enhanced with more greenway length and more connections. Participants felt that recreation and exercise was both possible and interesting because of the connected length of the greenway. They felt like it matters to transportation because it opened up more places to travel to safely on the greenway. Examples of types of transportation opened up were work commutes to and from Salem, travel for groceries, and travel for dining out or

entertainment. The greenway does much of this now, and connectivity has been the main function of the greenway. Most participants listed the length of the RRG as an asset. Every participant mentioned that a hope or goal for the transportation was continued expansion for connection to more places, and most were specifically focused on the connection to Salem as being a need. FL explained part of why this connection matters for attracting outside visitors and how it affects businesses,

*We had an outfitter try to make a go of it in Salem a couple years ago, but Salem's piece is three and a half miles. They couldn't get enough business, like bicycle business to have a financial success. If they had the option of someone riding for 20, 10 miles out and 10 miles back, then they have a lot more potential for people, especially tourists, or people from out of town, to rent bicycles. If you've got 25 or 30 miles that are connected, you hit a lot more tourism traffic. Because in general, people like to be somewhere as long as it takes 'em to get there. So, if it takes me an hour to get to a trail, I want to be there two hours, because I've spent two hours traveling. So, if you've got 30 miles, you've enlarge your regional range, and you begin to show up on websites and stuff that cater to bicyclists, who ride around the country- retired people, and ride their bikes on special trails... So, I think it would substantially increase the tourism component. And that has trickle down effects to small businesses. Bike rentals, outfitters, convenience stores. (FL)*

Another idea that some participants have for the greenway's connectivity is that it spreads apart the users to different sections of the greenway. There is an idea that with the connection to Salem, there will be less congestion in the section of the RRG from Wasena Park to River's Edge Park. To sum, connectivity was seen as important for the RRG success for many usages, a positive quality of the existing greenway, and a main focus for future development.

Congestion and related user conflict were concerns for all participants when thinking about the function of transportation, exercise, recreation, and leisure. It is seen as a factor that limits the user experience and safety on the greenway. During the COVID-19 outbreak stay at home orders, congestion led to the closure of the RRG. User conflict was usually described in terms of cyclists riding too fast and too close to other greenway users. Many participants involved with greenway development expressed a need for greater understanding and sense of sharing of the



greenway. Resident participants expressed understanding of other perspectives, but described an inherent disconnect between purposes of cyclists who are riding for recreation or transportation at high speeds and other users, especially those of people with families, dogs, and physical limitations. Nina described her feelings about this dynamic on the greenway. She said,

*I mean, it's just sort of a frustration, is cyclist behavior. Because I think sometimes they're not very polite about it. And it really kind of ruins the experience of people who are walking to have someone screaming at you from behind, you know, 'move over!' you know you don't like 'on the right!' It's really, like, it's it kind of ruins the mood. So that's something that I know that the bike shops try to talk to cyclists about. And I know that everyone wants to be on the greenway because they want to avoid the cars. But sometimes cyclists are not very... they sort of make it worse for others. (Nina)*

The design of the trail contributes to this dynamic because of its size. One participant mentioned a common desire among those who develop the greenway. He said,

*If I went back in time, I probably would have encouraged them to make a wider trail. You know, I think we ran into it in [other location] where we were doing all the greenway 12 feet wide, and then we quickly switched that to 15 feet wide. And I would like love to go back and make this wider, because you do get conflict with users in peak time. So, if you're there Saturday, 11pm, because people sleep in for some reason, but then they want to go out jogging. They're wondering why everyone's out there. So you know, there are... they could be wider, but I won't press my luck on that. (Bob Rightly)*

The greenway commission has addressed user conflict by starting a volunteer program called the Greenway Ambassadors which entails volunteers patrolling the greenway and informing trail users about rules and answering any questions they have related to the greenway. These ambassadors were generally appreciated by residents when they know about them, but on a large scale, they seemed to be viewed as having limited reach when it comes to cyclist behavior.

### ***Design and function for accessibility***

Accessibility is represented on the greenway by its points of entry, signage, ADA accommodations, and location in relation to residents. It is represented in the greenway development process by meetings, public input, and outreach for awareness. For Mountain View

residents, the RRG is accessible in that it passes through an outer edge of the neighborhood. Its entry point at Vic Thomas Park has a parking lot with handicapped parking. Though many residents walk to the greenway, some noted instances when parking was convenient and useful for them. Nina noted,

*I like the I like that they make the parking accessible for people. And I think that that's important even for it to be a landing spot, you know, even if we are only driving a short distance to get there, you know, to make it more like we're there to have our gear in the car, and we can keep food there, keep drinks there or something if we're going to be down there so I think that even if we live walking distance, it's still nice to know that there's a place we could have the car. I think that's important. (Nina)*

The terrain is smooth with some light hills. Coming into the greenway on foot from Mountain View is relatively easy, though the route crosses drives shared with vehicles. For bicyclists coming from the neighborhood, the entry is dangerous, with a busy road crossing that does not have a safe, marked place to cross.

Awareness of the greenway is another factor pertinent to accessibility. One part of this has to do with awareness on the greenway of where the trail is in relation to various destinations and amenities. There are kiosks at every trailhead with maps and the mile markers every tenth of a mile, which is a feature of the greenway that participants described in terms of self-awareness on the greenway. Isolde said,

*I think it's good and helpful that they have the occasional map. It's helpful to have signs designating, you know, this is Vic Thomas Park or something like that. Like, I think there's something about signage that helps. (Isolde)*

Other participants felt that signage and other outreach might be helpful off of the greenway to let residents know about the greenway and its position in their neighborhood. David thought this was needed across the RRG, not just in Mountain View. He said,

*I hate sign pollution, but is there better signage needed, that connects off of the greenway into the neighborhoods? Are there maps that can be built that show, you know, 'if you turn here you're going to access the Crystal Spring Village' or 'you're going to access the*

*Grandin Village.' I think there's some more signage and things that can be done...That can be done from a tourism standpoint. (David)*

Mountain View residents felt like some portions of their neighborhood were unfamiliar with the greenway and did not know what it entailed. Some residents saw an opportunity for this in neighborhood meetings and gatherings. Katie had ideas of combining the greenway and neighborhood functions. She said,

*I think they could definitely do more to make it like an asset for the people that live in this neighborhood. I think they could do some more events. Something that I've noticed is like these community dinners that they have a really big draw, but they're always at the West End Center. And I actually think it'd be good to have something at the greenway that people already know about. And then they might go and actually see what's there. I don't know this for a fact, but I suspect a lot of people that live here have never actually been down there. Like they know it's there, but they haven't actually gone. So, I think if people saw what was available there, they might be more likely to go. (Katie)*

### ***Design and function for community-people and place***

The greenway's function of creating, strengthening, and supporting community is represented on the physical greenway with places for sports leagues in ball fields and courts off of the trail, with pavilions and outdoor grills, and with business located just off of the greenway where community congregates. Participants describe seeing family reunions, religious gatherings, cultural groups, barbeques, and recreation groups meeting up at these locations. Participants see the greenway trail itself being used to as a place to recreate with friends and family, to see neighbors, and to meet friendly strangers. Feelings of community may be enhanced by the design of the trail itself. Bob Rightly said,

*Once you put a trail in a very prominent place like this, it's very visible...You know, you have Wasena Park, which is a larger park. So, you have people there that may be just there for the playground, but they're watching all these people on the greenway go by. There's sort of a river crossing here. There's river access in different places. So you have people come into this area for different reasons. And they see people on the greenway and they think, 'oh, wow, if they can ride a bike out here, I could do that, too.' So, I think that's valuable. (Bob Rightly)*

For some Mountain View residents, there seemed to be more community spaces desired that would specifically meet the needs of local residents. Though the ideas of what that would look like specifically varied, participants' interpretations of how such community-oriented spaces would be beneficial to residents was common. Andrew said,

*Obviously, there are different populations in Mountain View and they don't mix, and that's, that's too bad. And again, if there were more places where they all kind of congregated, there might be more mixing. (Andrew)*

One participant noticed a new bulletin board in Wasena Park near Vic Thomas and recognized it as a potential aide in informing and connecting people in Mountain View.

*You go to like Grandin and things like that, and there's all kinds of like flyers and bulletin boards and things like that. And I feel like we don't have that here so much. So, it's harder to find out about things in this neighborhood than in some of the other ones. And I did notice at the greenway, they are working on putting up what looks like it's going to be a bulletin board, so I think that's a great niche that could be filled. (Katie)*

Volunteerism throughout Roanoke is also a branch of community building that has been fostered by the presence of the greenway. Greenway Ambassadors are on the RRG to help and inform trail users, and there are other groups that are closely tied to the greenway and the environment in and around it. Participants in Mountain View have been involved in the greenway through volunteerism, and some still are. Leann was excited to participate in meetings and in helping to choose art projects that will be implemented under Memorial Bridge on the RRG. Explaining why she decided to volunteer to be on the committee for the project, she said,

*I guess it's just trying to be responsible citizen. And it's something that we use and care about and if not us, who?(Leann)*

While some resident participants were active in volunteerism with the RRG, others were not aware of ways to be involved in the greenway's development, management or maintenance, and unclear of what volunteerism would entail if they were to pursue such opportunities. Many were interested in participating with the greenway if such activities were made available to them, or if

community connection were a part of the experience. Some participants exemplified or noted the role of stewardship as a part of community contribution to the greenway.

*We've never had to do any organized cleanups, because I think everybody as there walking, you know, if they see something, they pick it up, because it really does stay spectacularly clean over there. I mean, I did pick up a little malt liquor bottle yesterday, but I mean, that was one thing and after not going for a while. (Leanne)*

Another aspect of community building is the kind of community built in the neighborhood off of the greenway as a result of people engaging with the greenway. It was common that participants talked about the greenway's location next to Mountain View attracting a kind of resident to the neighborhood, a kind that was active and environmentally conscience. They also felt that the RRG brought activity to the neighborhood in general. Rocky talked about his gratitude for the kind of interactions and activity that the greenway allowed for Mountain View.

*It was that feeling, and that transfers to me to all of this green space here in that feeling of, I don't think people really realize that they couldn't walk out here, what's the quality of their life, suddenly, if they could only walk on the sidewalks, or you know close to the streets? This is a gift for everybody. And I certainly saw it. I felt it. And the whole neighborhood was a gift to me. (Rocky)*

Another participant felt like the specific part of the greenway that was in Mountain View contributed to the perception of the neighborhood. She thought the design and activity reflected back onto the neighborhood.

*I feel like the feel of Vic Thomas is more: this is for people passing through...the feel of the Vic Thomas in the greenway is much more active. I feel like it was designed for athletes, you know to be for athletes, or designed for people who have energetically moved up into this area, or like have run across the bridge... So, even from Grandin or from Wasena, or from people coming downtown on bikes, I feel like I feel like our part of the greenway is more of a node, like an intersection, and more like designed to get people to the next part... if it could reflect a space of being, rather than a space of movement, then I think that that could communicate a feeling that Mountain View neighborhood is a place to live and be, rather than a place... rather than a crossroads that's valued because it's a hub... So, I think having a sense that our part of the greenway be a destination, rather than a jumping off point will increase its value to our neighborhood. (Nina)*

Conversely, Robin described an area of the greenway that fosters community and gathering. She talked about accessibility from different neighborhoods and the function of the space for bringing people together. She said,

*I think River's Edge has really brought together diversity in our community. We have a lot of soccer teams that are recreational soccer teams that meet adult soccer teams that play on the River's Edge parks. And so that brings together a whole new aspect of our community that for, I think, really didn't have a gathering place before. There seemed to be a lot of Latino families that meet and play and support people who are playing soccer. And so, it's created this kind of whole new gathering space for people in the River's Edge Parks. (Robin)*

Ethics in land acquisition and development is a part of the user experience that extends to how people see their community. Feelings tied to the greenway and its history do not seem to interfere with users perception of the greenway, because there are not many conflicting feelings about the method behind the greenway. The consensus was that the greenway was uncontroversial in how its land was obtained and the way in which it was planned.

*I feel like the history of the Greenway, that I know, or at least the history of the cleanliness of the river, the river has become more clean has been more become more cared for. Yeah. So, if there is sort of like a dark side to it. I haven't found it yet. I'm sure there are local historians that will. There's always a story there, but I have it hasn't come my way yet. And so that makes me feel less complicated about enjoying the space. (Nina)*

Though there were some conflicting interests within Mountain View when the greenway initially went through what is now Vic Thomas Park, city employees made a conscientious effort to help mend injured relationships between neighbors. Any participant who was there for these events expressed that the past conflict did not hurt current relationships in the community and with the greenway. Either the history does not come up at all or is felt to be repaired. One participant expressed gratitude for a city manager and the greenway coordinator who helped to smooth over hurt feelings.

### ***Neighborhood image and improvement***

One reason that Rocky and other neighbors advocated for the greenway was because they thought it would enhance the neighborhood's image. Rocky felt like his expectation for neighborhood improvement came to fruition. He described his observation,

*When the park did come through [my partner] and I was sitting on our porch, a couple with a baby stroller came walking by, you never would have seen that. And I said, 'gah, it looks like France out here!' I mean it looks normal, you know? And it was it was incredible. (Rocky)*

Another long-term resident talked about the influence this had on the safety of her neighborhood and the behavior change it allowed for residents.

*It gives a really good, safe place to go and be outside. I know before the greenway, it's like we wouldn't, you know, never, never walk the dog in certain directions, and you always stay to certain streets in the neighborhoods. Kind of on the other side of the bridge, really. But I think since the greenway's been there, one, we've got that option but two, it's made the neighborhood a better place. It's easier to walk just within the neighborhood on the streets too. And so, do the loops that might include the greenway but then also some residential areas. (Leanne)*

Formal events on the greenway were a part of community building for Mountain View residents and residents in all of Roanoke. For Mountain View residents, these included a community 5K race and a religious ceremony. For the broader Roanoke community, the greenway hosted races, festivals, and running and biking club functions. Informal community building activity included seeing and meeting friendly people while walking, running, biking, and playing Pokemon Go.

Creating a sense of community also entailed creating a sense of place. This is what Jack referred to as “address-making”. The presence of nature on the greenway and trail users’ interaction with it was one way that community became more defined. The city has deliberately branded the greenway as a place to experience the outdoors, and residents felt that it was special place because of its access to nature. Ways this was done successfully was having natural areas and greenspace near the trail and in the parks. Ways that it was lacking was in its connection to

water, specifically. Nina was one of multiple residents who wished for more places to view and interact with the water.

*But it just seems like actual ways to interact with the river are, are just sort of haphazard and are not really managed or signed very well. Does that make sense?*

Development of the greenway for community is also reflected in development surrounding the greenway. Businesses off of the greenway are mainly places upscale places for dining out or recreating. They are aimed at a specific demographic that leaves out a big portion of Mountain View's population.

*When you look at some of the microbreweries that have opened in the area. They're adjacent... a number of them are adjacent to or very close to greenway to the trail. Restaurants and other things. Those things are there in my mind, at that particular location, because they know you got people that are coming by, that are outdoors type people, younger people, and that all works together. (Brad)*

In Mountain View, residents expressed a desire for development of places connected to the greenway that are close in proximity to the neighborhood that meet specific needs. Those mentioned were places for healthy grocery shopping and restaurants or cafes that were catered to locals. Currently, business development near the greenway in Mountain View includes Black Dog Salvage, which is catered mostly toward outsiders, and Tacos Rojas, which is a restaurant for locals and outsiders.

Residential properties surrounding the greenway are also geared toward outsiders. As the cost of housing and property taxes increase, local residents see an increase in living expenses and decrease in available living spaces. Most upscale housing is closer to the greenway, and most affordable housing is further from the greenway and closer to what are considered more dangerous areas.

### ***Design and function for environmental health***



Environmental health is represented in design and engineering of the physical trail and its surrounding vegetation, user interaction with nature on the greenway, and the interaction of nature and the physical trail, including its surrounding vegetation. Though the focus of achieving environmental sustainability through the greenway is admittedly secondary, the process of development includes provisions for protection of wildlife and efficient stormwater drainage in its design and ensures that they are constant requirements. This includes maintenance of canopy cover, protection of log perch, pathway drainage, and natural vegetation. Participants agreed that maintenance of the greenway, both formal management and informal stewardship, kept the greenway clean and clear from debris.

On the physical greenway, a built rain garden, dog bag stations and receptacles, trash bins, and signage for the greenway all promote healthy environment. User behavior is largely complementary of environmental sustainability, with the notable exception of dog owners letting their dogs off leash and not picking up after them. In addition, participants often thought that the greenway had positive effects on environmental stewardship. Jacob said,

*There are buffers at different places along greenway plus signage that educates people on what a riparian buffer is and how these riparian buffers improve the quality of the water. They filter out the bad water. Stormwater management has become a big issue. And so, what stormwater management involves, cleaning up the water that goes into this river and flows down. So, there's more awareness of what stormwater management is about and the importance of keeping the banks clean and not just using that river as a dump. And to a large extent... There was a lot of that. People have a sense of pride now. They pick up trash and try to keep it looking nice. And you don't see people trashing the river, as bad as it used to be. Now we have clean ups every spring and fall. And if we have floods, we get behind on that but...I think overall the appearance of the banks and the respect of the environment has been dramatically increased by this. (Jacob)*

The stewardship may be enhanced among residents of the greenway, but I did not notice significant environmentally conscious behavior exhibited by businesses surrounding the greenway, with one exception. Though there are bike share stations at many destinations, it

seems that vehicle travel is the most expected and catered to among restaurants and shopping near the greenway. Other factors I noted in my fieldnotes were businesses' use of plastic bags and straws and off leash dogs. One business, however, was very much tied to the environment and its business owner was visible in conservation-related community activity.

### *Design and function for economic development*

The greenway's social and environmental functioning were described by participants as working toward economic goals. Ways that the greenway is functioning for Mountain View residents have to do with the greenway's budget being able to support itself and with the economic development around the greenway supporting affordability of residents' cost of living and their ability to increase their own income and assets. More indirectly, the economic development of the region and City of Roanoke was thought to enhance economic development opportunities for all greenway adjacent neighborhoods, including Mountain View.

For the first matter, the greenway commission and the City of Roanoke have been successful at consistently funding the greenway's development and maintenance. Though some funding comes from tax payer funds, much of it is obtained through federal money and other grants. This aspect of greenway planning is something that is seen as important for keeping up the momentum of trail development through continued construction. This quality of the development of the RRG is viewed as unique and that outsiders find enviable. FL described the approach that the greenway commission takes in obtaining funds for what they deem necessary parts of the greenway, some that other greenway systems may lack if faced with similar funding challenges,

*That took a lot of planning a lot of funding, creative funding looking for match grants and opportunities that existed outside of just cities and counties stepping up and saying, we're going to pay for this, we had to find other folks who were willing to step up and help pay for it as well, because it was extremely... has been extremely expensive. (FL)*

For the second issue, the RRG's function as infrastructure that supports residents abilities to maintain a livable cost of living, including affordable recreation, transportation, housing, and other expenses, the greenway performs only marginally. Participants mentioned that the greenway itself is free, and so resident access to a place to exercise and recreate is very affordable. As a means of affordable transportation, many users who might want to use the greenway for such means are believed to be unaware of the greenway or how it may meet those needs. Further, the physical greenway itself does not efficiently connect to many places that residents would need to connect to, such as schools, places of work, and downtown. The greenway seems to be not affecting access to affordable food for better or for worse, but gardens and a farmers market in Mountain View remain accessible and utilized by some residents.

It seems to be consensus that property values are rising in response to the greenway, but it is not widely recognized that this makes housing less affordable for residents. There are no safeguards for long-term residents and renters to protect their ability to remain in Mountain View as housing costs increase. Habitat for Humanity houses are among those in areas near the greenway in Mountain View that, without protective policy, will see increased property taxes as the area becomes more desirable.

Though rents and property taxes are becoming less affordable, many tout the increase in property taxes being a sign of positive economic development for residents in the community. Participants who were homeowners credit the greenway with boosting the value of their homes and hope for continued increases in values. The city also hopes for this increase because their property tax revenue increases. They anticipate and encourage community development that gradually and steadily increases the value of an area by connecting nodes of

successful business development. A business on the greenway has stake in continued housing cost rises and home renovations, because it increases their clientele.

As for those who do not own businesses or properties in Mountain View, their potential income is not likely to increase because of access to the greenway. New jobs are not being created off of the greenway, and there are not jobs created for working class residents that directly pertain to the greenway.

From the perspective of many participants from the city and one resident, all aspects of the greenway which contribute to user experience are tied back into the economic development of the areas surrounding the greenways. David explained the mechanics of how this is believed to work in the planning discipline, citing an article that evaluated factors significant to economic success in a community.

*...the more you like where you live, the more economic growth that that economic success of that community has. And it boiled down to three different things. One was the openness of the community. So, how tolerant it was to different viewpoints, you know. Religions, ethnicities, all that. The second one was the aesthetics of the community. So, how pretty it is. The open space, the parks, the green space, things like that. But the third one, and this is where we spend a lot of our time, and it's very hard to make the correlation back to the greenways, for example, but it's called social offerings. And it's how is your community creating opportunities for people to meet other like-minded people, or people to share their interests? (David)*

With this thinking, economic development for the community is served by enhancing and maintaining the greenway, fostering community building tied to the greenway, and encouraging surrounding development.

**RQ2: In what ways does development and use of greenway space reflect the historical complexity of Roanoke city planning, including class and race?**

When engaging with Roanoke's planning history, there were different levels of awareness of Roanoke's planning and land use history, and the greenway's interaction with it.

Some participants focused on the planning history of Roanoke in general, including industrial development and urban redevelopment processes. Others thought of the more recent planning history that pertained to Roanoke's greenway and the city planning traditions that interacted with it over the last twenty-five years. The implications for how the RRG reflects these histories are related, but they were often separated by how participants made connections to the present.

Themes that answer part of this question are related to RQ1 and its sub questions, including how the greenway is used and part of how it is developed. This section delves deeper into the history of planning for Roanoke and its greenways and the changes that are seen coinciding with the greenway's progression. This section is organized into a collaborative timeline from participants' perspectives.

### ***Events shaped the greenway***

One historical perspective that was recognized by many participants who are a part of city and regional planning were the John Nolen plans. It is seemingly a point of pride that the greenways have long been a part of Roanoke's vision. Bob Rightly made this connection when talking about land use in Roanoke,

*It's interesting, because the City of Roanoke has had comprehensive plans for a really long time. We're one of the earliest comprehensive plans in the country, if you can believe that. And from the very first comprehensive of plan, it talked about building trails along the river. And so in some ways, the greenway has been planned for a long time. (Bob Rightly)*

The plan was often credited for having land available for the greenway and for having a guide for creating linked greenspace. David first introduced the Nolen plan to me by crediting it with laying the foundation for the current greenway. He said,

*To have that vision, you know, is... to be able to lay out these different systematic parts, how they're all connected from Piedmont to River's Edge, to Smith, to Wasena, you know, all the way up... has allowed this, I think the Roanoke River*

*greenway to be developed with relative ease, because there's not that many right ways that had to be obtained and different things like that. (David)*

A less common perspective of participants was that non-adherence with the plan has caused difficulties in current greenway planning. Bob Rightly reflected on some of the difficulties. He said,

*I think it was all established back in the Nolen plan. I think it's a shame we didn't listen to it, because then we had intervening plans that sort of took away that idea of a connected parks and trail along the river and instead, they showed that we should have more industrial and commercial everywhere, so we can make more money as a city. And that was, you know, the hundred years in between. And then now we're back to... the plan was created in 2000, that we're currently under, it talked about the greenway. So, it kind of went back to that idea. (Bob Rightly)*

I reflected on the implications of this sort of valuing the land primarily for its use in industrial development as I walked along a section of greenway that stretched from Memorial Bridge to Bridge Street. This area was often identified as industrial, was less frequently used, and was often viewed by participants as less welcoming than other sections of the greenway.

*[FIELDNOTE ENTRY] The air smells like gasoline, and the industrial activity and scenery makes me feel like the environment is polluted. I wonder if this section of the trail is healthy to be on. My view of Mountain View is the glimpse of warehouses and brownfields I see across the railroad tracks and obscured by fences... I feel like this is such a missed opportunity, and I can't help but resent the industrial presense. I feel like they don't care for the land...*

The impetus for the greenway was a flooding event in 1985 which catalyzed action by the city to build infrastructure that would mitigate storm waters. Participants connected the presence of the greenway to the need for the land to be utilized as a riparian buffer, free from development. John explained this event's effect on Roanoke's land use philosophy,

*I think a lot of this greenway was developed as part of the Corps of Engineers flood reduction project. So the flood of 1985, I guess, cemented in everyone's view that maybe we shouldn't develop parts of the floodplain. So I think that has helped push making the Roanoke River corridor a more of a park setting. So it was easy to acquire the land to build the greenway or maybe all of it was most of it was publicly owned, anyway. (John)*

The response to the flood was a flood reduction project that the city and federal government were working on together. It partially coincided with a sewer project that also went along the Roanoke River. Pairing the greenway project with the sewer project was an idea that was not supported, but this seemed to prepare greenway commissioners to look for other opportunities like it and to look for others who might support and cooperate the idea. Because it was near the beginning of Roanoke's greenway movement, it also set the tone for how greenway advocates would work in the future, namely, by challenging norms of established planning procedure and attitudes of reluctant city employees.

*The guy who was in charge of the sewer department at the time was like, 'I'm not going to build a greenway, I don't know what that is. Why should I put a..' See, there was this big opportunity to build a greenway on top of the sewer line. Because the city was under a mandate from DEQ to replace the sewer line because it was leaking. So, they had to do it. And we were pushing them to put the greenway on top at the same time. it just, you know, goes right the same way. And this guy in sewer was like, 'Well, I don't know what that is,' You know, just because you call it a greenway. 'I don't know what that is. I don't have time to do that.' And so, he kind of pushed it off. 'Do it with the flood project.' So, there was an opportunity missed, where it could have gotten built with the sewer line. And it didn't, because there was staff people who did not have enough foresight to do that. But when the flood project started getting done, by then some of the staff had turned over, and they did have enough foresight. (FL)*

Much of the funding for the first part of the RRG was covered by the flood project. Jack talked about the importance of this history for the RRG,

*I always think of the flood reduction project, and the bench cuts and the things, not only in this section but in the sections all the way down to the far Southeastern end of the city where the water treatment...the sewer treatment plant is, all helped form and shape not only the route but the configuration placement of the greenway. So, in some ways, the greenway would look a lot different if it ever had gotten to this point, if not for the flood reduction project. Very early on, going way back into the late 90s. (Jack)*

Socioeconomic events also influence the greenway's development. Nelli provided one example of how these can direct the course of the RRG,

*Basically it's been adopted by Parks and Recreation. But what also happened in 2008 was it was the big economic crisis, and the city shrunk in staff considerably. And so the departments like, all the departments of Public Works lost a lot of workers. But that was also the time when the greenway started happening. And it's now we have like, a very large corridor. And the greenway requires like the most maintenance. It requires landscape, basically maintenance, like discarding leaves, discarding branches, etcetera, etcetera. So all that maintenance has been acquired by Parks and Recreation, but they have never gotten as many workers as they used to have. So it's like, they still have to take care of everything else, but now we're taking care of the greenway as well and more and more. And they need different type of equipment you know, for snow removal, it's different than removing snow in a street. So I know that that has been a struggle. (Nelli)*

### ***Transformational land use and development***

The transformation of industrial and neglected land into a valued natural landscape is the story of much of the RRG. This change is seen as representative of broader shifts in the culture of Roanoke and the world at large. The change in meaning assigned by Roanokers to the land that the greenway occupies is a marker of that shift. Jack explained,

*What otherwise was something that was... previously, something that separated neighborhoods is now something that tends to connect neighborhoods. (Jack)*

This shift is mirrored in the greenway development process. It is apparent to some stakeholders in how the greenway development process was valued and invested in a meaningful way. FL said that advocates and volunteers had been working toward a vision of a Roanoke connected by trails, taking action to build and fund trails even when the city was not yet fully invested. She noticed a change in the city's valuation of the land and the greenway movement when regional partners identified it as a way to brand and sell Roanoke. She said,

*Suddenly it was like, the volunteers became more important. The city actually hired that the trail coordinator person that they have, because suddenly, it was becoming more important economic development. So, we need somebody who's coordinating between the volunteers and the city and who's controlling it. And you know, it's made a difference. (FL)*



Another marker of the shift in perspective was the idea that land and the structures on the land could be repurposed, just as the river was, to fit modern needs. This was a common theme across stakeholders and for different contexts. Jack talked about this from a planning perspective,

*... the greenway and the flood reduction project has opened up possibilities that that weren't conceivable 30 years ago, 40 years ago, 50 years ago. In those in those days, I would say, if it was built for something, no one thought it could ever be anything else. You know, once a factory, always a factory. Once a barn, always a barn. Once a railroad depot, always a railroad depot. But we know in today's world with modern technology and other factors in play, something doesn't have to stay what it was before. It can be repurposed based on how people feel connected to it. (Jack)*

The change is ongoing and serves as an inspiration for some residents. Isolde talked about the symbolic meaning it holds for her,

*I associate trains with sort of industry. And so, I think it's been used for some industry and commercial transportation, I guess. And I think there's something really beautiful about transforming an industrial area into a natural area, which is what we have here. (Isolde)*

For the Mountain View neighborhood, this change in land use was a result of neighborhood residents taking an active role in the future of their community. Rocky summarized part of his role in advocating for the greenway, wherein he wrote a letter and organized opposition to the city changing their plans from placing the greenway in Mountain View to routing the greenway trail across the river through Grandin. He tried to explain one way that he viewed the importance of the transformational land use. He said,

*That's part of one of the jewels on the string of jewels that a greenway is. ... [Vic Thomas] park is really it's the shining star of this neighborhood, because people can walk to a park and enjoy themselves, and need other people, and all of that. So that's a curious, quirky thing that have happened, isn't it, in that. You'd never look at that and think of those struggles. It was sort of a struggle. (Rocky)*

This history is not commonly known among residents now, and it does not seem to negatively affect user experience on the greenway for those who are aware of some of the conflict surrounding Vic Thomas Park's controversial beginnings. If anything, it made those

greenway users more appreciative of the greenway. Nelli, who was one of a few who knew some about the history said,

*I know that it used to be a trailer park and then it was zoned commercial of some sort, and... there were some disputes related when there was going to be built. There were some people, some stakeholders wanted it to become a next commercial area. Or you know being seen as like a waste of space if you're just going to put it on trail, and I just, I guess because I wasn't there I just see what I see. I just can't imagine it being anything else. I'm glad that people who fought for it fought for it, because I think it's a great use of space. (Nelli)*

The story that has survived about the extension of the greenway into Mountain View is about how the city was able to transfer use of endangered flood-prone land from a trailer park to something that was beneficial for people in Roanoke.

*...the flood plane that is along the Roanoke River used to contain houses or trailer parks or industrial things. So, as those parcels have been purchased, the land use has changed more to a park or greenway. So I think that's... the greatest benefit so far has been moving some of those structures out of the flood plane and converting it back to a more natural environment. And the greenway has helped do that. (John)*

The controversy surrounding this transformation is something that no one seems to want to unearth. The participant who chronicled the experience debated whether he wanted to tell the story, because relationships between those involved- neighbors, planners, and city leadership- have mended. He decided to tell me about it because he felt like it was an important part of the greenway's history.

### ***Change in perception of how land is valued an asset***

Those involved with the greenway in its early days described seeing a change in perception of the greenway as its development progressed, especially among city employees and leadership. After talking about some of the opposition she faced, FL noted how she saw changes in the way greenway development was received among planners. She said,

*But things evolve. You know, it wasn't necessarily recognized then as the asset that it's recognized as now. You know, it wasn't looked at as economic*

*development. It was just this nice to do frilly thing. So, I think people have recognized a lot more now. The attraction it is to citizens. And I mean, you know, that was back in the railroad days. They had the railroad. Ingersoll Rand, they had a lot of manufacturing. So, they didn't care about needing to attract people. (FL)*

The changes represented a reciprocal relationship between investment in the city and popularity among residents. Jacob talked about how he saw this cycle of increasing awareness and acceptance of the greenways,

*It took a while to convince the localities that this was really a good thing. When I started, I remember, people asked me what I was doing. I was working on the greenway commission. 'Well, what's that?' 'Well, we're building a greenway along the Roanoke River.' 'What's a greenway?' 'The greenway is basically a linear park.' I got tired of telling people, but it was part of my job. I had to go and convince people what the greenway was and the benefits of the greenway. And how this was a good thing for everybody. That was at the start of it. Towards the end of my term, the question was not 'what's a greenway?' It was 'when's this section going to be done?' Or 'when's the next big development in the greenway?' Because people really got excited about it. The governments bought into that also, because they realized that those are taxpayers and voters that are on there. (Jacob)*

Another factor that contributed to this change in perspective came from a gradual change in personnel, who incrementally shifted the will of the City of Roanoke to value land for its environmental and recreational potential. Jacob talked about the power those perspectives have for greenway development. He said,

*Staff people who have supported the development... their importance cannot be under stated. Because staff people can make or break any project. You know, they don't want to do it, they just don't do it. You know, so there's always something else to do... if we had today, the staff people who were in place in 1996, it wouldn't, it wouldn't have gotten done. It took some getting some staff people in various position who support the concept, not just parks. But the concept of the greenway of linking the parks. (Jacob)*

He attributed this ideological shift to the type of people who came into city government and inserted their more modern views into the way that government operated. He said,

*Slowly and quietly, these young people would pop up at the meetings. And the older people retired and young people were, you could get the young people aside*

*and you talk to them or you get them in the conversation. What they were saying and brought to the table was different than the way that that department was operating. And that turnover made a big difference. That turnover made a big difference at the leadership level of each of the localities. As things turned over, the younger people came in and they became more influential. They moved up the chain of command. And young people have really made a difference. Young people in Parks and Rec and in the government. (Jacob)*

As personell changed, greenway commissioners and advocates began to find a network of people with whom they could work. Jacob described,

*There is one area where you know, the city manager for years, was a huge sports fan. Well, he didn't give a damn about the greenways... there were a lot of things he didn't really care about. And so we couldn't make any headway. But that turned over. And the person that came in behind him, had a totally different attitude, so it opened doors. So a lot of this is just a matter of being there and riding out until you get to the right people that you can work with. (Jacob)*

The planning philosophy of Roanoke was connected by some to historical patterns of land use and value. Todd, after noting that the historical use of Mountain View property likely contributed to some toxic pollution of the river when it was in operation, said,

*When you have when you have a river, that's not a navigable river, it's always been used as, as the sewer really. That's what people did for the last 200, or probably from forever. Is you colocate industrial things and work areas because you either needed a power source, or you needed some place to throw something make stuff go away. And Roanoke's no different...now we have the luxury of being able to make our river... be able to enjoy the look of it, as opposed to having to use it for what we could squeeze some money out of. (Todd)*

That identity of the river as being contaminated and unclean went unchecked until the flood project and the greenway came along. Jack saw the dismissal of the river as a mental barrier that had to be overcome before the river and the land around it could be appreciated.

*I think you have to step back, and just because something has been viewed a certain way for a while, there are opportunities to shift that view of something to a more positive attribute than a negative attribute, I think prior to the flood reduction project, and prior to envisioning the greenway, the river was seen as 'yeah, it's there somewhere.' And it backs up to a lot of railroad tracks and industrial property that no one really uses. You know, 'it's down there somewhere. I don't know how to get to it.' You went from an afterthought into now a*

*centerpiece and a physical feature that tends to unified things as opposed to separate things. (Jack)*

Thinking about how the Nolen plans prioritized the river and the connected network of parks and greenspace as a feature to build and develop the city around, Bob Rightly talked about the logic that he sees bringing the RRG into a prioritized role in planning today. He said,

*I guess it's all cyclical, but I do think that this is directly connected to that original plan. And it really comes down to taking advantage of your assets. So, if you have a river that runs through your community, if you hide it, put it under cover, then you're not taking advantage of that asset. But if you get people down to it with parks, and connect those parks with the greenway, that traverses it, then all of a sudden you're starting to take advantage of that asset. (Bob Rightly)*

Lyle related Roanoke's historical planning perspective to devaluing of land. He talked about how as he was growing up in Roanoke, he felt that Roanoke wanted to become a big city and were positioning themselves for development that would bring in a lot of people and industry. Lyle reflected that some positives came from that failed approach to planning,

*You know, you lived here you recreated outside, you knew about it, but we never were like an outdoor town. Never branded ourselves as an outdoor town. And now with groups like Roanoke Outside and the Regional Partnership, you know, capitalizing on what we have our natural beauty and our outdoor amenities... For a long time, Roanoke probably, and residents too, wished more companies were moving here and building more, and we were expanding faster. We were pretty stagnant for a long time... But I think in the long run, it's benefited us because we haven't had, you know, all this development and maybe wasn't well thought out or wasn't sustainable. In the long run in it maybe preserved some of our natural beauty and green space. (Lyle)*

According to most participants, the greenway system, including the RRG, has now become the most, if not the most important feature of the city. As I recruited participants, I was surprised at how quickly and willingly city employees and regional partners responded and made time to meet with me. As I interviewed them, I realized what the greenway meant to Roanoke. Many of these participants had a lot of pride in the greenway and placed a lot of stake in its success.

*So it's much more of a priority for the city, than it was in the very beginning, because they didn't really know what it was. But as its evolved, you know, it's just been so hugely popular. (FL)*

Robin talked about how Ronaoke City Council views the greenway and how it fits into their priorities in planning. She said,

*It's become a focal point. From a city planning perspective, or from the city perspective, it's become one of the key features of, you know, how do we maintain this? How do we make sure we continue to fund it? How do we make sure that, you know, it's... it is taken for granted now that the greenway is always going to be there. Whereas in the past, people didn't even know that we necessarily had a greenway or what its purpose was, and so it's become a center... So it has become a centerpiece of all of our parks and rec planning, and of our outdoor recreation amenities and offerings that the city really talks about and emphasizes in all aspects of urban development. (Robin)*

David explained the importance of the greenway from a regional perspective. He said,

*I think single handily it's probably the greatest thing to happen to our region. (David)*

He went on to explain why, in his mind, it has become such a vital asset with a description of how the city has changed with the development of the greenway system. He said,

*So for us, our community narrative, as a whole has really changed. It used to be... I always like to say that it's not that we had a bad image, we just didn't have an image. You know, we didn't know... we didn't, we really didn't have anything that we stood for, as a community. And if we did, it was as a rail town because you know, Norfolk Southern was the largest employer at the time. So that was kind of our identity, was a rail town. And so it's like, how do we get... how do we shift from a rail town to something else? And so that's kind of what it's been. It's recognizing that one of our greatest strength as a community is the natural beauty of where we live. The mountains, the lakes, the rivers. (David)*

Residents seemed to pick up on this attitude toward the greenway, and it gave them a sense of security and belief that greenway would continue to be taken care of. For example, Nina explained why she is not worried about the greenway,

*...Because I think that the city knows, they're savvy, and they know how valuable it is. (Nina)*

Todd talked about his understanding of why the greenway is a priority for the city and why he feels like its future is secure,

*I think it's obviously...the outdoors is one of Roanoke's best angles for success. And there's been a huge investment in it. And it works. It's not forced. It's not something that you just build it to say, 'Hey, we got an art museum downtown that's very similar to, you know, it's really nice.' But there's not that many people that want to go to an art museum because it's not something that you use over and over and over again...This is something that's useful on a daily basis, and so I don't think it's at risk of being ignored. (Todd)*

Residents and the community at large have also changed their perspective throughout the course of greenway development. Planners and residents talked about this perception. Nelli said,

*I think that even the naysayers now love it and see the benefit of it. I think you'll have a hard time finding somebody to tell you that it's a waste of land or that it's irrelevant (Nelli)*

Those involved with planning the greenway talk about how some people who are new to the idea of a greenway were reluctant to accept it, especially if it came near their property. Bob was one who described some community members' fears of crime or intrusion. He said,

*So we've seen that transition and people's perception of a greenway and what it can be for a community, the fact that it's an asset and not, you know, potential liability. (Bob Rightly)*

Bob Rightly also talked about the connection to nature aspect of the greenway and how exposure to the RRG changed perceptions of the value of natural spaces in the city. He said,

*You know, I think initially greenways were thought of as a sort of pie-in-the-sky, tree hugger idea. And then all of a sudden they were developed, and people realize, 'wait a minute, that's really convenient. You know, that's a real asset.' So, I do think people have transitioned on that idea. (Bob Rightly)*

Brad made this connection too, and commented on ways he saw that happening. He said,

*People get attracted to water. And they get attracted to the outdoor activities associated with the waterway. And they get attracted to, I'm trying to think.. just being within that environment. And I think that's where the biggest change has been. Being able to integrate this into that without ruining it. (Brad)*

Whatever aspects of the greenway are most meaningful or valuable to Roanoke stakeholders, it is clear that participants feel that now the greenway is held in high regard in the city. David talked about this recognition within influential stakeholder networks. He said,

*And so that's been the overall push as a community from Parks and Rec department... well, from elected officials and city managers, all the way down. From business leaders all the way down. It's been this recognition that this is one of our strengths. (David)*

Jared told how he saw the changing value of the RRG reflected in changes in residents' activity and connected it with investment in the greenways by the city and its regional partners.

*I grew up not far from here. So I've always appreciated the outdoor amenities that we have. But I think I'm, I'm as guilty as everybody else in not leveraging those assets for something bigger, and seeing how that is a draw for people. Just we took it for granted, we look at so much of what we have is wallpaper. It's beautiful. But it wasn't until the partnership started their initiative to brand, the region on its outdoors, that people really started taking notice. And I would say probably within the last six or seven years is when it really started to take hold. And you could see a noticeable shift in the culture and the folks that were moving into the area and the folks taking advantage of the natural assets that we have, but also an uptick in people registering for programs that we have. (Jared)*

This perception was reinforced by comments from many resident participants. For instance, Isolde talked about her view of the RRG. She said,

*The greenway is the coolest thing in this city. And so being close to it is amazing. (Isolde)*

One participant felt that those involved with the RRG may have a skewed view of it. He felt that some residents may not care about the greenway or may not find it beneficial. He said,

*I think you'll find that some parts of Roanoke, some residents think that it's very valuable and beneficial to their neighborhoods, and then maybe other people, other neighborhoods- more the low income areas- think that it's not important, because they have greater issues in their lives that they think are... that should be addressed by public funds than greenways. So, I think it depends who you ask. (John)*



A prevalent theme across all stakeholder participant groups was that this popularity of the greenway in Roanoke and the region translated to a form of power. People had trust in the greenway's ability to last, especially because of the social and political support behind it.

*Thank God it's along the river, and the river has been there a long damn time. So that's good, right? ... I think people enjoy it. My feeling is people enjoy it. They value it so much. I don't think any one or two or even 10 people need to feel like they're the only ones keeping it going. I think it's a community. This is embraced by the community very well. (Rocky)*

They recognized the change in its vulnerability from when it didn't have widespread acceptance. Bob Rightly talked about this transformation. He said,

*[The greenway coordinator] has basically spearheaded all of this work. And really was the biggest champion. Initially. Now there's lots of champions. (Bob Rightly)*

### ***Greenways change historical patterns of planning***

Participants who reflected on changes in Roanoke planning since the greenway development process began felt that the acceptance of greenways as a mainstay in city planning and development began a new ethos for Roanoke. The shift was from planning for industry to planning for place-making. Jacob explained,

*Roanoke Outside, it was a priority, they set the priority that they wanted to develop the resources of the community. And they were of the opinion that the greenways were the critical component and a great part of the infrastructure to start what they wanted to do. And over the years, there have been organizations flop from one priority to the other. But Roanoke Outdoor set this as a priority, and they're sticking with it. And it's still important... They're doing all kinds of different things along with that kind of branding. And that kind of branding plus the greenway just makes the greenways that much more important. It's basically, you've taken advantage of the resources that we have. The promotion of the outdoor environment is to become a theme. You go to the travel organization... we're the Virginia Blue Ridge Mountains, and that's a theme. (Jacob)*

Jacob's observation was one of many that noted the elevation of the greenway's status as Roanoke's identity became more closely aligned with the outdoors. Though some felt like the

shift was smooth, some felt like there were members of the old planning guard that did not want the change. FL talked about how the focus of development in Roanoke was on bringing economic development through industry but has now shifted to outdoor assets. She said,

*You know, that's nowadays that's, the economic development people are not so focused on manufacturing. I mean, they still would like it. (FL)*

Greenway development prompted another change in Roanoke governance: the multigovernmental cooperative relationships. What had been more competitive or contentious relationships between municipalities were transformed to cooperative, mutually beneficial partnerships when it came to the greenway. Brad talked about the relationship with pride, talking about what an accomplishment this kind of partnership means. He said,

*I think anytime you have something new, and you have to bring in different government bodies to work together...In the beginning, it is difficult to do... I had been involved, in the past, trying to bring four county governments together on something years ago in this area. And I'm not from the area. So, I saw how difficult it is to do to bring everybody to the table to work together. And in this case with the greenways, it has evolved, just that way we're working together. (Brad)*

Relationship building was a primary tactic used in building support for the greenway throughout the city of Roanoke's many departments too. FL talked about how the canoe trip tours with elected and unelected government employees was a part of strengthening the cross governmental ties and support for the greenway. She said,

*So, that was just an example of how reaching out politically built support because these guys don't usually get to do anything fun. Yeah, you know, they go to a lot of meetings and stuff like that, and to actually see to actually get on the river and go, 'Where are we? Oh, we're behind the materials are well how do you get here?' 'You can't get here.' 'Well, what if I wanted to put my boat in here?' 'You can't, you can't get here.' You know it kind of built... and they would see homeless camps along the river, and you know it gave them an opportunity to see where the greenway was going to go to see the sewer project under construction. Stuff like that. It was, it was a good thing. It was one of the better, you know, reaching out things that we did to build support. (FL)*

Today, there is a consensus that cooperation comes fairly naturally. With buy-in from leadership entities across the city and region, stakeholders with power in the planning process feel like they are working towards a common goal, for the most part. One leader said,

*You know, what we've done is we've just built a network of stakeholders. Parks and Rec directors, the greenway coordinator, the blueway committee, that it's all interrelated. You know, most of us all sit on the same groups and the same committees, and so the synergy is really strong. And I think, for the most part, we're all pushing you know, all paddling that boat in the same direction. (David)*

Despite this cooperative nature of current leadership involved in the RRG, there are still some different viewpoints on how the greenways should be managed and developed among stakeholders. There seems to be a tension between more traditional ideas for the greenway, which include expanding the length of the trail and catering it to family-friendly recreational uses, and other ideas, which include recreational and tourist attractions on and near the greenway and catering the greenway towards transportation. David described how some of this was due to perceived practicality of different types of projects. He said,

*It's just some, if they're more controlling the money, they know that 'Oh, that's not going to happen anytime soon.' Whereas the others as more the visionaries, they're like, 'that's a good we see the vision of it. You know, they just have to figure out how to get there.' (David)*

Tenacity in challenging power structures, especially on issues of practicality and the status quo is a characteristic of Roanoke's greenway development process. Initially, the idea of the greenway itself was radical, and those in charge of developing the greenway made regular practice of challenging what is possible from a planning perspective. Some of this was through garnering the support of volunteers and public advocacy, which will be explored more later. One leader involved with the greenway in the beginning talked about her experience starting greenway development in Roanoke,

*I was told more than adamantly by a city planner, when I started, that I had absolutely no business, even thinking about working on Roanoke River Greenway, that it was not going to get built. The most important thing to happen was to replace the septic line. And I needed to shut up about doing the greenway at the same time, because I had no clue what I was doing. And it was not going to happen. I mean literally, I got chewed out by this person who is supposed to be giving me an intro to Roanoke City and basically said, 'Don't you even dare! ...even think about working on Roanoke River. Go out and do some little project in the county or something.' So. Obviously, I didn't listen to her. (FL)*

Today, within the greenway commission and city leadership, there is a distinct culture of taking no as a suggestion. The greenway coordinator, who was commonly representative of the greenway for many stakeholders, embodied that saliently in one greenway commission meeting I attended. I noted,

*[FIELD NOTE ENTRY] A planner from Salem reported two possible routes for the greenway and talked about the differences between constructing those routes. For one possibility, he said that it basically couldn't happen because of a certain list of variables. Liz cut him off and said, "Well, one of them's easy, one of them's harder." This was just completely her whole approach: the greenway would get done any way it had to get done.*

### ***Intentional land acquisition***

From the beginning of my time observing Roanoke's greenway commission meetings, land acquisition has been a big focus and source of challenges for the greenway commission. As described earlier, the greenway commission and the city of Roanoke pay landowners for rights to cross their land. Roanoke's history has something to do with this commitment, at least as it is viewed today. Robin explained,

*We've recently been talking a lot from the city's perspective about urban renewal and what urban renewal did to some of our historically black neighborhoods in Roanoke... in the name of progress, the city tore down a lot of African American owned houses and a lot of African American owned businesses to build public amenities. And that was the Civic Center, 581, some things like that. And, in the name of progress, people's lives, their histories were destroyed. I think, and I hope that I am seeing it with very clear eyes, that the greenway system has been progressive. And when you talk about land use and those kinds of things that it has been fairly uncontentious. As we've pieced together, the greenway system,*

*doing it slowly and in a measured way has been really important... I don't believe eminent domain has been used to build the greenway system. And that's, in my mind, extremely important... I'm grateful it hasn't been used. The greenway system, hopefully has developed in a very holistic way such that people aren't offended or confused or concerned about the ways in which the greenway was actually built that it was done from a community perspective from the very beginning. (Robin)*

It seems that now, leaders in Roanoke are trying to wrestle with their troubled development history, at least internally. Bob Rightly also talked about a focus on equity. He said,

*So it's kind of a tale of, even over the last 20 years, planning has changed. Likewise, our current plan, there's a lot more focus on equity, which wasn't even I don't think directly mentioned in our last plan. So planning has changed. (Bob Rightly)*

One participant talks about how the greenway's positioning along the Roanoke River is a part of how the greenway achieves equitable access to land without displacement.

*Whereas, you know, in years past that land was taken for for development for you know, whatever reason from from certain neighborhoods and feels like you're taking away from some to give to to others, as opposed to using what has predominantly been public land anyway and reposition turning that into something that is open to anybody of all skills and abilities and all user groups and ages, races, gender, all that stuff. It's just, it's a really great equalizer. (Jared)*

Though no participant talked about any plan to address equity in greenway development, one city planner talked about how equity is coming into the conversation for Roanoke's new comprehensive plan, which the greenway is embedded in throughout. He said,

*I mean, I think it was the elephant in the room. So, when we did our downtown plan, we had a lot of discussion about some of the history of the area around downtown and urban renewal, and we had a direct section called out within that plan. And then by the time that plan got adopted, a lot of that language was sort of left out, and we knew we wanted to re-approach it at some point. So, we decided within the comp plan, that's when we needed to more directly talk about, not only equity for the sake of being equitable, but also our history of not being equitable, particularly with the African American population and the way we've been segregated as a community. So, a lot of work is going into our new plan to address equity. But it's still sort of the tip of the iceberg. But it is really, in some*

*ways, we're just excited, I guess, to be able to start that conversation a little more and have that conversation. (Bob Rightly)*

### ***Challenging established policy and procedure through advocacy***

Tenacity and creativity in greenway development, as discussed above, is another part of how the greenway's planning history has influenced what the greenway looks like today and how it operates. In the beginning, the greenway was a citizen-led effort with little financial and political support. Proactive volunteerism was a way that advocates challenged a government that was reluctant to act on their vision. FL described how she saw this being important for building support and momentum for the idea of Roanoke greenways.

*So, in the initial days, early days, like Murray Run Greenway was all built by volunteers. So, I mean, literally, we would lay it out, build it. And the star trail on Mill Mountain is kind of an example because the city selected Mill Mountain Greenway to be their pilot project. And it just took forever. And people got fed up and they said, 'Well, we've got to do something to get something off the ground or nobody's gonna believe in greenways.' So, we got permission to build the star trail, which was the first time the city had actually owned a trail, natural surface trail. And it was kind of like a big deal. (FL)*

Greenway advocates also worked from a top down approach. They found a way to work within the system to incite a commitment to the greenways. FL talked about this process too.

*The city did a plan, that was called Vision 2020. Okay, and it was really the first time, in a long time, that they had done a really big, comprehensive plan. And it was right about time that the new city manager got here who came from somewhere else. And so, they had these groups, you know, this one focused on economic development and one transportation and one for.... And we had a greenway person on every committee... Citizens. Planning people. So, you know, we have a lawyer on the economic development one, and, you know, bicycle person over here. Doctor over here... So, every committee's recommendations came out saying we should have greenways for transportation, we should have greenways for economic development, we should have greenways for health we should have greenways for... So, it came out so big in that plan. So, getting into that planning stuff is really important. And I mean, the city came out of that plan and said well, 'We just spent a year doing this, we're going to implement this plan.' (FL)*

Now, the city is fully on board, and the scrappy approach of greenway advocates, namely the greenway coordinator, is more appreciated. Her tenacity is credited with being a primary

reason for the greenways being the asset that they are today. Robin was one of many who made that connection. She said,

*Well, Liz Belcher is the number one advocate. She's the only reason the greenway even exists. She, I mean, is a saint, for what she has dealt with, for the people, the personalities, the governments, the stalling, the funding, everything. Liz Belcher is absolutely... I mean, the greenways wouldn't exist without her. And so I think she's obviously a key component. (Robin)*

As a response to receiving pushback from some, she found ways to increase support for the greenway and to streamline its development through connecting with people and forming partnerships. John could not think of anyone who needs to be but is not involved in the development process, because he says that he thinks those partnerships have already been formed. He said,

*I think Liz Belcher, Liz Belcher is not shy about asking or approaching people with she thinks it'll be a benefit to getting something accomplished. So she takes the initiative often to reach out to departments, if she thinks that they will be helpful. (John)*

A spirit of determination in greenway planning was described by Lyle, as he detailed his observations of the greenway commission and its leader. He talked about Liz's knowledge and understanding of relationships, federal and local funding sources, and leadership style. He feels like he is learning during his time as a commissioner. He said,

*Liz is just very efficient in like... she's amazing in how she gets things done and how much she can get done. Just...kind of working with her and seeing how she operates over the last five years is really it's inspiring. It's impressive. It's awesome. Because she's just a go getter and fun at the same time, but yet no nonsense. (Lyle)*

So, it seems that her style of developing the greenway is influencing those around her, setting a status quo of how to approach greenway planning. A few residents knew of Liz and had positive perceptions of her and her vision for the greenway when they worked with her on projects or when she worked on projects that were relevant to them. Nelli talked about she has

seen Liz operating in the community, showing a sense of creativity in how she built her network. She said,

*I've been, yeah, I mean, I've been always in committees with her. Anything related to bikes and greenways, Liz is there. So like, if you are in any way interested or remotely, like, understand the impacts of the greenways, or remotely interested in what's happening with the greenways, you know Liz. (Nelli)*

Residents in Mountain View also embodied this dogged approach when they advocated for the greenway passing through their neighborhood. In vivid detail, Rocky described a scene of when the greenway almost was rerouted from what is now Vic Thomas Park in Mountain View to the other side of the river. He said,

*Even though they had handed out maps, showing the greenway crossing over here, and then continue on, [planners] said that the greenway now is going to stop and Wasena and go up and around by Jesus Saves and down the other side. In other words, not coming into Mountain View. And to me, that was the major thing that I wanted. I wanted white people to come across the river. They weren't. Except driving. And here's the daggone greenway was gonna go up a hill, which is terrible thing for greenway. That's a steep hill. And then back down and under the bridge and continue on up Norwich. And you know, I just said, wait a second. We bought this has already been planned. It's on this map you just gave me. '... And I said, you know, this was a this is supposed to be in park. And they said, 'oh, it'll be a park for a while.' And I said himself 'as a park waiting to be developed,' which it was. I mean that was their intention was to develop that park. Anyway, I ended up writing a letter... I wrote it, and it go sent to all of City Council and everything and basically talking about the importance of the, one, that it was planned anyway, and two, the importance of it crossing the river into our neighborhood, even if it's just for a little bit, but it's symbolic. And so in a couple of days, the tide changed on that. And I got a call from the city parks guy and he said, 'I don't know who you know, I've never seen this, but you got your park,' you know. And I just thought, it's because people love greenways. That's why the power of what was going on there. (Rocky)*

Some communities or neighborhoods come together to advocate for greenways. This was the case with Grandin Village. One commissioner reflected,

*There have been neighborhoods like Grandin who really got behind... said 'we want a greenway.' And so, that's theirs, their greenway is Murray Run that goes from like, Patrick Henry High School, behind the High School over to Fishburne,*



*over to Western. And they helped with it, and they've always helped- volunteers and maintenance and money. But it's more of a neighborhood rather than a regional destination. (FL)*

### ***Protect the greenway***

Greenways have influenced planning and development in Roanoke, but as popular as they are, there are many who view their existence and improvement as vulnerable. Protecting the greenway was a common need expressed by participants in all levels of power in greenway development. Perhaps the flipside of power in popularity is fear of unpopularity. Nina talked about how she sees the need for people to advocate for greenways, no matter how popular they become. She said,

*And you know, [the greenway's] something that you need advocates for, because it doesn't happen by itself. Cause it's not, you know, building a... expanding 581, or building a highway that just sort of happens by direct mandate, because that's how most politicians are, like how they see the world still. Like, it's like, you need to move vehicles. But like trains, buses, bikes, and pedestrians are all afterthoughts still. (Nelli)*

The need for continued political support from the city was a common sentiment. Robin talked about what protecting the greenway means from the city's perspective. She said,

*So you've got both sides of every situation and have every consideration and trying to write good policy to protect the users to protect the greenway itself, and then to make it an amenity that everybody wants to continue to be a part of using is really important. And I had didn't have that perspective previously. (Robin)*

The reciprocal relationship between maintaining popularity among constituents and support from the city may be a delicate balance. When I talked to participants, I often felt like they were being protective of the greenway in how they would present it to me or defensive of it in some answers to questions. After my first few interviews where I tried different manners of presenting questions about fears, concerns and desired changes, I eventually added in a question about what others could learn from Roanoke's greenway development process as a follow up to any of these questions that came up first in the interview. This seemed to put interviewees at ease

and to give them a chance to share openly about challenges and successes of Roanoke's greenway development. Some involved or familiar with the greenway development process expressed a fear of losing the greenway coordinator, someone they see as being key in protecting the greenway.

*I don't know that it's a fear that you could have, you know, you could get an administration that doesn't care about that and downplays it. But I don't know that that's going to happen. I think that at this point they're just strong. Like the greenway is too strong. I don't know what... you know, there's the greenways commission is a one person job...So, it's just one person. Like, I don't know what happens when Liz, like she's no longer the greenway's[coordinator]. (Nelli)*

Jacob, who has worked with Liz on the greenway commission described the work she has done in building positive relationships across Roanoke, from Kiwanis and business development groups to trail volunteers and localities. He spoke with admiration of her work throughout the interview and at one point commented,

*It's frightening... the amount of benefit on her part, Liz Belcher just scares the...anybody who understands what she does or knows what she does... It's, we're just so lucky to have her. She's been in from the get-go. And she understands the financing. And she understands construction. And she has a wonderful relationship. We need to do something to perpetuate that, to bring somebody else along. That's my biggest concern, I would say right now. Is finding that person who can take over, step in her shoes or do what she does. Because it's very difficult to maintain a relationship with all of the different localities, but she does it very well. (Jacob)*

## **Map Data**

From the spatialized data, I describe my observations as they pertain to my research questions. I recommend that readers look at the map as I discuss it. This map can be accessed by using this link:

<https://uploads.knightlab.com/storymaps/e7335b2d510bb6ffb6e6f04bdbd41e56/meaning-and-purpose-on-the-roanoke-river-greenway/index.html>.

I start with RQ1, RQ1A, RQ1B, and RQ1C as a combined journey across the map. Each of these series of observations moves from Bridge Street towards River's Edge and combines participant knowledge with context.

The physical greenway represents the needs, values and uses of greenways both positively and negatively. Currently, the Bridge Street trail head is a symbol of potential for Mountain View residents. Residents anticipate the connection to Salem so that they can commute to work, explore new destinations, and recreate in new areas. Some want more neighborhood friendly business development to happen along this corridor and hope that it will increase the walkability of their neighborhood. Some greenway commissioners see the value of transportation for the greenway, but a large part of the value they perceive for residents in the city of Roanoke is the connection's ability to serve macro level economic development. For greenway commissioners and city and regional leaders, this potential 1-mile section of the greenway that connects Roanoke and Salem is crucial in the completion of the greenway. In their view, it would make the greenway more useful for recreation and would continue to build the trends in development of areas around the greenway. It would make businesses along the greenway more viable, open up possibilities for new businesses, and transform Mountain View similarly as it had transformed Grandin Village and Wasena. One greenway commissioner saw the importance of the connection of allow more employment opportunities for people who live near the greenway and cannot afford transportation. When taken in context of the greenway's relationship with gentrification, this section of development has the potential to cause displacement of low-income residents who live near the greenway and to take away job opportunities in the section of Mountain View that houses industrial jobs. As viewed by some participants, both of those

anticipated outcomes limit both social and economic sustainability, though remediation of industrial lands and brownfields could lead to increased environmental sustainability.

From Bridge Street to the Memorial Bridge, participants expressed the greenway in terms of isolation and relatively little use. This section is geographically the closest to Mountain View, because it borders the neighborhood on its Southern side from across the Roanoke River. However, formal access to this section is limited to the Bridge Street trail head and the Memorial Bridge entrance. Informal entrances were suspected to exist but not used by participants. Participants see it as a place that is unclear and lacks investment. It is perceived as sometimes peaceful and sometimes unsafe. It is valued for its environmental integrity and for the lack of user conflicts.

Under Memorial Bridge, some community members are embarking on a art project that features local artists. Some aspects of the project aimed to promote diversity and engage local neighborhood residents. Ghent Hill Park, just on the other side of the bridge, is not a big part of participants' experience with the trail, though it is valued for its sloping, which were noted as exceptional for recreational purposes.

Coming up from Ghent Hill Park is the Grandin Village Neighborhood. This location is important because it is a place that local residents go for food and entertainment. It is also significant because it represents the type of business development and prestige that some residents wish to see on their portion of Main Street. For nonresident participants, it represents the economic value that the greenway can bring and the potential for growth from its Main Street to the RRG. They see Mountain View being due to receive some of that same development.

Memorial Bridge itself is a symbol for some of history and culture through its architecture and its commemorative plaque for veterans. Some residents value the beauty of the

bridge as a landmark while another cited its concrete and neighboring traffic as a reason to not cross the bridge. Across the bridge from Grandin Village is the entrance into Vic Thomas Park. This entrance is viewed as unsafe for bicyclists who come from Mountain View because of road traffic and nonexistent pedestrian and bicycle crossings.

Once over the bridge, resident participants identified 13<sup>th</sup> street is a common route for residents travelling to the greenway. It is also an area that resident participants wished to see more community-oriented business development, including spaces for gathering. This potential 13<sup>th</sup> street identity represented economic sustainability for the neighborhood for participants. The Fishburn Mansion is a cultural hub for some resident participants, as it is home for community meetings and Parks and Recreation gatherings. For one city employee, it represented the relevancy of the RRG for Mountain View, because he saw its increased popularity being related to its location near the greenway. Also, along 13<sup>th</sup> street are community gardens, Tacos Rojas, a community center, a church, and a corner store which hold meaning to residents, none of which have any formal demarcation linking them to the RRG. The route is generally considered safe, but there is one block corner that was remarkable in its uneasy climate.

Though Mountain View is a relatively small neighborhood filled mostly with residential development, it also contains cultural and practical centers of activity. Aside from those mentioned along 13<sup>th</sup> street, residents identified other places of meaning as another church, a YMCA, a pub (which is a part of the neighboring West End neighborhood), a farmer's market, a community bank and a craft organization. They also described three parks embedded in the Mountain View neighborhood: Hurt Park, Perry Park, and West End Park. However, those were mostly viewed as isolated, dangerous, or unused. The parks and other locations were rife with meaning for resident participants but are scattered throughout the neighborhood without a sense

of spatial connectivity to one another. Those places also have little if no connection with the greenway. The greenway connection most commonly desired among Mountain View resident participants was a simple route from Mountain View to downtown, specifically via Campbell street. The distance between Mountain View and downtown by this road is about 2 kilometers, but there is not currently a bike path or connection with the greenway.

Back at the Mountain View trailhead on 13<sup>th</sup> Street, Black Dog Salvage acts as a buffer between the neighborhood and the greenway. It has built an outdoor concert venue called the Dog Bowl that fades into Vic Thomas Park, which held potential for community activity for some Mountain View residents. Vic Thomas Park itself is a hub of activity for resident participants. It is their interface with the greenway, acting as a place to walk to and then turn around, to do laps around its loop, to play Pokemon Go or to launch a longer journey to other parts of the greenway. It also held symbolic value to resident participants. It represented the successful fight to get the greenway to come to Mountain View, an opportunity to introduce Mountain View to the broader Roanoke community, and a representation of how Mountain View is seen by the City. In fact, though participants did not mention it, there are signs welcoming trail users to Mountain View as they enter Vic Thomas Park.

To greenway commission and leadership participants, the greenway represents an important connection that allowed the greenway to expand. It is also significant because of its namesake, a local politician committed to environmental conservation. It is notable to them because of the design for environmental health and because of its par course features. Mountain View was not widely associated with the park or its existence there. However, Hannah Park, the floodplain-residing trailer park that preceded Vic Thomas Park, was commonly referenced as a marker of how the greenway could transform nonbeneficial use of land to a community asset.

After Vic Thomas Park, the greenway trail passes over the Roanoke River to Wasena Park. Wasena Park is one of the most popular and widely recognized places on the greenway. To resident participants, it is an area with access to the water, lots of community activity, and a safe direction to travel. To greenway commission and leadership participants, this was the area of the RRG that people identified as the greenway. It was an area of high maintenance and attention. Here, participants noted the features of the park that seemed to foster community atmosphere. Those noted include a bulletin board, a playground, sports fields, picnic shelters, community race locales, a pump track, the skate park, and basketball courts. One resident mentioned that the basketball courts were mentioned as a place that residents in Mountain View who do not use the greenway trail may frequent. The courts were not mentioned by other participants.

Next the greenway passes under the Wasena Bridge. This bridge is meaningful because it is changing. Currently it is a concrete bridge that connects Mountain View to Wasena. It is designed exclusively for vehicle traffic, and the greenway is hardly visible. However, the new design features bike and pedestrian paths, greenway overlooks, and overt connection to the greenway underneath. The current bridge has a busy skate park underneath and locally painted murals of the greenway. The new bridge will relocate the skate park and will feature a sleeker design and colored lighting under its pillars. To some resident participants, the bridge is a hopeful connection to Wasena, the neighborhood whose development trajectory they would like to emulate.

Next is the stretch of greenway between Wasena and Smith parks. It is the location of a significant business development. The Green Goat restaurant is housed in a former transportation museum building. It faces the greenway and features outdoor seating areas and a lawn that stretches out toward the trail. Their parking lot is frequented by trail users. Neighboring the

Green Goat is the Ice House, a retrofitted factory that now contains an outfitter, residential lofts, a climbing gym, and a pub. To resident participants, these businesses were attractions or destinations to visit on occasion. To greenway commission and leadership participants, this area represented the economic potential of the greenway. It led to more investment in the greenway from the City. It is thought to have spurred the revitalization of Wasena and its Main Street and is a model of what they expect for other areas surrounding the greenway. On the greenway trail, the low water bridge connecting Wasena to Smith park is viewed as a place of frequent flooding and high maintenance to many participants.

Smith Park also has considerable community activity. With a playground, restrooms, parking, and picnic shelters, it is a widely recognized area. Fishing is also common in this area. Resident participants did not have considerable affection for this park. It was seen as a turn-around spot for some. Here, the greenway takes one lane of what used to be a two-lane road, and one participant noted both his dislike of the closeness of the greenway to the road and the one way road conversion. Another participant noted a lack of convenient trash bins for dog waste. Many greenway and leadership participants saw this as a well-populated park that acted as a meeting place for many different neighborhoods. After Smith Park is another low water bridge recognized as a spot for fishing and flooding.

River's Edge Park is the next place noted by participants on the greenway. It has tennis courts, sports fields, water fountains, restrooms, and a playground. It was very commonly referenced as a place of significance by those developing the greenway. Historically, it was a point of controversy, both because of its previous land use as a racially segregated football stadium that partially desegregated to host a Pittsburgh Steelers versus Baltimore Colts game and because of the decision to demolish it in 2006. It took on new significance as sports fields in



2006. Mountain View residents did not often visit this park but recognized it as a busy place. One leadership participant recognized River's Edge as a place of diversity where Hispanic populations met to play soccer and form community. Its path leads to the Carilion Hospital, whose working population is suspected of using the greenway for transportation. One Mountain View resident frequently walks the distance from the neighborhood to a healing garden outside Carilion on the greenway and has used the RRG as transportation to the hospital.

River's Edge is currently undergoing significant new projects on the sports fields. In the future, it is part of strategic plans to further develop and expand the greenway. As part of South Roanoke, it is recognized as a place of priority with nearby residents, the hospital, and businesses having influence over decision making. The next off river greenway connection priority branches from this section of the greenway to downtown via Jefferson Street, in what is referred to as the Jefferson Street Corridor. The corridor is meant to attract tech industry businesses and workers.

On the current greenway trail, the path leads from River's Edge, past the hospital east towards Vinton. Early on this journey, the greenway intersects with Mill Mountain Greenway, a less developed route that goes from the Mill Mountain Star to downtown Roanoke via Walnut Avenue. The RRG passes under Walnut, and the other side of this underpass, two business exist that were significant to participants. These are Underdog Bikes and Blue Cow Ice Cream, and each has a path leading from their door to the greenway. Resident participants used these as a destination to travel to on the RRG. Greenway commission and leadership participants recognized these businesses as evidence of the greenway's influence on economic development. They believed these businesses would not exist as they do without the greenway.

### **Conclusion**

This chapter contained the interpretation and experiences of the RRG from the perspectives of stakeholders with different levels of power in the planning process and with

different proximity to the greenway. The differences in these perspectives is apparent when compared in RQ1A and RQ1B and when combined in RQ1C, RQ1, and RQ2 data. This analysis will be discussed in the next chapter.

Map data as presented in this chapter and in the digital map adds to understanding of RQ1 and its sub questions. Places of significance, use, neglect, and priority add to understanding of how the trail does and does not represent the needs of stakeholders. Its concrete and visible spatialization of data traces how and where stakeholders recognize the influence of the greenway across different sections of the greenway. Taken in context with the rest of the interview data, map data adds clarity to why the greenway looks and operates as it does.

To this effect, data presented in RQ1C and RQ2 are especially informative. They elucidate the patterns and priorities of Roanoke in relation to the greenway. The worth of the physical trail that participants identified in RQ1C reflect the values of the community which created it. The process that formed the RRG reflect Roanoke's historical tendencies and values in another way, as reported in RQ2.

In this chapter, I have presented the themes with the research question they are most closely related. However, each question contains complexity that require viewing the data as connected. In the next chapter, I describe how these themes come together to answer my research question and to contribute to the purpose of this research: understanding who the RRG is benefitting, in what ways they are doing so, and by what means.

## **Chapter 5: Discussion**

### **Introduction**

This chapter summarizes the research study and responds to research questions with conclusions, significance of research, limitations, and recommendations for further research and practice. It is organized into three parts: summary of research purpose and objectives, summary of the research findings, and next steps for research and practice. Summary of research findings is sectioned off by research question, and each contains its own discussion and conclusions.

The purpose of this research was to understand who is benefitting from the RRG, in what ways they are benefitting, and by what means they are doing so. The RRG may benefit some stakeholders by its physical presence and some by the process of its development and interaction with the surrounding communities. As a reminder, I included three different groups of participants in order to examine the role of power in the distribution of RRG benefits across Roanoke. This is significant in comprehending how different visions of the greenway are implemented on the trail. It is also important in seeing how power is understood among participants, whether or not they hold formal positions of power. Residents, greenway commissioners, and city and regional leadership each told a different story with complex descriptions of how the RRG is operating.

This research was prompted by a tradition in greenway trail development that focuses on economic development at the cost of social justice and equity and environmental goals (Immergluck & Balan, 2018; Rigalon & Nemeth, 2018; Rothenberg & Lang, 2017; Sze & Yeampierre, 2018). From small town trails to world renowned greenway networks, a predictable pattern of exploitation of green agendas and displacement of local people has arisen (Bowen, 2018; Curran & Hamilton 2018b; Erickson, 2004). Though this phenomenon may partially be attributed to the neoliberal system in which greenway funding and planning exist, there is a

question of the extent to which those with power in the planning and maintenance of the greenway may shape its outcome (Flyvberg, 2002; Sze & Yeampierre, 2018; Quatsel, 2018; Immergluck & Balan, 2018).

Historically, the ruling class and the government have manipulated land for capital gain (Harvey, 2008). Buildings, roads and highways are symbols of urban financial progress for the elite. Greenways and parks stood as contrasting barriers, preventing unending urban sprawl and offering an alternative idea of how land could be valued (Martin, 2011; Spann, 1998). Now, as greenways become more popular tourist destinations and weighty factors in real estate prices, they are becoming more aligned with neoliberal agendas (Curran & Hamilton, 2018a; Kim, 2018; Rigalon & Nemeth, 2018; Rothenberg & Lang, 2017). In doing so, they suffer some of the same barriers to success. These include broadly, environmental degradation, social system upheaval, and unequitable distribution of resources (Curran & Hamilton, 2018b; Rigalon & Nemeth, 2018; Trudeau, 2018).

In Roanoke, a boom town history has embedded traditions of sacrificing community to attract industry and business development (Harmon, 2018). This led to an early dismissal of greenway plans and a dedication of some river adjacent land to industrial purposes. Racism has marked the community with remnants of segregation and redlining (Harmon, 2018). All of these histories form the planning backdrop for Roanoke's greenway development. From the location of the land, to the purpose it is meant to serve, to the residents who utilize it, the RRG is indicative of the city's current and former planning and governance processes.

Now, the RRG is a mainstay in government plans and regional marketing (City of Roanoke, 2006). While there is belief that the greenway acts as a common good, there is not a clear expression of how it does so. Understanding how residents' needs, values, and uses of the

greenway are present in the physical RRG and the processes that build it can help to determine who the greenway is for. Further, understanding how the greenway process is operating can help to uncover the benefits some are receiving and other are not.

Interviewing Roanoke residents with different levels of power in the planning process and spatial relationships to the greenway shed light on how the RRG is perceived to be working by those planning and designing its use and development, benefits and shortcomings perceived by those living near it, and how planning intentions influence the RRG form and performance. In my semi-structured interviews, stakeholders shared personal meaning for the greenway that went beyond practical usage. The presence of the greenway, its involvement in resident lives, and its function in the city symbolize and enable aspects of health, safety, respect, morals and values, and visions for the future.

In regards the questions of who is benefitting from the greenway, in what ways are they benefitting, and by what means they are doing so, three overarching conclusions were present from the combination of data from this research. The first (1) is that those who are benefitting from the RRG are residents who live near the greenway and want to use it for recreational purposes, along with the City of Roanoke and its elite class of businessowners and homeowners residents. They benefit because the greenway is catered toward recreation and economic development, in form, function, and process. Those physically close to the greenway benefit by access to the greenway, its recreational resources, and the connection to place they experience. The second (2) is that the system which enables these benefits and prioritizes their beneficiaries is the greenway's evolving planning process, which is changing perspectives and norms within Roanoke's planning and design traditions, notably its cooperation across departments and municipalities and the public's power through action and advocacy. It is a system both steeped in

mindsets of traditional economic development and exclusive planning aesthetics and imbued with innovative approaches of connecting residents to the outdoor environment. The third (3) is that Roanoke's greenway movement is strong because of its popularity but is vulnerable, because there are no provisions to officially protect it for the future, both in terms of maintenance and increased use. The overwhelming consensus that the greenway is good is contradicted by undercurrents of gentrification and displacement and dominance of white, upper class recreational users. This conclusion helps to frame how time, interaction of actors on the physical trail, and intention of the greenway system interact to indicate future system behavior.

### **Summary of findings**

I now summarize these findings, drawing conclusions for each research question. Taken together as interlocked data, they answer the questions of who is benefitting from the greenway, in what ways they are benefitting, and by what means they are doing so. Taken in context of other greenways and urban use knowledge, the implications of the RRG process and product describe the beginning stages of environmental gentrification in Mountain View (Bowen, 2018) and both the well-intended and not-so-innocent privileged actors who propagate systems of class-based discrimination in Roanoke.

#### **RQ1A**

As a reminder, RQ1A asked "What are the perceived uses for and values of the RRG from the perspectives of Mountain View residents?" Residents' responses grouped into seven themes, as shown in Table 5. The most common and most direct responses to this question have to do with how residents currently use the physical greenway. Currently, residents predominately use the greenway for leisurely recreation and exercise. This recreation takes many forms and often overlaps with other usage, namely transportation and community building. There is a desire

among residents to use it for transportation, but the missing gap to Salem, lack of linked meaningful destinations, and restriction of ebikes limits the efficacy of the RRG for these purposes.

Compared with other greenways, this finding is expected. The design of the greenway is crucial to how it functions within the community (Akpinar, 2016a; Buehler, 2012; Flink, Olka, & Searns, 2003; Hanson & Young, 2008; Kowarkick, 2019). In Roanoke, the greenway was designed as a linear park, and the trail was built to support recreation, which is evident in its incorporation of sports fields and courts, parks, and playground equipment (Akpinar, 2016a; Flink, Olka, & Searns, 2003; Kowarick, 2019). Its lack of design for alternative transportation is apparent in its relatively narrow width of 10 feet, lack of separate lanes for cyclists, and lack of incorporation of desired destinations and transportation-aiding amenities, like facilities for showering and parking bikes at work destinations (Akpinar, 2016; Buehler, 2012; Flink, Olka, Searns, 2003). In short, the greenway was designed as a contemporary, marketable park rather than as public space that fits the functional needs of residents for their lives. Resident participants who wish to use the greenway primarily for exercise and leisurely recreation see the most benefit from the greenway, while those who wish to use it for alternative transportation have less support. Many participants were mixed in how they used or wanted to use the greenway.

Inherent in the RRG function is connection to community, both in terms of people and of the physical space. Among recreational uses commonly mentioned by residents were functions that involved meetings with loved ones, interest groups, and friendly strangers. The presence of the RRG also elicited feelings of place-making, with the greenway acting as an extension of Mountain View. Feelings of connection to places on the greenway or the greenway as a whole

represented this phenomenon. A distinct part of the connection to place was specifically a connection to nature. Access to the Roanoke River, natural vegetation, fresh air, and isolation from cars was valued as an escape from the city and as a restorative component of the RRG. Some participants desired more connection to nature, especially more areas to view and interact with the river in meaningful ways.

The link between shared community greenspace and feelings of community, personal identity, and mental health is well documented (Abraham, Sommerhalder, & Abel, 2010; Gifford, 2007, 2014). It has been linked with community building by means of geographically connecting communities (Larson et al., 2016; Lindsey et al., 2008), engaging community members in volunteerism and community groups (Brownlow, 2011), and social integration and collective experience (Abraham, Sommerhalder, & Abel, 2010). The RRG also exemplifies the role of community greenspace in restoration and stress reduction (Abraham, Sommerhalder, & Abel, 2010; Gobster & Westphal, 2004; Schultz et al., 2016). This was described by participants' use of the RRG to relax, meditate, and escape. In these ways, resident participants' value of the greenway is consistent with other greenways.

Accessibility was identified as both a benefit and a need from Mountain View residents. Because of its location at the edge of the neighborhood, it is perceived as more accessible to some residents than others, both in terms of distance traveled to greenway and awareness of it. Sidewalks along the street that most directly connects to the greenway were considered safe with limited exceptions, but bicycle routes from Mountain View are unprotected and dangerous and influenced trail users' feelings of safety and enjoyment on the greenway.

The questions of accessibility that arose among Mountain View residents reflects determinants of use from both practical urban planning issues of safety and distance to the



greenway and the more complex interaction between social factors that make people feel comfortable and welcome in a public space. From an urban planning perspective, the Mountain View cyclist entry to the greenway reflects a common challenge in greenway design- conflict with vehicular traffic, which has been linked negatively with use in other greenways (Akpinar, 2016). In terms of distance to the trail, Mountain View residents' accessibility varies depending on their physical location in the neighborhood. The RRG is near areas of Mountain View that are considered safer and nicer and that are characterized by more single-family homes and further from areas associated with more crime and residents who are renters. As suggested by participants in this and other studies, more likelihood of use is reserved for those who live closer to the greenway (Akpinar, 2016; Gobster & Westphal, 2004). In terms of awareness of the RRG, this may or may not be the reason that some residents are not using it or are choosing other areas for their community gatherings. In research studies of other communities, emphasis on prioritization of certain privileged greenspaces, perceptions of unsafety, and histories of exclusion and criminalization of minority populations influences how community greenspace is viewed and used (Brownlow, 2006, 2011; Gobster & Westphal, 2004; Palardy, Boley, & Gaither, 2018).

Past neighborhood improvement attributed to the greenway was acknowledged by long-term residents, and hopes for future improvement are tied to its maintenance and expansion. Many residents believe that the greenway makes Mountain View more valuable and respectable to outsiders. Some residents felt that it was attracting a new type of people to the greenway, younger, energetic people who value the environment and non-vehicular commuting. This was tied to hopes that the Mountain View neighborhood would be better taken care of- both by residents and by the city. This expectation is well founded. Improvement of property values,

attraction of new populations, and neighborhood aesthetics are commonly observed and touted benefits of greenways (Flink, Olka, & Searns, 2003; Gobster & Westphal, 2004; Liu et al., 2019; Pivo & Fisher, 2011; Rothenberg & Lang, 2017; Stitch & Miller, 2012).

Inseparable from the recognition of neighborhood improvement and new attraction to outsiders was the idea that some residents would be left out of the benefits to Mountain View. This idea created tension within residents who acknowledged it, clashing individual and neighborhood identities with the reality of displacement of low-income residents. Fair negotiation of space and resident needs are an intangible need expressed by residents because of those tensions. There was a value of diversity and respect for neighbors from different backgrounds coupled with a hope that the neighborhood would become safer and better maintained and respected.

While this resident sentiment has not been a focus of greenway literature, the perspectives of those who are displaced because of gentrification of areas surrounding greenways is prominent (Kim, 2018; Rigalon & Nemeth, 2018; Rothenberg & Lang, 2017). Reconciliation of needs between new, wealthy residents and long term, low income residents is a delicate process fraught with conflicting interests (Bowen, 2018; Trudeau, 2018). In Mountain View, these issues do not seem to have come to a head, but they are becoming more relevant and the stage is set for them to cause friction.

Finally, because of individual and neighborhood reliance on the greenway and a satisfaction with the current greenway, maintenance and sustainability were the most desired concerns for the greenway. Many felt safe in seeing the popularity of the RRG and the government's response to public demand. However, by acknowledging the need for continued maintenance, they acknowledged the uncertainty that undergirds the greenway: it, just like any other public

infrastructure, can fall into disarray if not supported. Perhaps the lack of formal funding or policy for the greenway leave open the possibility for future neglect.

This too, is has been a cause for concern from residents in greenway and greenspace literature. Once thriving parks fell into disarray with lack of investment, disrupting place attachment and safety (Brownlow, 2011). Likewise, cities have failed to budget for maintenance, placing a larger than bargained for burden on tax payers (Rigalon & Nemeth, 2017).

In sum, resident participants liked many things about the greenway and have adopted it as a part of their lives to at least some degree. They use it for recreation, transportation, connection to people and places, connection to nature, and as a place to escape. They understand that it holds importance for their neighborhood, and much of the potential for how the RRG will affect the neighborhood is viewed hopefully and positively. However, there is concern that the distribution of benefits is uneven and understanding that means to maintain and expand the greenway need to be secured for the future.

### **RQ1B**

Research question 1B asked “What are the perceived uses for and values of the RRG from the perspectives of greenway planning commissioners and Roanoke government planning officials?” Essentially, this aims to see how closely aligned those with power in the greenway planning process are with the residents who live near the greenway. Though the greenway is multifaceted and has many benefits for different stakeholders in Roanoke, they cannot all be equally accommodated. Asking questions about how residents benefit from the greenway clarifies the intention of which citizens are meant to benefit from it and in what ways.

A common theme that arose from greenway planners’ responses was that the RRG first and foremost is a recreational amenity. This classification of the RRG was paired with descriptions

of access to the outdoors, facilitation for diverse physical activity usage, and provision of a community luxury. In these ways, it is viewed as an amenity which contributes to quality of life. Connected parks and sports facilities were a part of how the greenway provided residents with recreational resources, and the greenway itself was presented as primarily recreational because of its length, location, and usage by residents. It was also noted that advertising focused on its identity as a recreational amenity.

The main difference in how resident participants and other participants viewed recreation on the greenway is that those participants involved in its development viewed it as a link to recreational economic development. Nonresident participants saw the recreational value of the RRG contributing not only to quality of life and public health, but also to capacity to invite recreational enthusiasts from outside of Roanoke to come to visit and hold events. This is consistent with how economic models for greenways project their impact (Stitch & Miller, 2012). However, as seen in other greenway systems, this perspective and language downplays the significance of the greenway to its surrounding residents. For instance, Akpinar (2016) found that “urban greenways are more than a ‘luxury’ and could provide important health, recreational, and leisure activities for (an areas) people” (Akpinar, 2016, p.130). Roanoke officials and employees may use the language of the greenway as a bonus feature as a way of reinforcing the planning strategies of the past that minimize and inequitably distribute greenspace throughout the city. Focusing on economic development potential is in line with their planning ethos and may be more acceptable and less controversial way to continue to develop the greenway.

In that line of interest is the more explicit tie to Roanoke’s economic development around the RRG. It was another area of focus of those influencing the greenway. The city saw residents benefitting both directly, with increasing property values and business activity off of the

greenway and indirectly, from income the city received from property taxes which went into shared resources. In fact, it was noted that in the greenway's past, recognition that it could spur economic investment and business development was a deciding factor in the city's investment in it. This kind of economic interest is also a common impetus for greenway development (Pivo & Fisher, 2011; Flink, Olka, & Searns, 2003; Stitch & Miller, 2012). With Roanoke's history as a boomtown that focused on industry and economic investment with quick results, it is unsurprising that government leadership and employee participants also are centered on this goal.

However, it is notable that some leaders in the greenway commission seem to see that interest in capitalist gain as a leverage point for instilling the greenway as environmental and quality of life enhancement. In some ways, the greenway commission is a forum that both caters to the neoliberal proclivity of the governmental system and subverts its neglect of environmental and social needs for Roanoke communities. The weakness of the greenway commission in this respect is that the majority of the commission is comprised of government employees, so the power of disruptive perspectives are limited (Roy, 2015).

Connectivity is something that is viewed as a defining factor that makes the greenway work for any purpose. For recreation, it gives cyclists and runners the ability to train over long distances and for high-profile races, like marathons or triathlons to take place on the greenway. Expansion and connectivity of the greenway is believed to spur belief in the greenway and, relatedly, economic development along the greenway. It is said to contribute to community building by allowing many different areas of town to converge in parks from a common trail, to be a "melting pot" for diversity in Roanoke. Connectivity is viewed by some as important for transportation purposes, allowing residents to commute from one side of the region or the city to

another. For all of these reasons, connectivity is prioritized in planning and developing the greenway. It is a part of neighborhood, city, and regional comprehensive plans, and is viewed as the primary goal of the greenway commission, especially connection to Salem.

Greenways, by definition, are linear, linked parks and are viewed as more valuable in many respects by most stakeholders in greenways, from ecologists to economists (Akpinar, 2016; Arendt, 2004; Kowarick, 2019; Pivo & Fisher, 2011). However, the way that a connected network is designed is important to which of these goals it will meet. Roanoke's connection is facilitated by the river, and conservation and biodiversity efforts for the river itself are incorporated into the greenway. However, as a way of connecting social support and cultural significance, the RRG is more haphazard. The focus is on connectivity for economic development via recreation, and therefore, little attention is paid to concurrent sustainability goals that could be concurrently met or thwarted.

Community building is another often cited benefit of the greenway. At the micro level, the greenway is thought to build community by being a place to meet people, by serving as a place for congregation, and as a place to bring people from disparate backgrounds into a common space. It is a place where groups of people with common interests can find one another, as they do with running, cycling, and volunteer clubs. Aside from these practical community building functions, it is also seen as important to residents' identities as Roanokers. The greenway is seen as something residents are proud of, a place to take visitors, and a part of Roanoke that makes it somewhere worth staying in or moving to.

For those resident participants who use the greenway, they do gain a sense of community and connection to people and place, and they deeply value those connections, much as non-resident participants believe all residents do. There is an acknowledgement among participants that this

community building does not reach all of Roanoke and that some residents in their neighborhood are left out of the community fostered on the greenway. The assumption by greenway leadership that the greenway will fulfill community building and “public good” benefits throughout the city is similar to mindsets that other greenway leaderships have (Immergluck & Balan, 2018). At best it is a well-meant misconception and at worst it is a chosen form of ignorance or greenwashing of neoliberal motivations (Curran & Hamilton, 2018b; Rigalon & Nemeth, 2019; Kern, 2018; Kim; 2018). In any of these cases, the greenway can disrupt community and in some aspects is shown to be in the process of doing so in Mountain View.

Greenway commissioners and city and regional leadership see alternative transportation as an unintended consequence of having the greenway but one that is valued by the small group of people perceived to be using it for that purpose. Though some funding for the greenway comes from federal transportation money, it is not viewed as a primary function of the greenway. However, by those who do see it being useful to residents for commuting, the Carilion Hospital and the Town of Salem are thought to be valued destinations.

For the RRG to truly function sufficiently for transportation purposes, it would need to be tweaked in a few ways. First, it is commonly noted that transportation uses can be aided and user conflicts can be ameliorated with bicycle lanes and wider pathways (Akpinar, 2016). Surrounding development should work in conjunction with transportation goals, meaning that destinations should have bicycle facilities and cultural and social destinations should be incorporated within reasonable traveling distance from residents (Buehler, 2003; Buehler & Stowe, 2013; Coutts, 2008). Further, viewsheds and built amenities, such as water and bike stations, should be incorporated strategically to support commuters (Lindsey et al., 2008). The greenway commission and city and regional leadership’s view of transportation being a bonus

use contrasts with that of the resident participants' views, which tend to see the transportation component of the greenway as a valuable and desired asset that needs to be prioritized.

Environmental health is viewed as another side benefit of the greenway. Though it was started as part of a flooding project that directly responded to environmental needs and some of its earliest supporters were advocates of improving environmental health with the RRG, today it is not a focus of greenway development. One specific way the RRG's contribution to environmental health is perceived to benefit residents is the effect it has had on cleaning the Roanoke River.

The language and focus of those developing the RRG differs from other urban greenways because environmental health is not a priority in planning (Lindsey et al., 2008). In other greenways, habitat design is a main focus, and design includes accommodations for habitat continuity; biodiversity, canopy cover, and stormwater drainage (Arendt, 2004; Jongman & Pungetti, 2004; Kowarick, 2019; Mason et al., 2007; Pungetti & Romano, 2004; Qian et al., 2018). In Roanoke, focus for the environment is the Roanoke River, and those who have knowledge of the logistics of planning, design and maintenance of the greenway focus on its temperature and protected species. Their language is reflective of many of the resident participants, who, as described earlier, value the environment but do not necessarily dwell on it as a priority for the greenway.

Maintenance and protection are viewed as needs for the RRG. Greenway commissioners and city and regional leadership often expressed that the prioritization of funding for the greenway comes from how popular it is with residents. They see a reciprocal relationship between maintenance and popularity and believe that if either decline, the greenway is at risk. Most



expressed that there should be some long-term protection for the greenway to continue to be maintained and expanded.

From the administrative side of greenway planning and development in literature from other greenways and greenway planners, the case for economic development largely emphasizes potential revenue for the greenway (Hocter, Carr, Zwick, & Maehr, 2004; Liu et al., 2019; Stitch & Miller, 2012). At the same time, they minimize conversation over maintenance costs (Hocter, Carr, Zwick, & Maehr, 2004; Liu et al., 2019; Stitch & Miller, 2012). While maintenance is inevitably a part of greenway management and a part of greenway plans, continued planning for maintenance is not a large conversation in cost benefit analysis. In this way, Roanoke is indicative of the ways in which greenways are developed.

Further, the expectation that greenways are good for everyone and enduringly popular is an assumption that many administrations adopt when advocating for a greenway in their jurisdictions (Kern, 2018; Rigalon & Nemeth, 2019). This approach often, if not always, results in a progression of events that negatively effects the greenway's popularity and perception of universal good (Kern, 2018, Rigalon & Nemeth, 2019; Roy, 2015). It seems in this aspect; Roanoke nonresident participants were aware both of the RRG's popularity among residents and of its potential to become unpopular without administrative maintenance and care.

In conclusion, greenway commissioners and city and regional leadership participants view the value and use of the greenway to Roanoke residents pertaining primarily to its contribution to recreation, quality of life, and economic development. They seem to view environmental, transportation, and community building aspects of the greenway as bonus but not essential qualities of the greenway. They are concerned about maintenance of the trail and see this connected to the role of the greenway in residents' lives and their feelings of attachment to it.

Overall, their view of how the greenway serves Roanoke residents is similar to how Roanoke resident participants viewed the greenway, but it is less complex and focuses more on macro level economic development.

### **RQ1C**

The third part of understanding residents' needs come from broad understanding of sustainable development. Some factors that are important for the longevity of Roanoke and the RRG may not be acknowledged by Roanoke stakeholders. RQ1C asks, "To what extent do these residential, planning, and government official stakeholders' values for the greenway fit with social, environmental, and economic sustainability values?" Themes were drawn for environmental, social, and economic goals, and below is a discussion of what was and was not included in stakeholder sustainability values.

#### *Environment*

Environmental sustainability for greenway trails includes protecting biodiversity and wildlife habitats, decreasing noise and air pollution, providing stormwater protection, buffering urban growth, increasing pro-environmental behavior, and decreasing heating effects. Stakeholders were invested in these goals to different degrees, but the predominate ways they expressed them were in terms of environmental restoration and protection and environmental stewardship.

Many residents believed that cleanliness of the environment was important. They valued the role the RRG played in restoring the Roanoke River. This was largely seen as happening because of increased awareness and valuing of the river. Stormwater drainage was recognized as the reason for the greenway, and that was thought of as important. However, most residents did not connect Roanoke's overall environmental health to the RRG. Stakeholders appreciated things like fresh air and scenic places, indirectly pointing to environmental health as something they

wanted. Others talked about brownfield restoration as something that they still desire from the greenway. However, when speaking about personal values and how they were represented or imbued into the greenway, environmental justice and environmental sustainability were not typically a prominent discussion points.

For those who did have personal meaning tied to the environmental goals of the greenway, they were often tied to stewardship behaviors. Use of greenways for sustainable transportation, volunteerism to clean the river, and informal cleaning of litter and debris on the greenway were tied to stakeholders' visions of how the greenway was a part of achieving environmental health.

For Roanoke residents, this lack of emphasis on environmental planning for the RRG is one way that greenway development misses an opportunity to support Roanoke residents in terms of their sustainability needs. Working towards cleaning the environment, enriching biodiversity, and actively building pro-environmental behavior among residents and leaders in Roanoke are all measures that can be enhanced (Linsey, 2003). This type of planning for the greenway would ensure environmental safety for those on and near the greenway and would detract from existing health risks posed by contaminated land and air. It could also enhance aspects of environment that are already identified as important to Roanoke residents, such as human connectivity to nature and its associated benefits (Nesbitt et al., 2017).

### *Social Justice and Equity*

Fair land acquisition was important to many participants and is a way that the greenway process is intentionally designed for social justice and equity goals. This is represented in the greenway commission's dedication to pay landowners for easements, in their consulting with adjacent neighborhoods, and in their relationship-centric approach to acquiring land. There was a nuance of class justice in land acquisition for some participants' feelings about land ownership.

In the case of Walker Foundry, most participants felt that the landowners were behaving selfishly, either in that they were polluting the community's river or that they were unwilling to share unused portions of their property for the greenway. This context changed what was viewed as fair or reasonable for acquiring land, and many residents supported use of eminent domain in this case.

For residents, affordable housing protection was related to the greenway. While homeowners valued property value increases, they did not want to be a part of displacing residents of another class. While they wanted more attention and support from the city, they did not want their neighbors to be condemned or forced out. This issue was important for their comfort and their self-identity. Long-term residents had strong ties to the community and place attachment and did not identify the greenway as a threat to their being able to live in Mountain View.

All participants noted that environmental justice was addressed in the greenway by its being free to the public. Connection to neighborhoods of different levels of wealth was another way that some saw the greenway being equitable. This is the way that many other greenways were initially viewed by their stakeholders, like those in Berlin, Atlanta, and Chicago, as an asset to the entire city as a public good (Immergluck & Balan, 2018; Kern, 2019; Kowarick, 2019). However, by accepting that as an inherent quality of the greenway without putting in sufficient protective measures for residents, greenways almost inevitably become an exclusive amenity that displaces residents (Immergluck & Balan, 2018; Kern, 2019; Kim, 2019; Rigalon & Nemeth, 2018; Roy, 2015).

The greenway also is exclusive for inaction to ensure social justice on the physical greenway. Though minority residents make up most of the Mountain View population, they are not given special social attention. It is well known in the outdoor recreation community that people of

color are discriminated against and that their communities do not occupy greenspace in the ways or the numbers that white populations do. Recently, there has been a lot of media attention on an incident where an event where a white woman called the police on a Black man who was birdwatching in Central Park (Mock, 2020). This event is representative of danger posed to people of color and of the expectations white people have of who should be occupying greenspace. Yet in Roanoke on the greenway espoused for everyone, there is no evidence of the space welcoming minority populations, no overt trainings or policies to protect them, and little outreach for engaging and working with minority populations.

Participants see the RRG as a public demand, and the power citizens have to incite the city to invest in the greenway is another way that social justice and equity is represented in the greenway. However, while those developing the greenway understand that citizen power works through public support and demand for more greenway connections and improvement in surveys and community input planning meetings, residents were not aware of how they could influence the greenway or to help shape its vision. Further, information about how to be involved with the greenway planning process is not easily accessible.

Lack of power in the planning process, especially formal power, is a marker of inequity in the greenway development process (Rigalon & Nemeth, 2018; Roy, 2015; Trudeau, 2019). Though there is a nongovernmental representative on the greenway commission, there is not representation from minority residents or low-income residents. There is, however, ample representation of and consideration given to the interests of the business community in Roanoke, which may conflict with interests of other residents, as shown in other cases of urban development (Flyvberg, 2002). For residents to have sustainability in terms of social justice and

equity, there need to be more inclusion of stakeholders from diverse perspectives and vested interest in the greenway, and they need overt power in the development process.

### *Economic*

Participants saw the greenway as a conduit for Roanoke's economic growth. Sustainable economy for the greenway from the perspective of the city meant consistent development of areas around the greenway, with increased property and business taxes. It also meant creating an identity for Roanoke that would attract young professionals and tourists to the area. One participant noted its potential for providing access to jobs and affordable transportation.

Participants saw economic sustainability increasing with more investment in the greenway. Participants have the idea that more funding is needed for more kinds of tourism and business development around the greenway. There is a steady flow of funding from grants and supporting organizations, but these are seen as enough to cover the cost of building and maintaining the greenway and not improving it with amenities. Supporting donations come largely from interested stakeholders in the business sectors of Roanoke. These stakeholders make up a large part of the greenway's fundraising and volunteer group, the Pathfinders. They are an integral part of greenway development and have a designated role without formal power through the Pathfinders in the process.

Some participants viewed the RRG's economic sustainability in terms of its role as a government protected resource, much like that of a library. In this way, it does not have to necessarily pay for itself or generate revenue. Currently, however, there is not planning for future maintenance and repair built into the budget, which is something that many participants see as necessary for economically supporting the greenway.

In the context of sustainable development, economic sustainability means not only having the means to support itself but also providing these means in a way that supports other sustainability goals (Lovely et al., 2020; Raworth, 2017). Greenways are commonly developed in a way where economic gains come as a primary goal and the other two goals are approached as secondary (Immergluck & Balan, 2017; Lovely et al., 2020). For Roanoke residents, economic sustainability with the greenway could mean supporting residents in not only free access to recreation venues but also access to jobs, affordable housing, and affordable alternative transportation. It could also contribute by playing a role in city-level cost savings by incorporating solar and wind power infrastructure, in addition to the role in green storm water management. Further, economic development off of the greenway could be regulated in such a way to support environmental sustainability goals, for instance, making sure that they incorporated green practices and supported alternative transportation with facilities.

In conclusion, participants in this research study had values that overlapped with parts of each of Campbell's sustainable development goals. However, the way in which each of these goals is envisioned in Roanoke either is insufficient or is not compatible with other greenway sustainability needs. Reconciliation of these values is essential in order to meet the changing needs of Mountain View residents.

### **RQ1**

The overarching question that RQ1A, 1B, and 1C contribute to states, "How have planning, implementation, management, and user-adaptation of the Roanoke River Greenway trail represented the needs and values of residents in Mountain View?" When considering the combination of 1A, 1B, and 1C data, several new themes emerged. These drew on the complexities of the alignment and discord between perspectives of residents, greenway

commissioners, city and regional leadership, and sustainable development. Some themes are revisited in order to fully answer this question.

The first theme that is pertinent to this research question was ‘Who is the greenway for?’ On its face, the greenway seems to be a neutral ground, designed for anyone and everyone who wants to take advantage of it as a resource. However, on deeper inspection, it is clear that there is bias built into both the physical greenway and the processes that define it. Participants generally believed that the RRG was for everybody, as evidenced by its expansive network and free access. However, they also perceived that it was catered more towards some demographics, neighborhoods, and uses more than others. Participants perceived those who wanted to use the greenway for athletic, outdoor recreation, or fitness purposes to be the type of user to be using the greenway. They also felt that the greenway was primarily designed or intended for those users’ activities.

Some participants indicated that they noticed or conjectured that the greenway is predominately being used by wealthy white people, particularly those from the neighborhoods of Wasena, South Roanoke, and Grandin Village. Residents of Roanoke, especially those who live nearest the greenway, are the primary beneficiaries of the greenway, through access to the trail and increased property values and quality of life. In other context, it is widely acknowledged that access to nature and greenspaces currently acts like a luxury and that minorities and those with lower income and levels of privilege have less access to and influence over it. (Brownlow, 2013; Raworth, 2017).

Though residents use the greenway most easily, the greenway is also for outsiders. It is for tourists and prospective residents, particularly younger demographics. In Mountain View, the greenway is for all residents, but it is benefitting those who live closest to the greenway and



those who own property the most. It is benefitting outsiders who have the means and desire to invest in property to turn a large profit. Local low-income residents are quite likely acting as placeholders in Mountain View who may find utility in the greenway but will surely see their community becoming progressively less their own and will soon enough be priced out of the neighborhood that offers premium RRG access. This result, though largely unacknowledged in Roanoke as of yet, is predictable and is seen in even the most widely renowned greenway systems (Immergluck & Balan, 2018; Rigalon & Nemeth, 2019). It is difficult to believe that those with planning power in Roanoke are unaware of the social hardship that will come as the greenway is expanded.

There were few places that resident participants have left their mark on or been able to instill their vision for the greenway and their neighborhood. These included preferences for use and elective involvement in environmental cleaning and community meetings for art and design of select greenway-related features. Residents shared ideas for community spaces that included pavilions, river overlooks, access to the river, Pokemon Go sites throughout the Memorial Bridge to Bridge Street section of greenway, outdoor amphitheater, community facilities like pools off of the greenway, and brownfield remediation for parks in Mountain View that are connected to the greenway. In other greenways, it has been deemed important for residents to take ownership of their greenway in order for them to widely accept it and adopt it for use (Brownlow, 2013; Gobster & Westphal, 2016; Rothenberg, 2019). Ways to strengthen community ties and influence over the greenway is to give them more decision making power (Rigalon & Nemeth, 2019), to actively include them in the design of the greenway (Gobster & Westphal, 2016), neighborhood resident use and volunteerism (Brownlow, 2013), and to work towards actual

ownership, through community land trusts (Miller, 2018; Rigalon & Nemeth, 2019). The latter option has the added bonus of protecting residents from displacement from gentrification.

The second relevant theme specific to this question is that the greenway serves recreational uses. On a technical basis, the RRG supports recreation needs for residents, for everything from walking and jogging to fishing and birdwatching. Bicycling is less supported, because the paved trail is not wide enough to allow people to do this activity without encountering or causing conflict with other users. Participants agree that recreation is the primary service provided by the greenway and that this is the most prominent use of the greenway. Ways that participants see this utility being more effective is with a wider path, more amenities and features, and community-oriented design. To meet the transportation needs of some residents, the participants believed that greenway needs more instructional and informational signage, designated space for commuters, useful and convenient destinations, and regulations that allow for assistive technology that will help people of all abilities ride long distances in a feasible manner. Insight from other urban greenway trails suggests that coordination with destinations for bike commuter infrastructure, like parking and showers is also important for aiding this purpose (Buehler, 2011; Hanson & Young, 2008).

A third theme that represented how resident participants' needs for the greenway were met was its accessibility. Participants as a whole believe that a large part of why the greenway is accessible is because of its free cost and network of connections that branch through different neighborhoods throughout the city. Resident participants felt that it was a relatively reasonable distance to travel, especially those who lived in sections of Mountain View nearest to the greenway. However, the greenway designers seem to say, as with the rest of the greenway, 'we have this path for you, make of it what you will'. The lack of provisions for cyclist safety

entering the greenway and lack of signage or designation of pathways connecting local residents to the greenway are physical design features that limit accessibility for residents. Other participant-identified markers of lack of accessibility related to information about and awareness of the greenway. Participants saw some of the social constructs surrounding the greenway as factors that limit accessibility to residents who live further from the greenway or who may not notice its presence or potential for their use.

The fourth theme relevant to answering RQ1 was the RRG's role in community building, both through connection to people and place. Part of how residents described the RRG was by how it made them feel. Some saw it as an extension of their neighborhood or home, and they valued the sense of community they felt while on the greenway. They valued connection to nature, especially the Roanoke River. Most participants used the greenway with friends and family, deepening the ways in which they interacted and shared experiences with one another. Some participants formed communities around the greenway that promote environmentally sustainable ideals, like cycling groups and river clean up organizations. These community feelings and behavior promote sustainability for Mountain View and other Roanoke residents. Those participants involved in developing the greenway see this type of benefit as an unintended bonus function of the greenway as it was not designed for this purpose. Mountain View residents in particular find ways to interact with others on the greenway and take advantage of the connection to water and other nature in informal ways. However, they recognize that none of these experiences are optimized as they could be with structural support through community-specific event programming, physical gathering spaces, and other strategic ways of engaging local residents with the greenway.

The last two themes have to do with how resident needs are addressed through the lens of sustainable development. The first of these is the extent to which the greenway contributes to environmental sustainability. Participants did not dwell on the environmental goals for the greenway or the way in which it contributed to the outside environment. However, several features and practices contribute to the environmental health of the Roanoke community. These included but were not limited to design that required environmental engineering compliance, protection and restoration of the Roanoke River that coincides with greenway development, maintenance of natural buffers for stormwater drainage, environmental education signage, overall cleanliness, waste baskets and dog waste cleanup stations. In looking at activity and design of the greenway in comparison to other greenways' standards for environmental sustainability, the RRG also has room for improvement. It could be designed with habitats in mind and increase areas with local vegetation and purposeful plantings that promote biodiversity (Beatley, 2000; Kowarick, 2019; Mason et al., 2007). Surrounding development could be required to adopt environmentally sustainable practices, including small scale development. Further, sections of the trail that border industrial areas in Mountain View have poor air quality and increased cancer risks when compared to other Roanoke neighborhoods and could be improved for both the environmental quality and the related physical health of people who live there (EPA; Lindsey, 2003; Schultz et al., 2016).

The last theme related to how participants viewed the greenway as an instigator of economic development and how it acts for economic sustainability goals. Many participants say the city benefits by using the RRG to attract outsiders to move to the area and tourists to visit and by collecting increased tax revenues from businesses and properties near the RRG. The extent to

which participants focus on each of these economic goals aligned with their position in the community and in the greenway development process.

The greenway's contribution to Roanoke's macroeconomics as a benefit to residents was heavily focused on by those in positions of regional and city leadership. Mountain View residents focused more on the greenway's influence over their personal or neighborhood economic well-being. In terms of economic sustainability that supports environmental health and social justice and equity, the RRG has a long way to go.

The current model for growth is based on extraction. Protective policy has not been put in place to sustain an affordable cost of living and industrial work sites for Mountain View residents, the lack of which has been shown to lead to economic instability for residents (Immergluck & Balan, 2018; Miller, 2018; Powers, 2018; Rigalon & Nemeth, 2019; Soloman, 2017). There are relatively few jobs created by the greenway, and affordable transportation to them is exclusive because of the physical ability required to get to workplaces via the greenway. There is also a lack of infrastructure to support affordable alternative RRG transportation (Buehler, 2012; Hanson, 2008). Further, because of the lack of awareness among some communities and the layout of the RRG, there may also be a lack of understanding that the greenway could be used as affordable transportation.

In conclusion, the RRG's role in the Mountain View community is complex. It meets residents needs for greenspace and recreation. It partially works as a conduit for community building, environmental health, and transportation. However, these functions are limited because of the design of the greenway. The greenway is not for everyone equally, and it is not specifically for Mountain View residents. It is likely that while some aspects of Mountain View have been and will be progressively improved as a result of its location off of the RRG, parts of

the neighborhood that make it unique and valuable to residents will progressively degraded. These include its affordability, its diversity of residents, and its tight knit community systems that thrive on physical connection of low-income residents to their support centers.

## **RQ2**

My second research question asks, “In what ways does development and use of greenway space reflect the historical complexity of Roanoke city planning, including class and race?” This question allows me to examine the systems that propagate some of the outcomes discussed in RQ1 and its sub-questions. Though there is no straight line that can be drawn from one event in the past to one in the present, there are habitual practices and ideologies that can be seen continuing and shifting in RRG development practices. Six themes describe relationships observed between Roanoke’s planning and development history and RRG development.

The first theme is that events shaped the greenway. The existence of the greenway is extraordinary for Roanoke because green infrastructure was not a significant part of the city’s planning and priorities, and usually, it takes a dedicated effort for a greenway to come into existence (Flink, Olka, & Searns, 2003; Kowarick). For Roanoke, circumstances allowed the greenway to significantly progress without a widespread dedication to its concept or plan for development. Instead, a disastrous flood, a nationally funded stormwater drainage project, and outlying advocates for greenways in Roanoke converged to instigate the RRG’s development. These events were for Roanoke moments of change in planning, where necessity and opportunity started a greenway movement in Roanoke that shifted some priorities in its citywide plans.

The second theme builds on the first. The RRG is a form of transformational land use and development. The greenway utilized land that was once seen as having low-worth next to a river that was seen as dirty and unattractive. Now, participants recognize that transformative land use

in other areas of Roanoke and translate it to its other areas of the city's development. Former abandoned industrial sites are being used for new living spaces and businesses. Some Mountain View residents see the transformation of their neighborhood being reflective of those other processes involved in the greenway.

The third theme participants identified was that the greenway is responsible for a change in perception of how land is valued as asset in Roanoke. In the past, the City of Roanoke did not view the outdoor environment as a cultural and economic asset. The ethos for maintaining the city's economy was industrial land development and attracting large businesses to the city through various economic enticements. Since the greenway's inception and its continued expansion and popularity, the city has completely changed its perspective on the value of land. Now, natural landscapes and connection to the environment through recreation is the predominant strategy for economic development among city planners and officials. This perspective is directly attributed to the greenway.

The fourth theme builds on the others. Participants observed that Roanoke's greenways change historical patterns in planning and development throughout the city. Citizen advocacy and organizing played an influential role in shaping the greenway. In that process, greenway advocates challenged the dominant planning ideology in Roanoke. They worked within the existing system to challenge what is valued and what is possible in urban development. Part of this strategy involved relationship and coalition building. These two traditions have carried over into current RRG development practices.

Another theme for how history interacts with current practices in greenway development relates to the dedication of the greenway commission and the City of Roanoke to intentional land acquisition. Some participants, especially those employed by the city, recognized Roanoke's

troubled history of urban redevelopment and its displacement of Black communities. At times, participants contrasted that history with current RRG development processes. The greenway commission has a policy of purchasing land and working with landowners for mutually beneficial solutions during land acquisition.

The last theme participants often expressed a need to protect the greenway. Those involved in the RRG development process expressed deep pride in the greenway. They shared stories of their innovation and cooperation that conveyed how adeptly stakeholders had navigated the complex terrain of city and regional planning. Those who use the greenway felt deep appreciation for it. They spoke about the personal meaning the greenway holds and the hopes they have tied to it for their neighborhood. They had confidence in the RRG's lasting popularity, but feared for the lack of lasting maintenance and funding for the greenway. This may be in part because of the somewhat lucky circumstances that led to the greenway's existence and the proclivity of Roanoke to value infrastructure based on its economic return on investment. For those who understand the delicate nature of greenway support and the fickle nature of the economy, needing to protect the greenway's reputation may be a proactive way of dispelling negative attention that may threaten its assumed universal popularity and making the most of the RRG's current standing for gaining commitment to future investment in it.

In conclusion, these themes converge to paint a picture of how the greenway is currently interacting with Roanoke and its residents. A tradition of elitist, economic-driven planning history has led to an economic valuing of the greenway that directs its planning toward recreational uses which fit with marketing themes and attract outsiders and tourists to Roanoke and relatedly, to economic development off of the greenway. Unsurprisingly, residents find it most useful for these recreational purposes and top-down economic development.



Roanoke's history of class and racial discrimination in planning has led to a recognition of the importance of fair land acquisition and greenway distribution across different neighborhoods in the city. It has not, however, led to those planning the greenway paying attention to indirect displacement by gentrification, nor has it led to equitable development or community-led design of greenways. On the greenway today, there is some diversity on the greenway, but it is not representative of the diversity across Roanoke. Communities surrounding the RRG are also lacking diversity of class and race. Mountain View is an exception, but it is charted to become increasingly less diverse if economic development continues and progresses as expected.

Roanoke's history of attributing primarily economic value to the outdoors and environment in planning and for development initially led to a dismissal of the greenway, but here, the greenway changed established thinking in Roanoke. There is now a step between land and economic value among leaders in Roanoke that speaks to the inherent value of connection to nature. This step is important because it acknowledges the importance of environmental sustainability. Acceptance of the greenway led to the formation of regional partnerships and strengthening of relationships across departments. Now, there is a heightened value of the river and of peoples' connection to with the outdoors.

The history of public advocacy and informal power in RRG planning is also connected to the value that residents attribute to the greenway. Public participation and advocacy are a part of the greenway through funding and volunteer groups, namely the Pathfinders. However, this group seems to have limited representation of people from minority races and low-income residents. Active participation and awareness of how or why to be involved in the greenway was not widespread among resident participants. For those members of the public who are involved, there is an established pattern of challenging formal power through creative, tenacious, and

relationship-centric planning. For some in Mountain View, this history has contributed to feelings of ownership, appreciation, and belonging on the greenway.

**Discussion: Who is benefitting and in what ways, and by what means.**

This research sought to identify who is benefitting from the greenway, in what ways they are benefitting, and by what means they are doing so. The answers to these questions are complex. They require short- and long-term perspectives, recognition of context around communities, and understanding of competing dynamics of sustainability goals. At the beginning of the chapter, I stated three conclusions I drew from my research findings provide answers to these questions as best I can discern. I will discuss these conclusions briefly now with the context of my research data behind me.

The first conclusion (1) is that residents who live near the greenway and want to use it for recreational purposes and the City of Roanoke and its elite class of businessowners and homeowners who live near the greenway benefit the most from the RRG, because the greenway is catered toward recreation and economic development, in form, function, and process. Those physically close to the greenway benefit by access to the greenway, its recreational resources, and the connection to place they experience. The meaning of this is that the greenway is unequal in its distribution of benefits. It is unequal in predictable ways, following city patterns of biased development and planning and following patterns of other urban greenway systems. This process does not seem to be done purposefully, and the greenway is viewed as neutral in the eyes of stakeholders. Those developing the greenway take the stance that its open presence in the community is an opportunity for all residents to use the greenway in whatever way they choose. However, failure to connect patterns in greenspace of displacement by gentrification and prejudice by users and managers of minority residents is neglectful,

especially because of its widely documented occurrence in other places and Roanoke's history of racial discrimination and current racial inequity.

The second conclusion (2) is that the system which enables these benefits and prioritizes their beneficiaries is the greenway's evolving planning process, which is changing perspectives and norms within Roanoke's planning traditions, notably its cooperation across departments and municipalities and the public's power through action and advocacy.

It is a system both steeped in mindsets of traditional economic development and exclusive planning aesthetics and imbued with innovative approaches of connecting residents to the outdoor environment. The meaning of this conclusion is that Roanoke is currently functioning with sustainable development goals that are in conflict and not specified to the core purposes of the greenway. So, currently, the greenway is not set up to be sustainable, and this is primarily because of its heavy reliance on and influence of the elite upper class and because of its functioning within the dominant of top-down economic development frame.

However, the RRG is set in a position to shift to practices that align well with sustainable development. It is founded on building cooperative relationships with stakeholders across the city and the region. By actively including and giving meaningful representation and decision-making power to stakeholders whose interests lie in environmental sustainability and social equity and justice, the RRG can grow in a way that supports communities like Mountain View, including all of its residents.

Another promising cornerstone of the RRG is its tradition of advocating for public interest and of challenging the status quo. While initially the focus of this challenge was on the worth of land and the practicality of implementing greenways, this energy may now be redirected to focus

on the need for social justice and equity. City leadership has recently set its sights on including equity in all of its plans.

With awareness of the RRG's big picture social implications, those directing the course of the greenway can make formal and meaningful provisions to truly make the greenway beneficial to all. In this way, the Walker Foundry stalling of greenway connection and expansion may be a blessing in disguise. The slowing of momentum of development along the greenway may give time for government to adopt policy and procedure to protect low income Mountain View residents, in terms of affordable housing, access to jobs, and community-specific development. The system that promotes sustainability is not unattainable. With a few tweaks including a shift in intention, the process Roanoke has in place could work well.

The third conclusion (3) is that Roanoke's greenway movement is strong because of its popularity but is vulnerable, because there are no provisions to officially protect it for the future, both in terms of maintenance and popularity. As described above, the overwhelming consensus that the greenway is good is contradicted by undercurrents of gentrification and displacement and dominance of white, upper class recreational users. Here, the greenway is currently strong but has a projection of becoming weaker. Yet, at the time of this research, the admiration participants felt toward the RRG was profound. The place held meaning to residents in how they used it in their everyday lives and in how it contributed to the identity of their community. They had hopes tied to the greenway, and for the most part, the only fear they held is that of lack of future investment by city leadership. This fear is one that is especially relevant now.

At the time of my interviews, funding for the greenway was not an imminent concern. Though some wanted permanent funding built into the city budget for maintenance and improvements, funding for slated capital projects was secure. It too was strong at the moment,

but vulnerable in the future. When I conducted interviews with all but one of these participants, COVID-19 was not yet a concern in the United States, and the economy was stable. However, now, cities and the country as a whole are re-evaluating budgets, and funding for parks are routinely being cut. Though some cities are investing more heavily in alternative transportation, many are making do with few resources to convert once revolutionary sustainability plans into bare bones scaffolding for necessary bikeways and walkways.

During the stay at home orders in Roanoke, the popularity of the RRG showed itself, with user counts increasing up to ten times what they were last year in the same time frame. This led to a closing of the RRG, though user counts still remained high after the closing. This circumstance is both a challenge and an opportunity. It is a challenge because funding is limited. It is an opportunity because people are recognizing the immense value of the greenspace and alternative transportation the RRG provides. Again, the greenway may be steered in many different directions, and the choice of how to prioritize goals and whose needs to recognize will greatly influence its long-term sustainability.

### **Recommendations for research**

Recommendations for future research follow up on some of the findings and build on strengths and limitations of this research. RRG is an example of a greenway in a medium-sized city that is currently seeing the beginnings of gentrification. A historic look at housing prices in Roanoke and around the greenway could help to show trajectories of development off of the greenway, early indicators of environmental injustice in greenways, and, if protective measures are put in place, what affect they have on warding off displacement.

More research is needed on how people can be more meaningfully involved in the RRG. Further, research on the perception of who uses the greenway, who the greenway is for, and how

the greenway could be more inclusive or relevant could be conducted, especially with those who do not use the greenway or who are minority or low-income residents. With more resources and time, meaningful community based participatory research could connect those who are left out of the planning process to those making decisions about the greenway. During this research process, many resident participants and volunteers had observations and ideas that they wanted to contribute to the greenway development process.

I recommend research that not only seeks to take inventory of these suggestions but to unify diverse residents into a coalition that has power in advocating for the changes they collectively want to see. This could benefit both residents and greenway commissioners and leadership by gaining a holistic understanding of each community around the greenway. In Roanoke, there are other neighborhoods that are likely to be influenced by the growth and expansion of the RRG. Norwich, just across the river from Mountain View, is a historically Black community that contains Walker Foundry and the site of future greenway activity.

For this research, I used a theoretical framework that allowed me to examine the RRG holistically, incorporating power, systems, and critical sustainability. This framework incorporated a look at *what* is happening in greenway interaction with community through Campbell's Sustainable Development Triangle. This put a concrete and purposeful boundary on the research. The framework also looked at *how* those sustainability interactions are happening through the lens of ANT. This was a way to look at the human and nonhuman actors and their collective behavior that shaped the RRG's planning triangle. Finally, the framework allowed for an understanding of *why* these systems were operating as they do with UPE adding a historical perspective of power, momentum, and change in the greenway development system. I

recommend this framework for greenways and other public space that encompass complex roles in their communities.

A method that was important in many ways in this research was the incorporation of mapping into the interview process. As participants talked about greenways, they often pointed to specific places on the map. Different parts of the greenway elicited different memories and feelings, and they function differently for practical uses. Having a map present at the interviews was valuable in understanding and talking about those distinctions. The final story map product was a way that the greenway and its interaction with Mountain View could be better understood as a nuanced and varying piece of infrastructure. I recommend this method of data collection and analysis for research involving greenways or other expansive or linear infrastructure.

### **Recommendations for practice**

Going forward, specific recommendations for future practice include, first, adaptations for the recreation- and transportation-oriented activity. For recreation purposes, participants were in consensus about the troubling congestion and user conflict on portions of the RRG. While some felt that this could not be helped, others were convinced that this is a fixable problem. Most people wanted a wider path, but this was viewed as perhaps a too expensive option. Some other solutions participants suggested were spreading out greenway amenities, such as picnic structures, river viewing and access areas, Pokemon Go sites, a community amphitheater or stage, and playgrounds. Other urban greenway trails have included small, low-impact, unpaved lanes of crushed gravel off to the side of a paved greenway for walkers and joggers (Flink et al., 2003). For transportation purposes, signage for speed limits, allowance of eBikes, and directional signage were recommended by participants and are backed by literature (Bhattacharya et al., 2019; Buehler, 2011; Flink et al., 2003).

Second, there should be more RRG outreach to surrounding neighborhoods. Outreach includes most basically what was identified by participants as information giving, or communication about the presence and value of the greenway for nearby residents. This could include signage on the greenway, wayfinding off of the greenway, informative meetings, invitations to participate in greenway commission activity, and programming. To promote environmental sustainability, more outreach could be given to how the greenway specifically effects the environmental health of the area and what residents can do to help in big and small ways. It could include programming that engages local residents and youth organizations with the ecology of the region and encourages stewardship. Roanoke Outside and Roanoke Parks and Recreation do this tacitly with programming and resources for outdoor activity. Explicit and meaningful environmental education can make this goal more salient. There are many river, tree, and wildlife organizations in Roanoke that are not formally linked to the greenway, and strengthening those connections could also increase the amount and efficacy of environmental outreach. Environmental awareness of the RRG and its surrounding communities was a bit of an afterthought in these interviews, indicating that it is not communicated as a priority of the greenway by the City or the commission. To make the most of the potential environmental benefits of the RRG, the City and greenway commission should cement environmental design priorities in their mission and formalize the role of environmental stakeholders.

To create a more just and sustainable environment, outreach from the City needs to go further. It needs to actively seek out feedback from residents about the RRG and act on that feedback. It needs to provide physical support and connection for residents who live in Mountain View to own the RRG, figuratively if not literally. Mountain View residents need places in which their community can congregate, maintain, and feel safe. These places should



acknowledge and incorporate their history and should represent cultures of minority populations who inhabited them. The City needs to cocreate these places with diverse neighborhood residents, and these residents need to understand the stake they have in the greenway. In that sense, the opportunities and threats to their community need to be honestly communicated, and residents should be actively engaged in finding solutions that resolve underlying issues related to the RRG.

Third, there needs to be clearer and more formal reciprocal relationship of power in the RRG planning process between residents, the greenway commission, and city and regional leadership. To function as sustainable infrastructure, the RRG must make some changes in the intention behind greenway creation and management systems. To make this change, leaders and decision makers in the RRG development and maintenance process should shift away from economic growth model of economic health to more balanced sustainable development one. Refocusing the greenway on its environmental and social priorities can make the greenway more effective and beneficial to a more equitable representation of the population.

The greenway commission needs to include partners from non-profit organizations and resident groups that have sometimes conflicting interests, such as those interested in affordable housing, food access, social justice, urban forestry, and conservation. These stakeholders can help design specific aspects of the greenway that can meet multiple goals concurrently. Examples of what this might look like are types of plantings to promote biodiversity along the greenway corridor, types of business development to encourage in certain segments of the greenway, methods for ensuring safety of the park without discriminating against minorities, and equitable distribution of resources. These groups need to have meaningful and formal power within the greenway commission and the greenway commission needs to have formal power in

the government. It cannot rely on very respected, influential, and motivated people to always direct the greenway or to overcome traditional patterns of predatory economic development. The RRG is popular and has positive meaning for Roanoke residents, and to maintain that dynamic, the greenway commission and city leadership must take proactive actions such as these.

The current pause in greenway development due to the Walker Foundry dispute and COVID-19 may be an important opportunity for the City of Roanoke and the greenway commission to examine the greenway and the RRG's effects on surrounding communities. The slowed momentum of development on and around the greenway should allow for the creation of policy that protects current, low-income residents. This time needs to be used to develop relationships with neighborhood and resident advocacy groups, as well as environmental agencies and stakeholders to combine efforts on the greenway development.

Also, in light of new understanding of the RRG trail that may be gained from COVID-19, Roanoke's focus on equity in city planning, and the black lives matter (BLM) protests, leaders can utilize the greenway as a space that serves the needs of diverse Roanoke populations. This includes, for Mountain View, an examination of safety on the RRG for all populations. This also includes creating a safe and affordable environment in the neighborhood that adapts to changes brought on by the greenway. Greenway leaders need to accept and recognize that in addition to being a recreational amenity, the greenway fulfills an important functional role as green infrastructure for residents, in terms of access to greenspace, transportation, and physical and mental health.

For the Mountain View neighborhood, this means linking places of meaning in the neighborhood by claiming vacant land for public greenspace, ushering the neighborhood back to Nolen's vision for a green city with widespread accessibility to green environments. It also

means connecting local businesses and property owners to the mission of sustainability. This includes supporting new business that embraces the neighborhood and its social, environmental, and economic needs. The city and residents should take an in depth look at old and new businesses and industry in terms of what they provide for the community and how environmentally safe they are. This analysis can be used in making policy that challenges those wishing to be a part of the neighborhood to be present in a way that works for long term residents and the sustainability of their neighborhood.

What was once considered just in urban planning no longer suffices. The sociopolitical system is moving more toward connected equity, which means planning for social justice and environmental sustainability can no longer be separate bullet points to be checked off of a list while calculating economic return on investment. Sustainability goals must be considered together and must be weighted contextually. For greenways, this means that assumptions of doing public good and processes dominated by siloed, like-minded stakeholders can no longer be the norm in development and maintenance processes. That system does not serve the public. What is now required is allocating decision making power to stakeholders with conflicting interests and giving proportionately more power to stakeholders who represent the needs of residents who live near the greenway than to those in the business and economic development community. In the short term, the traditional method is easier, the integrated one is harder, but in the long term, the reverse is true.

Sustainability has a critical component to it that is negligent to ignore. As once revered greenway trail systems realize this and suffer the fallout, developing greenways must take notice. Community advocates, urban planners, and theorists are now challenging the assumption that gentrification and displacement along greenways are inevitable (Powers, 2018; Sze &

Yeampierre, 2018; Quatsel, 2018). Though no one size fits all solution is available, the consensus among those working on addressing inequity in greenspace is that more involved stakeholders with fewer boundaries and restrictions on power are needed to solve the challenges that come with aggressive real estate speculation. Failure to overcome this challenge results in limiting who the greenway is for and subjugating what would be a public good to another device for enriching the wealthy by way of dispossessing the poor.

### Works Cited

- Aguilar, M.F., Dymond, R.L., and Cooper, D.R. (2019) History, Mapping, and Hydraulic Monitoring of a Buried Stream under a Central Business District. *American Society of Civil Engineers*, 145(12). doi: 10.1061/(ASCE)WR.1943-5452.0001131.
- Ahrentzen, S. (2008). Sustaining active-living communities over the decades: Lessons from a 1930s greenbelt town. *Journal of Health Politics, Policy and Law*, 33(3), 429-453.
- Al-Kodmany, K. (1999). Using visualization techniques for enhancing public participation in planning and design: Process, implementation, and evaluation. *Landscape and Urban Planning*, 45, 37-45. doi:
- Aka, G. (2019). Actor-network theory to understand, track, and succeed in a sustainable innovation development process. *Journal of Cleaner Production*, 225, 524-540. doi:10.1016/j.jclepro.2019.03.351
- Akpinar, A. (2016a). How is quality of urban green spaces associated with physical activity and health? *Urban Forestry and Urban Greening*, 16, 76-83. doi: 10.1016/j.ufug.2016.01.011
- Akpinar, A. (2016b). Factors influencing the use of urban greenways: A case study of Aydin, Turkey. *Urban Forestry and Urban Greening*, 16, 121-131. doi: 10.1016/j.ufug.2016.02.004
- Alexander, C. & McDonald, C. (2014). Urban forests: The value of trees in the City of Toronto. Retrieved from <https://www.td.com/document/PDF/economics/special/UrbanForests.pdf>
- Amado, M.P., Santos, C.V., Moura, E.B., & Silva, V.G. (2010). Public Participation in Sustainable Urban Planning. *International Journal of Human and Social Sciences*, 5(2), 102-108.

- Arendt, R. (2004). Linked landscapes: Creating greenway corridors through conservation subdivision design strategies in the northeastern and central United States. *Landscape and Urban Planning*, 68, 241-269. doi:10.1016/s0169-2046(03)00157-9
- Arnstein, S.R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35, 216-224.
- Augustine, S.M. (2014). Living in a Post-Coding World: Analysis as Assemblage. *Qualitative Inquiry*, 20(6), 747-753
- Bacon, C., Mendez, V. E., Brown, M. (2005). *Participatory action research and support for community development and conservation: Examples from shade coffee landscapes in Nicaragua and El Salvador. Center Research Brief #6*. Santa Cruz, CA: Center for Agroecology and Sustainable Food Systems, University of California, Santa Cruz
- Bailey, C.A. (2018). *A Guide to Qualitative Field Research* (3<sup>rd</sup> ed.). Los Angeles, CA: Sage Publishing.
- Bailey, K. & Grosshart, T. (2010). Toward structured public involvement: Justice, geography and collaborative geospatial/geovisual decision support systems. *Annals of the American Geographers*, 100(1), 57-86. Retrieved from <http://www.jstor.org/stable/40645335>
- Beatley, T. (2000). Preserving biodiversity. *Journal of the American Planning Association*, 66(1), 5-20. doi:10.1080/01944360008976080;
- Belanger, P. (2016). Redefining Infrastructure. In M. Mostafavi, & G. Doherty (Eds.). *Ecological Urbanism*. Harvard University: Lars Muller Publishers
- Belcher, E., & Wellman, J.D. (1991). Confronting the challenge of greenline parks: Limits of the traditional administrative approach. *Environmental Management*, 15(3), 321-328.

Atlanta Beltline (2017). Atlanta BeltLine, Inc. Overview Video 2017 (video). Retrieved October 24, 2019 from <https://www.youtube.com/watch?v=5qIFQ8pi6ak>

Beauregard, R.A. (2015). *Planning Matter: Acting with Things*. Chicago Scholarship Online. doi:10.7208/Chicago/9780226297422.001.0001

Berke, P.R. (2008). The evolution of green community planning, scholarship, and practice: An introduction to the special issue. *Journal of the American Planning Association*, 74(4), 393-407. doi:10.1080/01944360802381751

Bhattacharya, T.; Mills, K.; & Mulally, T. (2019). *Active transportation transforms America: The case for increased public investment in walking and biking connectivity*. Washington, D.C.: Rails-to-Trails Conservancy.

Bibri, S.E. (2018). A foundational framework for smart sustainable city development: Theoretical, disciplinary, and discursive dimensions and their synergies. *Sustainable Cities and Society*, 38, 758-794. doi:10.1016/j.scs.2017.12.032

Blee, K.M. (2002). Crossing a boundary. (Pp. 1-21). In *Inside Organized Racism: Women and the Hate Movement*. Berkeley: University of California Press.

Blok, A. (2013). Urban green assemblages: An ANT view on sustainable city building projects. *Science and Technology studies*, 26(1), 5-24.

Blumenthal, D.S. (2011). Is community-based participatory research possible? *American Journal of Preventive Medicine*, 40(3), 386-389.

Bodin, Ö. & Crona, B.I. (2009). The role of social networks in natural resource governance: What relational patterns make a difference? *Global Environmental Change*, 19, 366-374. doi:

- Boulding, K.E. (1966). The economics of the coming spaceship earth. In H. Jarrett (Ed.), *Environmental quality in a growing economy: essays from the sixth RFF Forum* (p. 3-14). Baltimore, MD: The John Hopkins University Press
- Bowen, G. A. (2008). Naturalistic Inquiry and the Saturation Concept: A Research Note. *Qualitative Research, 8*(1), 137-152.
- Brenner, N. & Elden, S. (2009). Henri LeFebvre on state, space, territory. *International Political Sociology*.
- Brown, R.R., Farrelly, M.A., & Loorbach, D.A. (2013). Actors working the institutions in sustainability transitions: The case of Melbourne's stormwater management. *Global Environmental Change, 23*, 701-718.
- Brownlow, A. (2006). An archaeology of fear and environmental change in Philadelphia. *Geoforum, 37*, 227-245. doi:10.1016/j.geoforum.2005.02.009
- Brownlow, A. (2011). Between rights and responsibilities: Insurgent performance in an invisible landscape. *Environment and Planning, 43*, 1268-1286. doi:10.1068/a436
- Buehler, R. (2012) Determinants of bicycle commuting in the Washington, DC region: The role of bicycle parking, cyclist showers, and free car parking at work. *Transportation Research Part D: Transport and Environment, 17*(7), 525-531.
- Buehler, R., & Stowe, J. (2015). Bicycling in the Washington, DC region: Trends in ridership and policies since 1990. In: Hyra, D., Prince, S. (eds.) *Capital Dilemma: Growth and Inequality in Washington, DC*. New York: Routledge, 180-206.
- Call-Cummings, M., & James, C. (2015). Empowerment for Whom? Empowerment for What? Lessons from a Participatory Action Research Project. *Networks: An Online Journal for Teacher Research, 17*(2), 1-9. Retrieved October 6, 2018.



- Campbell, S. (1996). Green cities, growing cities, just cities? Urban planning and the contradictions of sustainable development. *Journal of the American Planning Association*, 62(3), 296-312. doi:10.1080/01944369608975696
- Campbell, S. D. (2013). Sustainable development and social justice: Conflicting urgencies and the search for common ground in urban and regional planning. *Michigan Journal of Sustainability*, 1(Fall), 75-91. doi:10.3998/mjs.12333712.0001.007
- Campbell, S. (2016). The planner's triangle revisited: Sustainability and the evolution of a planning ideal that can't stand still. *Journal of the American Planning Association*, 82(4), 388-397.
- Cargo M., Mercer S. (2008). The value and challenges of participatory research strengthening its practice. *Annual Review of Public Health*, 29, 325-350
- Chelimsky, E. (2019). Improving the match between sustainability questions and evaluation practice: Some reflections and a checklist. In G. Julnes (Ed.), *Evaluating Sustainability: Evaluative Support for Managing Processes in the Public Interest. New Directions for Evaluation*, 162, 69-86. doi:10.1002/ev.20363
- Chittum, M. (Aug 21, 2017). Roanoke City Council votes to authorize use of eminent domain if necessary for greenway. *The Roanoke Times*. Retrieved from [https://www.roanoke.com/news/local/roanoke-city-council-votes-to-authorize-use-of-eminant-domain/article\\_f01f96dc-540c-53a0-8a69-bff1bd63443a.html](https://www.roanoke.com/news/local/roanoke-city-council-votes-to-authorize-use-of-eminant-domain/article_f01f96dc-540c-53a0-8a69-bff1bd63443a.html)
- Chittum, M. (November 13, 2019). Greenway holdout Walker foundry ceases production, land up for sale, but lawsuit against Roanoke to continue. *The Roanoke Times*. Retrieved from [https://www.roanoke.com/news/local/greenway-holdout-walker-foundry-ceases-production-land-up-for-sale/article\\_f09f28cf-125e-54fc-8e06-096ab6f3bf09.html](https://www.roanoke.com/news/local/greenway-holdout-walker-foundry-ceases-production-land-up-for-sale/article_f09f28cf-125e-54fc-8e06-096ab6f3bf09.html)

City of Roanoke City Council. (2008). *Inviting Roanoke Back to the River: Mountain View/Norwich Plan (Report)*. Retrieved from

<https://www.roanokeva.gov/DocumentCenter/View/1302/Inviting-Roanoke-Back-to-its-River?bidId=>

Comey, A.C. (1929). Comprehensive city plan. By John Nolen. Roanoke, Va., 1928 (Book Review). *National Civic Review, October*, 636. doi:10.1002/ncr.4110181011

CORRECTION: New stretch of greenway links Mountain View, Norwich neighborhoods [with photo gallery]. (2012, May 16). *Roanoke Times, The (VA)*. Retrieved from <http://search.ebscohost.com.ezproxy.lib.vt.edu/login.aspx?direct=true&db=n5h&AN=2W6920910810&site=eds-live&scope=site>

Curran, W. & Hamilton, T. (2018a). Just green enough: Contesting environmental gentrification in Greenpoint, Brooklyn. In W. Curran & T. Hamilton *Just Green Enough: Urban Development and Environmental Gentrification*. London: Routledge

Curran, W. & Hamilton, T. (2018b). *Just Green Enough: Urban Development and Environmental Gentrification*. London: Routledge

Davis, J. (2019). Black faces, black spaces: Rethinking African American underrepresentation in wildland spaces and outdoor recreation. *Environment and Planning E: Nature and Space*, 2(1), 89–109. doi:10.1177/2514848618817480

Del Vecchio, D., Toomey, N., & Tuck, E. (2017). Placing photovoice: Participatory action research with undocumented migrant youth in the Hudson Valley. *Critical Questions in Education*, 8(4), 358-376.

Desfor, G. & Keil, R. (2004). *Nature and the City: Making Environmental Policy in Toronto and Los Angeles*. Tucson, AZ: The University of Arizona Press

Dimmelmeier, A., Purckhauer, A., & Shah, A. (2016). Marxian political economy. *Exploring Economics* (website). Retrieved April 5, 2019 from [https://www.exploring-](https://www.exploring-economics.org/en/orientation/marxist-political-economy/)

[economics.org/en/orientation/marxist-political-economy/](https://www.exploring-economics.org/en/orientation/marxist-political-economy/)

Dorst, Jagt, Raven, & Runhar, (2019). Urban greening through nature-based solutions – Key characteristics of an emerging concept. *Sustainable Cities and Society*, 49,(101620). doi:[10.1016/j.scs.2019.101620](https://doi.org/10.1016/j.scs.2019.101620)

Doyle, S., Kelly-Schwartz, A., Schlossberg, M., & Stockard, J. (2006). Active community environments and health. *Journal of American Planning Association*, 72(1), 19-31. doi:10.1080/01944360608976721

Draus, P., Haase, D., Napieralski, J., Roddy, J., & Qureshi, S. (2019). Wounds, ghosts, and gardens: Historical trauma and green reparations in Berlin and Detroit. *Cities*, 93, 153-163. doi:10.1016/j.cities.2019.05.002

Editorial. (2011, September 13). Another Roanoke neighborhood gets a makeover. *Roanoke Times, The (VA)*. Retrieved from <http://search.ebscohost.com.ezproxy.lib.vt.edu/login.aspx?direct=true&db=n5h&AN=2W61385148369&site=eds-live&scope=site>

Editorial (2012, September 12). Dedication to be held for ann davey masters sculpture garden. *US Fed News (USA)*. Available from NewsBank: Access World News – Historical and Current: <https://infoweb-newsbank-com.ezproxy.lib.vt.edu/apps/news/document-view?p=WORLDNEWS&docref=news/141417E66F0E8628>.

Earle, R. W., & Baechle, T. R. (2004). *NSCA's Essentials of Personal Training*. Champaign, IL: Human Kinetics.

- Elwood, S. (2009). Multiple Representations, significations and epistemologies in community-based GIS. In M. Cope & S. Elwood (Eds.). *Qualitative GIS: A Mixed Methods Approach*. Los Angeles, CA: Sage Publishing
- Emerson, R.M, Fretz, R.I. & Shaw, L.L. (1995). *Writing Ethnographic Fieldnotes*. Chicago, IL: University of Chicago Press.
- Eng, E., Strazza, K., Rhodes, S.D., Griffith, D., Shirah, K., Mebane, E. (2013). Insiders and outsiders assess who is 'the community': Participant observation, key informant interview, focus group interview, and community forum. In B.A. Israel, E. Eng, A.J. Schulz A, E.A. Parker. (Eds.). *Methods for community-based participatory research for health (2nd ed.)* (pp. 43-68). San Francisco, CA: Jossey-Bass
- Erickson, D. (2004). The relationship of historic city form and contemporary greenway implementation: A comparison of Milwaukee, Wisconsin (USA) and Ottawa, Ontario (Canada). *Landscape and Urban Planning*, 68, 199-221. doi:10.1016/S0169-2046(03)00160-9
- Erickson, D. (2005). Connecting Corridors: Implementing metropolitan greenway networks in North America. In R. Jongman, & G. Pungetti, (2005). *Ecological Networks and Greenways: Concept, Design, and Greenways*. Cambridge: University of Cambridge Press.
- Eyler, A.A., Evenson, K.R., Levinger, D., Maddock, J.E., Pluto, D., Troped, P.J., Schmid, T.L., Carnoske, C., Richards, K.L., & Steinman, L.E. (2008). Policy Influences on Community Trail Development. *Journal of Health Politics*, 33(3), 407-427. doi:10.1215/03616878-2008-003

- Fabos, J.F. & Ahern, J.G. (Eds.). (1995). *Greenways: The Beginning of An International Movement*. New York: Elsevier
- FHWA. (2019, April 2). Recreational Trails Program [webpage]. *U.S. Department of Transportation Federal Highway Administration*. Retrieved from [https://www.fhwa.dot.gov/environment/recreational\\_trails/](https://www.fhwa.dot.gov/environment/recreational_trails/)
- Finley, E. (2019). Beyond the Limits of Nature: A Social-ecological Perspective on Degrowth as a Political Ideology. *Capitalism, Nature, Socialism*, 30(2), 244–250.  
doi:10.1080/10455752.2018.1499122
- Firehock, K. (2012). *Evaluating and Conserving Green Infrastructure Across the Landscape: A Practitioner's Guide*. Charlottesville, VA: The Green Infrastructure Center
- Fisher, B., Turner, K., Zylstra, M., Brouwer, R., De Groot, R., Farber, S., Ferraro, P., Green, R., Hadley, D., Harlow, J., Jeffries, P., Kirkby, C., Morling, P., Mowatt, S., Naidoo, R., Paavola, J., Strassburg, B., Yu, D., & Balmford, A. (2008). Ecosystem services and economic theory: Integration for policy-relevant research. *Ecological Society of America*, 18(8), 2050-2067.
- Fletcher, K. (2006). A trip down memory trail: 20 years of RTC. *Rails to Trails, Spring*, 16-19.  
Retrieved from [https://www.railstotrails.org/media/40485/rtc\\_history\\_06spr\\_20yearsofrtc.pdf](https://www.railstotrails.org/media/40485/rtc_history_06spr_20yearsofrtc.pdf)
- Flink, C.A., Olka, K. & Searns, R.M. (2001). *Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails* (2<sup>nd</sup> ed.). Washington D.C.: Island Press.
- Flyvberg, B. (2002). Bringing power to planning research: One researcher's praxis story. *Journal of Planning Education and Research*, 21(4), 353-366.

- Fordney, C. (1994). Blue ridge blues. *National Parks*, 02768186, 68(9). Retrieved from <http://eds.a.ebscohost.com.ezproxy.lib.vt.edu/eds/detail/detail?vid=0&sid=50c5ff39-bfb0-47a4-96a2-7197b1497315%40sdc-v-sessmgr02&bdata=JnNpdGU9ZWRzLWxpdmUmc2NvcGU9c2l0ZQ%3d%3d#AN=9410196120&db=f5h>
- Forester, J. (1982). Planning in the face of power. *Journal of the American Planning Association*, 48(1), 67-80. doi:10.1080/01944368208976167
- Forester, J. (1991). *The Deliberative Practitioner: Encouraging Participatory Planning Processes*. Cambridge, MA: The MIT Press
- Foucault, M. (1983). The subject and power (208-226). In H. Dreyfus, & P. Rabinow (eds.) *Beyond Structuralism and Hermeneutics*. Chicago, IL: The University of Chicago Press.
- Fullilove, M.T. (2005) *Root Shock: How Tearing Up City Neighborhoods Hurts America and What We Can Do About It*. New York, NY: One World Ballantine Books
- Fullilove, M.T. (2013). *Urban Alchemy*. New York, NY: One Village Press
- Gobster, P.H., & Westphal, L.M. (2004). The human dimensions of urban greenways: Planning for recreation and related experiences. *Landscape and Urban Planning*, 68, 147-165. doi:10.1016/S0169-2046(03)00162-2
- Gibson, S., Loukaitou-Sideris, A., & Mukhija, V. (2019). Ensuring park equity: a California case study. *Journal of Urban Design*, 24(3), 385-405. doi:10.1080/13574809.2018.1497927
- Gifford, R. (2014). Environmental Psychology Matters. *Annual Review of Psychology*, 65, 541-579. doi:10.1146/annurev-psych-010213-115048
- Greenwood, D. & Levin, M. (2007). *Introduction to action research: Social research for social change* (2nd ed). Thousand Oaks, CA: Sage

Gregory, M. M., & Peters, S. J. (2018). Participatory research for scientific, educational, and community benefits: A case study from Brooklyn community gardens. *Journal of Agriculture, Food Systems, and Community Development*, 8 (Suppl. 1), 237–259

*Agriculture, Food Systems, and Community Development*, 8 (Suppl. 1), 237–259

Guba, E.G. & Lincoln, Y.S. (2008). Paradigmatic controversies, contradictions, and emerging confluences. In N.K. Denzin & Y.S. Lincoln (Eds.) *The Landscape of Qualitative Research* (255-286). Los Angeles, CA: Sage Publications.

Hamilton, R. (1967). Chronology of city planning in Roanoke, Va. (report). Retrieved from <https://www.roanokeva.gov/DocumentCenter/View/9577/Chronology-of-City-Planning-in-Roanoke?bidId=>

Hammen, V.C., & Settele, J. (2011). Biodiversity and the loss of biodiversity affecting human health.

Hanson, R., & Young, G. (2008). Active living and biking: Tracing the evolution of a biking system in Arlington, Virginia. *Journal of Health Politics*, 33(3), 387-406. doi: 10.1215/03515878-002

Harmon, E.B. (2018). *Shaping the city from below: Urban planning and citizens' battle for control in Roanoke, Virginia, 1907-1928* (Masters Thesis). Virginia Polytechnic Institute and State University.

Harvey, D. (2008). The right to the city. *New Left Review*, 11(53), 23-40.

Harvey, D., & Smith, N. (2008, June 28). Class 01: Introduction. Reading Marx's Capital (Podcast). Retrieved from <https://podcasts.apple.com/us/podcast/reading-marxs-capital-audio/id283537064?i=1000026985133>

Hausknot D., Gaube, V., Haas, W., Smetschkla, B., Lutz, J., Singh, S.J., & Schmid, M. (2016). 'Society Can't Move So Much as a Chair!'—Systems, Structures and Actors in Social

- Ecology. In: H. Haberl, Fischer-Kowalski M., Krausmann F., & Winiwarter V. (Eds.) *Social Ecology. Human-Environment Interactions, vol 5*. Springer, Cham
- Haupt, A. (2018, July 27). In this Virginia town, DIY Network fans can live a 'Salvage Dawgs' life - for a night. *Washington Post*. Retrieved from [https://link-gale-com.ezproxy.lib.vt.edu/apps/doc/A547918995/ITOF?u=viva\\_vpi&sid=ITOF&xid=0cbdb1ee](https://link-gale-com.ezproxy.lib.vt.edu/apps/doc/A547918995/ITOF?u=viva_vpi&sid=ITOF&xid=0cbdb1ee)
- Healey, P. (1999). Institutional analysis, communicative planning, and shaping places. *Journal of planning education and research, 19*, 111-121
- Heckert, M., & Rosan, C.D. (2016). Developing a green infrastructure equity index to promote equity planning. *Urban Forestry & Urban Greening, 19*, 263-270.  
doi:10.1016/j.ufug.2015.12.011.
- Heller, K.J. (1996). Power, subjectification and resistance in Foucault. *SubStance, 25*(79), 78-110.
- Henshaw, J. (2010). Roanoke Greenway expands. *NBC - 10 WSLS (Roanoke-Lynchburg, VA)*. Retrieved from <https://infoweb-newsbank-com.ezproxy.lib.vt.edu/apps/news/document-view?p=WORLDNEWS&docref=news%2F137C886A32354580>
- Heynen, N. (2014). Urban political ecology I: The urban century. *Progress in Human Geography, 38*(4), 598-604.
- Heynen, N., Kaika, M., & Swyngedouw, E. (2006). Urban political ecology: politicizing the production of urban natures. In N. Heynen, M. Kaika, & E. Swyngedouw, (Eds.). *The Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. New York, NY: Routledge.



- Hector, T.S., Carr, M.H., Zwick, P.D., & Maehr, D.S. (2005). The Florida Statewide Greenways Project: Its realization and political context. In R. Jongman, & G. Pungetti, (2005). *Ecological Networks and Greenways: Concept, Design, and Greenways*. Cambridge: University of Cambridge Press.
- Hodder, I. (2000). The interpretation of documents and material culture. (Pp.703-715). In N. K. Denzin and Y. S. Lincoln. *Handbook of Qualitative Research (2nd ed)*. Thousand Oaks, CA: Sage.
- Holifield, R. (2009). Actor Network Theory as a critical approach to environmental justice: A case against synthesis with Urban Political Ecology. *Antipode*, 41(4), 637-658.  
Doi:10.1111/j.1467-8330.2009.00692
- Holifield, R., & Schuelke, N. (2015). The place and time of the political in urban political ecology: Contested imaginations of a river's future. *Annals of the Association of American Geographers*, 105(2), 294-303.
- Hoover, A.P. & Shannon, M.A. (1995). Building greenway policies within a participatory democracy framework. *Landscape and Urban Planning*, 33, 433-459.
- Hopwood, B., Meller, M., & O'Brien, G. (2005). Sustainable development: Mapping different approaches. *Sustainable development*, 13, 38-52.doi:10.1002/sd.244
- Howard, E. (1902). *Garden Cities of Tomorrow*. London: Swan Sonnenschein & Company.  
Hufnagel & Rottle, 2014).
- Hufnagel, C., & Rottle, N. (2014). *Green Infrastructure Implementation*. Alexandria, VA: Water Environment Federation.

- Immergluck, D., & Balan, T. (2018). Sustainable for whom? Green urban development, environmental gentrification, and the Atlanta Beltline. *Urban Geography*, 39(4), 546-562. doi:10.1080/02723638.2017.1360041
- Israel, B.A., Eng, E., Schulz A.J., Parker, E.A. (Eds.). (2013). *Methods for community-based participatory research for health (2nd ed.)* (pp. 43-68). San Francisco, CA: Jossey-Bass
- Jacobs, P. (2011). Where have all the flowers gone? *Landscape and Urban Planning*, 100, 318-320. doi:10.1016/j.landurbplan.2011.01.021
- John Nolen Papers, #2903. Division of Rare and Manuscript Collections, Cornell University Library. Retrieved from <https://babel.hathitrust.org/cgi/pt?id=uva.x000512896&view=1up&seq=15>
- Jones, N., & Davies, C. (2017). Linking the environmental, social, and economic aspects of urban forestry and green infrastructure. *The Urban Forest, Future City*, 7. 305-313. doi:10.1007/978-3-319-50280-9\_23
- Jongman, R., & Pungetti, G. (2005). *Ecological Networks and Greenways: Concept, Design, and Greenways*. Cambridge: University of Cambridge Press.
- Julnes, G. (2019). Supporting transitions to sustainability: Evaluation for managing processes in the public interest. In G. Julnes (Ed.), *Evaluating Sustainability: Evaluative Support for Managing Processes in the Public Interest. New Directions for Evaluation*, 162, 119–154
- Keltner, D. (2009). *Born to Be Good: The science of a meaningful life*. New York, NY: W.W. Norton & Company.
- Keith, Larson, Shafer, Hallo, & Fernandez, (2018). Greenway use and preferences in diverse urban communities: implications for trail design and management. *Landscape and Urban Planning*, 172, 47-59. doi: 10.1016/j.landurbplan.2017.12.007

- Kent, U.O. (Director). (2016). *5 Reasons You Should Go for a Run Today (YouTube Video)* [Motion Picture]. Retrieved October 5, 2018, from <https://www.youtube.com/watch?v=cUu-kbXBOBk>
- Kim, E.G. (2018). Bring on the yuppies and the guppies! Green gentrification, environmental justice, and the politics of place in Frogtown, L.A. In W. Curran & T. Hamilton *Just Green Enough: Urban Development and Environmental Gentrification*. London: Routledge
- Kitchall, M. (Producer & Director) (2012). *A fierce green fire* [Motion Picture]. United States: Bullfrog Films
- Krizek, K. J. (2007). Estimating the economic benefits of bicycling and bicycle facilities: an interpretive review and proposed methods. In P. Coto-Millán and V. Inglada, (Eds.), *Essays on Transportation Economics*, (pp. 219-248). London: Springer publishing
- Kucklick, H. (1980). Chicago sociology and urban planning policy: Sociology theory as occupational ideology. *Theory and Society*, 9(6), 821-845. Retrieved March 11, 2020, from [www.jstor.org/stable/656803](http://www.jstor.org/stable/656803)
- Lafuite, A.-S., & Loreau, M. (2017). Time-delayed biodiversity feedbacks and the sustainability of social-ecological systems. *Ecological Modeling*, 351, 96-108. doi:10.1016/j.ecolmodel.2017.02.022
- Larson, L. R., Keith, S. J., Fernandez, M., Hallo, J. C., Shafer, S. C., & Jennings, V. (2016). Ecosystem services and urban greenways: What's the public's perspective. *Ecosystem Services*, 22, 111-116. doi:10.1016/j.ecoser.2016.10.004
- Latour, B. (2007). *Reassembling the Social: An introduction to Actor-Network-Theory*. New York, NY: Oxford University Press

- Lawless, E. J. (1992). 'I Was Afraid Someone Like You... an Outsider... Would Misunderstand': Negotiating Interpretive Differences Between Ethnographers and Subjects." *Journal of American Folklore*, 105, 302-314.
- Leslie et al., (2007) Walkability of local communities: Using geographic information systems to objectively assess relevant environmental attributes. *Health and Place*, 13, 111-122.  
doi:10.1016/j.healthplace.2005.11.001
- Levin, M. & Martin, A. (2007). The praxis of educating action researchers: The possibilities and obstacles in higher education. *Action Research*, 5(3), 219-229.
- Lindsey, G. (2003). Sustainability and urban greenways: Indicators in Indianapolis. *American Planning Association*, 69(2), 165-180.
- Lindsey, G. & Wilson, J., Yang, A. & Alexa, C. (2008). Urban greenways, trail characteristics and trail use: Implications for design. *Journal of Urban Design*, 13. 53-79.  
Doi:10.1080/13574800701804033.
- Liu, J., Dietz, T., Carpenter, S.R., Al Berti, M., Folke, C., Moran, E...Taylor, W. (2007). Supporting online material for Complexity of coupled human and natural systems. *Science*, 317(1513). doi:10.1126/science.1144004
- Lovely, S., Archibald, T., Bohannon, C., & Scherer, H. (Unpublished). Reconceptualizing Comprehensive Greenway Trail Planning Utilizing Systems-Based Evaluation.
- Lundholm, J.T. (2015). The ecology and evolution of constructed ecosystems as green infrastructure. *Frontiers in Ecology and Evolution*, 3. doi:10.3389/fevo.2015.00106
- Lykke, N. (2009). Non-innocent intersections of feminism and environmentalism. *Kvinder, Køn and Forskning*, 3(4), 36-43.

- Maoh, H. & Tang, (2012). Determinants of normal and extreme commute distance in a sprawled midsize Canadian city: evidence from Windsor, Canada. *Journal of Transport Geography*, 25, 50-57.
- Martin, J. (2012). *The Genius of Place: The life of Frederick Law Olmstead*. Cambridge, MA: Da Capo Press
- Mason, Jamie & Moorman, Christopher & Hess, George & Sinclair, Kristen. (2007). Designing suburban greenways to provide habitat for forest-breeding birds. *Landscape and Urban Planning*. 80, 153-164. doi:10.1016/j.landurbplan.2006.07.002.
- Meadows, D. H. (2008). *Thinking in Systems*. White River Junction, VT: Chelsea Green Publishing
- Mazzei, J., & O'Brien, E.E. (2009). You got it so when do you flaunt it? Building Rapport, intersectionality, and the strategic deployment of gender in the field. 38(3), 358-383. doi:10.1177/0891241608330456
- Minkoff-Zern, L., Peluso, N., Sowerwine, J., & Getz, C. (2011). Race & Regulation: Asian immigrants in California Agriculture. In A.H. Alkon, & J. Agyeman (Eds.), *Cultivating Food Justice: Race, Class, & Sustainability* (23-46). Cambridge, MA: The MIT Press
- Moorish, W.R. (2008) Resilient Everyday Infrastructure (to rally discussion). *Places Journal*, 20(3), 74-75.
- National Parks Service. (2014). National register of historic places continuation sheet: Grandin Road Commercial Historic District (2014 Update).
- Nelson, E., & Dodd, W. (2016). Collaborating for community food security: Emerging scholar participation in a community-university partnership. *Action Research*, 0(0) 1–22

- Niewolny, K. & D'Adamo-Damery, P. (2016). Learning through story as political praxis: The role of narratives in community food work. In Sumner, J. (Ed.), *Learning, food, and sustainability: Sites for resistance and change*. New York: Palgrave/Macmillan
- Nolen, J., Book Traces Project. (1908). *Remodeling Roanoke: report to the Committee on Civic Improvement*. [Roanoke, Va.: Stone.
- Norgaard, M.K., Reed, R., & Van Horn, C. (2011). A continuing legacy: Institutional racism, hunger, and nutritional justice on the Klamath. In A.H. Alkon, & J. Agyeman (Eds.), *Cultivating Food Justice: Race, Class, & Sustainability* (23-46). Cambridge, MA: The MIT Press
- Nyerges, Timothy & Ramsey, Kevin & Wilson, Matthew. (2006). Design Considerations for an Internet Portal to Support Public Participation in Transportation Improvement Decision Making. 10.4018/9781591408451.ch012.
- Ostfeld, R.S. & Keesing, F.(.). Biodiversity and human health. *Encyclopedia of Biodiversity*, 1, 357-371.doi:10.1016/B978-0-12-384719-5.00332-4
- Outram, C., Biderman, A., & Ratti, C. (2010). Self-engineering ecologies. In M. Mostafavi & G. Doherty (Eds.) *Ecological Urbanism*. Baden, Switzerland: Lars Muller Publishers
- Palardy, N. P., Boley, B. B., & Gaither, C. J. (2018). Resident support for urban greenways across diverse neighborhoods: Comparing two Atlanta BeltLine segments. *Landscape and Urban Planning*, 180, 223–233. doi:10.1016/j.landurbplan.2018.08.021;
- Parece, T.E., Serrano, E.L. and Campbell, J.B. (2017). Strategically Siting Urban Agriculture: A Socioeconomic Analysis of Roanoke, Virginia. *The Professional Geographer*, 69(1), 45–58. Doi.

- Park, P. (2006). Knowledge and participatory research. In P. Reason and H. Bradbury (eds.), *Handbook of action research*. (pp. 83-93). London: Sage Press.
- Patton, M.Q. (2019). Transformation to global sustainability: Implications for evaluation and evaluators. In G. Julnes (Ed.), *Evaluating Sustainability: Evaluative Support for Managing Processes in the Public Interest. New Directions for Evaluation, 162*, 119–154
- Payton S.B. & Ottensmann, J.R (2015). The implicit price of urban public parks and greenways: a spatial-contextual approach. *Journal of Environmental Planning and Management*, 58(3), 495-512. doi:[10.1080/09640568.2013.864619](https://doi.org/10.1080/09640568.2013.864619)
- Pikora, T., Giles-Corti, B., Bull, F., Jamrozik, K., & Donovan, R. (2003). Developing a framework for assessment of the environmental determinants of walking and cycling. *Social Science & Medicine*, 56, 1693-1703.
- Poff, M.E. (2014). School Desegregation in Roanoke, Virginia: The Black Student Perspective. *The Journal of Negro Education*, 85 (4), 433-443. doi: 140.234.253.9
- Park, M. (2018). Even the dead could not stay. City Lab
- Pavlovskaya, M. (2009). Non-quantitative GIS. In M. Cope & S. Elwood (Eds.). *Qualitative GIS: A Mixed Methods Approach*. Los Angeles, CA: Sage Publishing
- Pearsall, H. (2018). The contested future of Philadelphia’s Reading Viaduct: Blight, neighborhood amenity, or global attraction. In W. Curran & T. Hamilton *Just Green Enough: Urban Development and Environmental Gentrification*. London: Routledge
- Pungetti, G. & Romano, R.H.G. (2004). Planning the future landscape between nature and culture. In R. Bernardino (Ed.). *Ecological networks and greenways, Concept, design, implementation*. Cambridge: Cambridge University Press

- Quastel, N., Moos, M., & Lynch, N. (2012). Sustainability-as-density and the return of the social: The case of Vancouver, British Columbia. *Urban Geography*, *33*(7), 1055-1084. doi:10.2747/0272-3638.33.7.1055
- Qian, J., Xiang, W., Liu, Y. & Meng, X. (2018). Incorporating landscape diversity into greenway alignment planning. *Urban Forestry & Urban Greening*, (35), 45-56. doi: 10.1016/j.ufug.2018.08.006
- Qviström, M. (2012). Network ruins and green structure development: An attempt to trace relational spaces of a railway ruin. *Landscape Research*, *37*(3), 257-275. doi:10.1080/01426397.2011.589897
- Reynolds, M. & Holwell, S. (2010). Introducing systems approaches. In Reynolds, M. and Holwell, S. (eds) *Systems Approaches to Managing Change: A Practical Guide*, Milton Keynes, *The Open University in association with Springer-Verlag London Limited*
- Rigolon, A., & Németh, J. (2018). “We’re not in the business of housing:” Environmental gentrification and the nonprofitization of green infrastructure projects. *Cities*, *81*, 71–80. doi: 10.1016/j.cities.2018.03.016
- ‘Roanoke Iron Company’. (1891). Certified copy of stock certificate for Peyton L. Terry, 14 November 1981 (stock number 137). History Museum of Virginia. Retrieved from <https://hswv.pastperfectonline.com/archive/DD3485D8-307D-460D-B172-991813049680>
- Roberts, D., & Brown, A.M.B., & Edwards, L. (2015). Participatory action research in two primary schools in a rural Tanzanian village: An exploration of factors to cultivate changes in teaching and learning. *Educational Action Research*, *23*(3), 366-382.



Robertson, S.A, Blackwell, B.D., & McFarlane, J.A. (2017). The viability of remote mining communities: insights from community perceptions and employment impact assessments. *Impact Assessment and Project Appraisal*, 35(4), 310-324.

doi:[10.1080/14615517.2017.1354640](https://doi.org/10.1080/14615517.2017.1354640)

Ross, C.L., Leone de Nie, K., Dannenberg, A.L., Beck, L.F., Marcus, M.J., & Barringer, J. (2012). Health impact assessment of the Atlanta BeltLine. *American Journal of Preventative Medicine*, 42(3). doi:10.1016/j.amepre.2011.10.019

Rothenberg, & Lang, (2017). Repurposing the High Line: Aesthetic experience and contradiction in West Chelsea. *City, Culture, and Society*, 9, 1-12. doi:10.1016/j.ccs.2015.10.001

Sager, B. (2002). Is the constitution of a greenway trail network associated with cycling commuter use? (Master's thesis). Retrieved from

[http://www.journals.cambridge.org/abstract\\_S1742170514000271](http://www.journals.cambridge.org/abstract_S1742170514000271)

Sandercock, L. (2003). Who knows? Exploring planning's knowledges. In *Cosmopolis II: Mongrel cities of the 21st century* (59-82). London: Continuum.

Scarborough, S. (2014). *African American Railroad Workers of Roanoke: Oral Histories of the Norfolk and Western*. Charleston, SC: The History Press

Schaffer, D. (1998) Reality Counts. *Journal of American Planning Association*, 64(2), 130-131.

doi:10.1080/01944369808975970

Schasberger, M.G., Hussa, C.S., Polgar, M.F., McMonagle, J.A., Burke, S.J., & Gegaris, A.J. (2009). Promoting and developing a trail network across suburban, rural, and urban communities. *American Journal of Preventative Medicine*, 37(6S2), S336-S344.

Doi:10.1016/j.amepre.2009.09.012

- Schensul, J.J., Berg, M.J., & Nair, S. (2013). Using ethnography in participatory community assessment. In B.A. Israel, E. Eng, A.J. Schulz A, E.A. Parker. (Eds.). *Methods for community-based participatory research for health (2nd ed.)* (pp. 43-68). San Francisco, CA: Jossey-Bass
- Schultz, C. L., Layton, R., Edwards, M. B., Bocarro, J. N., Moore, R. L., Tepperberg, S., . . . Floyd, M. F. (2016). Potential measures for linking park and trail system to public health. *Journal of Parks and Recreation Administration, 34*(1), 4-23. doi:10.18666/JPra-2016-V34-11-7143
- Schwandt, T.A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructivism. In N.K. Denzin, & Y.S. Lincoln (Eds.) *Handbook of Qualitative Research (2<sup>nd</sup> ed.)* (p.189-214). Thousand Oaks, CA: Sage Publications
- Searns, R.M. (1995). The evolution of greenways as an adaptive urban landscape form. *Landscape and Urban Planning, 33*(1-3) 65-80. doi: 10.1016/0169-2046(94)02014-7
- Senes, G., Rovelli, R., Bertoni, D., Arata, L., Fumagalli, N., Toccolini, A. (2017). Factors influencing greenways use: Definition of a method for estimation in the Italian context. *Journal of Transport Geography (65)*, 175-18. doi: 10.1016/j.jtrangeo.2017.10.014
- Services, U. D. (2008). *Step it up: The surgeon general's call to action to promote walking and walkable communities*. Retrieved September 3, 2018, from <https://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/exec-summary.html>

- Shabman, L. & Stephenson, K. (1992). The Possibility of Community-Wide Flood Control Benefits' Evidence From Voting Behavior in a Bond Referendum. *Water Resources Research*, 28(4), 959-964.
- Shafer, C.S., Lee, B.K., & Turner, S. (2000). A tale of three greenway trails: User perceptions related to quality of life. *Landscape and Urban Planning*, 49, 163-178.
- Shanahan, D. F., Fuller, R. A., Bush, R., Lin, B. B., & Gaston, K. J. (2015). The health benefits of urban nature: How much do we need? *BioScience*, 65(5), 476-485.  
doi:10.1093/biosci/biv032
- Smith, N. (1991). *Uneven Development: Nature, Capital, and the Production of Space*. Cambridge, MA: Basil Blackwell.
- Solinger R., Fox M., & Irani K., (Eds.). (2008). *Telling Stories to Change the World: Global Voices on the Power of Narrative to Build Community and Make Social Justice Claims*. New York: Routledge
- Spann, (1998). *Designing Modern America*. Columbus, OH: Ohio State University Press.
- Spencer, Renée, Julia M. Pryce, and Jill Walsh. (2014). Philosophical approaches to qualitative research. In P. Leavy (Ed.) (p.81-98). *The Oxford Handbook of Qualitative Research*. New York: Oxford University Press.
- Stern, P. & Hall, P.V. (2018) Greening the waterfront? Submerging history, finding risk. In W. Curran & T. Hamilton *Just Green Enough: Urban Development and Environmental Gentrification*. London: Routledge
- Stich B, & Miller C. (2012). Economic development perspectives and the policy process: The case of railroad revitalization versus rails-to-trails. *Administration & Society* 44, 438–457. doi:10.1177/0095399711413872

- Stroh, D.P. (2015). *Systems thinking for Social Change: A practical guide to solving complex problems, avoiding unintended consequences, and achieving lasting results*. White River Junction, VT: Chelsea Green Publishing
- Taylor, L.B. (2013). *Haunted Roanoke*. Charleston, SC: The History Press
- Trudeau, D. (2018). Integrating social equity in sustainable development practice: Institutional commitments and patient capital. *Sustainable Cities and Society*, 41, 601-610.  
doi:10.1016/j.scs.2018.05.007
- Uitto, J.I. (2019). Sustainable development evaluation: Understanding the nexus of natural and human systems. In G. Julnes (Ed.), *Evaluating Sustainability: Evaluative Support for Managing Processes in the Public Interest. New Directions for Evaluation*, 162, 119–154
- US Department of Health and Human Services (2008)
- Valencia, D.H., Riera, E.M., & Juncà, M.B. (2012). Participatory action research Applied to the management of natural areas: The case study of Cinquera in El Salvador. *Journal of Latin American Geography*, 11(1), 45-65.
- Weber, S., Boley, B. B., Palardy, N., & Gaither, C. J. (2017). The impact of urban greenways on residential concerns: Findings from the Atlanta Beltline Trail. *Landscape and Urban Planning*, 167, 147-156. doi:10.1016/j.landurbplan.2017.06.009
- White, C. (1982). *Roanoke: 1740-1982*. Roanoke, VA: Hickory.
- Williams, D. (1920). *The Iron Age: Volume 105, Issues 14-26*. New York, NY: David Williams Company
- Wilson, M. (2009). Towards a genealogy of qualitative GIS. In M. Cope & S. Elwood (Eds.). *Qualitative GIS: A Mixed Methods Approach*. Los Angeles, CA: Sage Publishing

WSLS 10. (April 5, 2018). Walker Foundry Property Dispute (video). Retrieved from  
<https://youtu.be/H-LOlboxAOqU>

Xiao, Z. & Lam, J.S.L. (2017). A systems framework for the sustainable development of a port city: A case study of Singapore's policies. *Research in Transportation and Business Management*, 22, 255-262. doi:10.1016/j.rtbm.2016.10.003

Yin, R.K. (2009). *Case Study Research: Design and Methods* (4<sup>th</sup> Ed.). Los Angeles, CA: Sage Publications.

Zube, E.H. (1995). Greenways and the US national park system. *Landscape and Urban Planning*, 33, 17-25

Appendix 1: Mountain View Resident Interview Guide

Interview Question	Possible follow up questions
1. Have you heard of the Roanoke River Greenway?	<ul style="list-style-type: none"> <li>• In what capacity have you heard of it?</li> <li>• When did you become aware of it?</li> </ul>
2. How long have you lived in Mountain View?	<ul style="list-style-type: none"> <li>• What were some of the reasons you moved to the neighborhood?</li> <li>• In what ways (if any) did the greenway factor into your decision to live or stay in the neighborhood.</li> </ul>
3. How would you describe the Roanoke River Greenway trail?	<ul style="list-style-type: none"> <li>• How has this perception of the trail changed over time?</li> <li>• How do you think this view of the trail is affected by your position as a Mountain View resident?</li> </ul>
4. What is the value of the Roanoke River Greenway trail to you?	<ul style="list-style-type: none"> <li>• How important is the greenway to you?</li> <li>• What about the greenway makes it valuable to you?</li> <li>• Why do you use the greenway?</li> <li>• What makes it important for you to live near the greenway?</li> <li>• Has this changed over time?</li> </ul>
5. In what ways (if any) do you interact with or use the Roanoke River Greenway trail?	<ul style="list-style-type: none"> <li>• How do you use the greenway for recreation?</li> <li>• To commute? (use map if necessary)</li> <li>• To meet up with other people, community building, etc.?</li> <li>• To experience nature?</li> </ul> <p>Has this changed over time?</p>
6. What would/does make you feel welcome on the Roanoke River Greenway?	<ul style="list-style-type: none"> <li>• What type of social environment do you experience on the greenway that does or doesn't make you feel welcome?</li> <li>• What type of physical environment do you experience that does or does not make you feel welcome?</li> <li>• Has this changed over time?</li> </ul>
7. In what ways does the greenway have value for Mountain View, if any?	<ul style="list-style-type: none"> <li>• Socially? Interactions, identity, attitudes</li> <li>• Environmentally? Habitats, places of meaning, land/air/water quality</li> </ul>

	<ul style="list-style-type: none"> <li>• Economically? Cost of living, property values, job creation, business development, etc.</li> </ul>
8. What concerns do you have with the Roanoke River Greenway trail in regard to your community, if any?	<ul style="list-style-type: none"> <li>• Socially? Interactions, identity, attitudes</li> <li>• Environmentally? Habitats, places of meaning, land/air/water quality</li> <li>• Economically? Cost of living, property values, business development, etc.</li> </ul>
9. In what ways do you see others in your neighborhood using the Roanoke River Greenway trail?	<ul style="list-style-type: none"> <li>• Are these people you know, or recognize from your neighborhood?</li> <li>• Are they outsiders?</li> <li>• How do you feel about how the trail is being used?</li> <li>• In what ways (if any) do you feel like others' uses of the trail impact you?</li> <li>• What purposes/uses do you think the trail is serving?</li> <li>• What purposes/uses do you think the trail is meant to serve?</li> </ul>
10. The land in Roanoke has served different purposes and held different meaning throughout time, what does having the greenway located next to your neighborhood mean to you now?	<ul style="list-style-type: none"> <li>• Why? How so?</li> <li>• Why is that important to you?</li> <li>• Practical meaning?</li> <li>• How does that relate to your values?</li> <li>• How does that align with your vision of what you want for your neighborhood/place that you live?</li> </ul>
11. In what ways do you see Mountain View being influenced or changed by the Roanoke River Greenway?	<p>Socially, economically, environmentally...</p>
12. In what ways (if any) are you involved with the design, development, programming and/or maintenance of the Roanoke River Greenway trail?	<ul style="list-style-type: none"> <li>• What is your awareness of these processes?</li> <li>• Have you ever given feedback to anyone about the greenway?</li> <li>• Have you ever volunteered for anything on or related to the greenway?</li> </ul>
13. What factors supported your ability or desire to be involved with this/these Roanoke River Greenway trail activities?	<ul style="list-style-type: none"> <li>• Social support, pressure, awareness, etc.?</li> <li>• Issues/personal &amp; political values?</li> <li>• Expertise, experience?</li> </ul>

<p>14. What factors made it difficult or undesirable to be involved with this/these Roanoke River Greenway trail activities?</p>	<ul style="list-style-type: none"> <li>• How did those present challenges when you were considering or trying to be involved?</li> <li>• Social discouragement, pressure, lack of awareness?</li> <li>• Issues/personal &amp; political values?</li> <li>• Lack of expertise, experience?</li> </ul>
<p>15. What hopes do you have for the future of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How are those specific to your perspective as a Mountain View resident?</li> <li>• How do those fit with the values you hold?</li> <li>• How do those fit with the identity/culture of Mountain View?</li> </ul>
<p>16. What fears do you have for the future of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How are those specific to your perspective as a Mountain View resident?</li> <li>• How do those fit with the values you hold?</li> <li>• How do those fit with the identity/culture of Mountain View?</li> </ul>
<p>17. If you had control over how the greenway was managed and expanded, what changes would you make?</p>	<ul style="list-style-type: none"> <li>• Why are those changes important to you and/or your neighborhood?</li> <li>• How would your changes affect your neighborhood?</li> <li>• How would your changes affect your use of the trail?</li> <li>• How would your changes affect your perceptions of the trail?</li> </ul>
<p>18. Looking at this map, which places in your neighborhood and on or near the greenway hold significance to your everyday life, such as transportation routes, gathering places, walking routes, shopping, or other places you frequently visit. What about these places are significant?</p>	<ul style="list-style-type: none"> <li>• How do you travel to work?</li> <li>• How do you travel to shop? (groceries, home goods, etc.)</li> <li>• How do you travel to recreate/exercise? If on the greenway, where do you go on the greenway?</li> <li>• How do you travel to socialize? If on the trail, where do you go on the greenway?</li> </ul>
<p>19. Looking at this map, please indicate places that hold significance historical places of experience</p>	<ul style="list-style-type: none"> <li>• Is there any cultural/historical place that has special meaning to you? (if so where?)</li> <li>• Is there any cultural/historical place that has special meaning to your neighborhood?</li> </ul>



	<ul style="list-style-type: none"><li>• How do you feel about these places? Are they positive/proud associations? Or opposite?</li></ul>
20. Looking at this map, please indicate places that you would like for the greenway trail to connect to.	<ul style="list-style-type: none"><li>• What places on or near the greenway would you likely use the trail to travel to if it were connected?</li><li>• What types of places would you like to see the greenway trail connect to? (i.e. social places, transportation systems, types of sport or recreation facilities, community centers/resources, cultural hubs, etc.)</li><li>• Why are these important or meaningful to you?</li><li>• Why do you think these are missing or inadequate now?</li></ul>

Appendix 2: Greenway Planner Interview Guide

Interview Question	Possible follow up questions
<p>1. In what ways are you involved with the design, development, programming and/or maintenance of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How long have you been involved in this capacity?</li> <li>• How do you view your role in greenway development and/or management?</li> <li>• How has your role changed over time?</li> <li>• How are these activities connected or separate?</li> </ul>
<p>2. How would you describe the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How has this perception of the trail changed over time?</li> <li>• How do you think this view of the trail is affected by your position as a greenway planner/commissioner?</li> </ul>
<p>3. How do you see the City of Roanoke benefitting from the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How important is the greenway to Roanoke?</li> <li>• What about the greenway makes it valuable to Roanoke?</li> <li>• Why does Roanoke invest resources in the greenway?</li> <li>• What makes it important for Roanoke to have this greenway?</li> <li>• Has this changed over time?</li> </ul>
<p>4. Ideally, how would the Roanoke River Greenway function within your community? (how would it be used, who would use it, how would it be designed?)</p>	<ul style="list-style-type: none"> <li>• What economic goals would it contribute to, and how?</li> <li>• What environmental goals would it contribute to, and how?</li> <li>• What social/society-based goals would it contribute to, and how?</li> </ul>
<p>5. Who or what bodies within city/county government has influence over how the greenway trail is managed and developed? How do they work together?</p>	<ul style="list-style-type: none"> <li>• With the intergovernmental Agreement (1997), have you seen relationships within government agencies or between localities change in how they coordinate and cooperate? How so?</li> <li>• Is this change specific to greenways or does it influence behavior/interactions in other domains?</li> <li>• What are key departments involved? How has their involvement changed over time?</li> <li>• How is power allocated across these departments? How has that changed over time?</li> </ul>

	<ul style="list-style-type: none"> <li>• In what ways is cooperation a part of greenway development practices? How formal or informal is this system of cooperation/collaboration?</li> <li>• Are there any city/government stakeholders who are not involved that you think should be or could be helpful if involved more?</li> </ul>
<p>6. Who outside of city employees and officials has influence over how the greenway trail is managed and developed? What kind of influence do they have?</p>	<ul style="list-style-type: none"> <li>• Is their power formal or informal?</li> <li>• Which are particularly important to you as a greenway commissioner/planner/manager?</li> <li>• How do you see people outside of city employees and officials shaping the greenway’s development or management?</li> <li>• Are there any city/government stakeholders who are not involved that you think should be or could be helpful if involved more?</li> </ul>
<p>7. What changes would you like to see in the planning and implementation of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• Why are those changes important to you and/or Roanoke?</li> <li>• How would your changes affect Roanoke?</li> <li>• How would your changes affect the function of the greenway?</li> <li>• How would your changes affect Roanoke resident perceptions, relationships with, or meaning of the trail?</li> </ul>
<p>8. In what ways do you have power to realize your vision for the greenway?</p>	<ul style="list-style-type: none"> <li>• What ways do you have influence over the trail and how it is developed or used?</li> <li>• Have you tried to implement ideas or vision into greenway trail design/management/development? If so, what was the outcome?</li> <li>• What kind of changes or ideas are welcomed?</li> <li>• Unwelcomed?</li> <li>• What allows you to have power to see desired changes?</li> <li>• What limits your power to see desired changes?</li> </ul>

<p>9. Looking at this map, please identify places that are prioritized in greenway planning and management. Why are these important?</p>	<ul style="list-style-type: none"> <li>• What importance do they have to the goals of the greenway commission and other greenway planners?</li> <li>• What importance do they have to the city?</li> </ul>
<p>10. Looking at this map, please indicate places that you think hold special meaning for Roanoke residents. Why are these important?</p>	<ul style="list-style-type: none"> <li>• Places of use?</li> <li>• Places of cultural or social importance?</li> <li>• Places of environmental importance?</li> <li>• What do these places have to do with the identity of the greenway?</li> <li>• Of the city of Roanoke?</li> <li>• In what ways does your focus on the physical construction/presence of the trail work towards connections with places like this, or connection to bikeways and walkways off of the greenway?</li> </ul>
<p>11. In what ways, if any, does the greenway development process approach the complex history Roanoke has had with land use and development?</p>	<ul style="list-style-type: none"> <li>• Why? How so?</li> <li>• Why is that important to Roanoke?</li> <li>• How does that relate to the mission or values of the Roanoke River Greenway?</li> </ul>
<p>12. What is the value of the greenway trail to Roanoke now?</p>	<p>Economic, environmental, social/cultural?</p> <ul style="list-style-type: none"> <li>• In what ways do you think residents understand or are aware of that value?</li> <li>• Who in the community do you hear feedback from about what is valued?</li> <li>• Who do you not hear from?</li> <li>• Transportation, safety, recreation/health/fitness, education, economic development, environmental, and organizational and operational goals (which are most often pursued, accomplished, prioritized)?</li> </ul>
<p>13. How has the city/county of Roanoke’s value of the Roanoke River Greenway trail has changed over time?</p>	<ul style="list-style-type: none"> <li>• Economic, environmental, social/cultural?</li> <li>• Why is it changing/why did it change?</li> </ul>
<p>14. What are the goals for the future of the Roanoke River Greenway?</p>	<ul style="list-style-type: none"> <li>• How do goals vary between different departments, locations, or stakeholders?</li> </ul>

	<ul style="list-style-type: none"><li>• How do you choose which goals to pursue?</li><li>• How do you think goals represent the value that Roanoke greenway planners attribute to the greenway?</li><li>• How do you think those goals represent value that trail users attribute to the greenway?</li><li>• How do you think goals represent value that the City of Roanoke or Roanoke County attribute to the greenway?</li></ul>
--	---

Appendix 3: Regional and City Leadership Interview Guide

Interview Question	Possible follow up questions
<p>1. In what ways are you involved with the design, development, programming and/or maintenance of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How long have you been involved in this capacity?</li> <li>• How do you view your role in greenway development and/or management?</li> <li>• How has your role changed over time?</li> <li>• How are these activities connected or separate?</li> </ul>
<p>2. How would you describe the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• How has this perception of the trail changed over time?</li> <li>• How do you think this view of the trail is affected by your position as a city councilperson/manager/planning commissioner?</li> </ul>
<p>3. Ideally, how would the Roanoke River Greenway function within your community? (how would it be used, who would use it, how would it be designed?)</p>	<ul style="list-style-type: none"> <li>• How does that differ from how it functions now?</li> <li>• What economic goals would it contribute to, and how?</li> <li>• What environmental goals would it contribute to, and how?</li> <li>• What social/society-based goals would it contribute to, and how?</li> </ul>
<p>4. Reflecting on your experience, who or what bodies do you notice having significant influence over how the greenway trail is managed and developed?</p>	<ul style="list-style-type: none"> <li>• Within government?</li> <li>• Outside of government?</li> <li>• How has their involvement changed over time?</li> <li>• Is their power in greenway development formal or informal?</li> <li>• How is power allocated?</li> <li>• In what ways is cooperation a part of greenway development practices? How formal or informal is this system of cooperation/collaboration?</li> </ul>
<p>5. What changes would you like to see in the planning and implementation of the Roanoke River Greenway trail?</p>	<ul style="list-style-type: none"> <li>• Why are those changes important to you and/or Roanoke?</li> <li>• How would your changes affect Roanoke?</li> <li>• How would your changes affect the function of the greenway?</li> </ul>

	<ul style="list-style-type: none"> <li>• How would your changes affect Roanoke resident perceptions, relationships with, or meaning of the trail?</li> </ul>
6. In what ways do you have power to realize your vision for the greenway?	<ul style="list-style-type: none"> <li>• What ways do you have influence over the trail and how it is developed or used?</li> <li>• Have you tried to implement ideas or vision into greenway trail design/management/development? If so, what was the outcome?</li> <li>• What kind of changes or ideas are welcomed?</li> <li>• Unwelcomed?</li> <li>• What allows you to have power to implement desired changes?</li> <li>• What limits your ability to implement desired changes?</li> </ul>
7. Looking at this map, please identify places that are prioritized in greenway development. Why are these important?	<ul style="list-style-type: none"> <li>• What importance do they have to the goals of the planning commission/ city council?</li> <li>• What importance do they have to the city?</li> </ul>
8. Looking at this map, please indicate places that you think hold special meaning for Roanoke residents. Why are these important?	<ul style="list-style-type: none"> <li>• Places of use?</li> <li>• Places of cultural or social importance?</li> <li>• Places of environmental importance?</li> <li>• What do these places have to do with the identity of the greenway?</li> <li>• Of the city of Roanoke?</li> </ul>
9. In what ways, if any, does the greenway development process approach the complex history Roanoke has had with land use and development?	<ul style="list-style-type: none"> <li>• Why? How so?</li> <li>• Why is that important to Roanoke?</li> <li>• How does that relate to the mission or values of the city council/planning commission/city planners?</li> </ul>
10. What is the value of the greenway trail to Roanoke now?	<ul style="list-style-type: none"> <li>• Economic, environmental, social/cultural?</li> <li>• How has the city/county of Roanoke's value of the trail has changed over time?</li> </ul>

## Appendix 4: Participant observation guide for greenway trail

Who is benefitting from the trail and in what ways?	
Who is using the trail?	i.e. ages, abilities, races, cultures, destinations, groups of people, event attendees, etc.
In what ways are trail users using the trail?	i.e. recreation, exercise, community gathering, commuting/transportation, etc.
In what ways are Mountain View residents engaged with the greenway?	i.e. community events, amount of traffic between greenway and MV, signage on/near trail for Mountain View (and vis-versa), etc.
In what ways are Mountain View residents referencing the greenway trail in meetings and events?	i.e. how greenway trail is incorporated in plans, concerns, identity, etc.
How is environmental sustainability evidenced on greenway?	
What kind of wildlife is on the greenway?	i.e. native areas, manicured areas, animals, plants, etc.
How clean does the greenway trail appear?	i.e. litter, debris, etc.
How is the greenway performing its role as green infrastructure?	i.e. how is stormwater mitigated, what is the appearance of the air, in what ways is noise mitigated, what is the appearance of the water, etc.
What signage or physical artifacts have to do with environmental sustainability?	i.e. messages of environmental stewardship on signs/murals, rule postings, trash/recycling cans, etc.
What ways are human activities promoting or endangering environmental sustainability?	i.e. tree groups, cleaning groups, waste production, animal waste disposal, noise pollution, light pollution,
How is social justice and equity evidenced on the greenway?	
In what ways is affordable housing evidenced near the trail?	i.e. how much does housing cost along the greenway, what kind of living spaces are available,
In what ways are cultures evidenced on the trail?	i.e. signage, art displays, events, activities, etc.
Who has access to the greenway?	i.e. how are people reaching the greenway, who is welcomed/discouraged/prohibited from using the greenway
How is economic sustainability evidenced on the greenway?	
What business activity is on/near the greenway?	i.e. races, running clubs, outdoor recreation, restaurants, real estate, etc.
How are businesses connecting their identity to the greenway?	i.e. signage, events, identity, etc.



## Appendix 5: Participant observation for Mountain View community meetings

<b>Who is benefitting from the greenway trail and in what ways?</b>	
In what ways are Mountain View residents engaged with the greenway?	i.e. community events, etc.
In what ways are Mountain View residents referencing the greenway trail in meetings and events?	i.e. how greenway trail is incorporated in plans, concerns, identity, etc.
<b>How is environmental sustainability evidenced in meeting?</b>	
What kind of environmental stewardship is present in neighborhood activities?	i.e. environment-related festivals, stewardship groups and activities, etc.
In what ways is the value of the greenway's nature/environment represented in discussion?	i.e. ways it adds to economy, community building/relationships, sentiment, etc.
In what ways is the value of the greenway as infrastructure represented in discussion?	i.e. ways it adds to flood protection, transportation, etc.
<b>How is social justice and equity evidenced on the greenway?</b>	
In what ways is affordable housing discussed near the trail?	i.e. quality of affordable housing, perception of affordable housing,
In what ways does the MV neighborhood's culture relate to the greenway?	i.e. art displays, events, activities, social norms, etc.
In what ways do MV residents view/discuss who has access to the greenway?	i.e. how are people reaching the greenway, who is welcomed/discouraged/prohibited from using the greenway, their needs for using the greenway, their perception of who the greenway caters to
<b>How is economic sustainability evidenced on the greenway?</b>	
What MV business activity is on/near the greenway?	i.e. races, running clubs, outdoor recreation, restaurants, real estate, etc.
How are MV businesses connecting their identity to the greenway?	i.e. signage, events, identity, stake in greenway, acceptance of greenway, etc.

Appendix 6: Participant observation for greenway commission meetings

Who is benefitting from the greenway trail and in what ways?	
In what ways are greenway commissioners engaged with the greenway?	i.e. community events, etc.
What are greenway commissioner’s advocating for and for whom are they advocating?	i.e. who designs, rules, etc. benefit, whose messages are conveyed through commissioners, etc.
In what ways are greenway commissioners referencing the greenway trail in meetings and events?	i.e. how greenway trail is incorporated in plans, concerns, identity, etc.
How is environmental sustainability evidenced in meeting?	
What kind of environmental stewardship is present in commission activities and plans?	i.e. environment-related festivals, environmental design considerations, stewardship groups and activities, etc.
In what ways is the value of the greenway’s nature/environment represented in discussion?	i.e. ways it adds to economy, community building/relationships, sentiment, etc.
In what ways is the value of the greenway as infrastructure represented in discussion?	i.e. ways it adds to flood protection, transportation, etc.
How is social justice and equity evidenced on the greenway?	
In what ways is affordable housing discussed near the trail?	i.e. quality of affordable housing, perception of affordable housing,
In what ways are diverse Roanoke resident cultures incorporated to the greenway design and planning?	i.e. art displays, events, activities, social norms, connection, amenities, etc.
In what ways do greenway commissioners consider, view, and discuss who has access to the greenway?	i.e. how are people reaching the greenway, who is welcomed/discouraged/prohibited from using the greenway, their needs for using the greenway, their perception of who the greenway caters to
How is economic sustainability evidenced on the greenway?	
How is business activity viewed and accommodated on/near the greenway?	i.e. races, running clubs, outdoor recreation, restaurants, real estate, etc.
How are greenway commissioners connecting their vision for the greenway to the economic goals of Roanoke?	i.e. signage, events, identity, connections, stake in greenway, acceptance of greenway, etc.
How are greenway development and maintenance plans financed and considered for future funding?	i.e. economic needs, upkeep of greenway support through funding,
How do economic goals for the greenway fit with social and environmental goals?	i.e. contradictions and congruence

## Appendix 7: Participant observation for government planning official meetings

Who is benefitting from the greenway trail and in what ways?	
In what ways are planning officials engaged with the greenway?	i.e. community events, etc.
What are planning officials advocating for in greenway planning and for whom are they advocating?	i.e. who designs, rules, etc. benefit, whose messages are conveyed through planners, etc.
In what ways are greenway commissioners referencing the greenway trail in meetings and events?	i.e. how greenway trail is incorporated in plans, concerns, identity, etc.
How is environmental sustainability evidenced in meeting?	
What kind of environmental stewardship is present in planning officials activities and plans regarding the greenway?	i.e. environment-related festivals, environmental design considerations, different departments and stakeholders involved, etc.
In what ways is the value of the greenway's nature/environment represented in discussion?	i.e. ways it adds to economy, community building/relationships, sentiment, etc.
In what ways is the value of the greenway as infrastructure represented in discussion?	i.e. ways it adds to flood protection, transportation, etc.
How is social justice and equity evidenced on the greenway?	
In what ways is affordable housing discussed near the trail?	i.e. quality of affordable housing, perception of affordable housing,
In what ways are diverse Roanoke resident cultures incorporated to the greenway design and planning?	i.e. art displays, events, activities, social norms, connection, amenities, etc.
In what ways do planning officials consider, view, and discuss who has access to the greenway?	i.e. how are people reaching the greenway, who is welcomed/discouraged/prohibited from using the greenway, their needs for using the greenway, their perception of who the greenway caters to
How is economic sustainability evidenced on the greenway?	
How is business activity viewed and accommodated on/near the greenway?	i.e. races, running clubs, outdoor recreation, restaurants, real estate, etc.
How are planning officials connecting their vision for the greenway to the economic goals of Roanoke?	i.e. signage, events, identity, connections, stake in greenway, acceptance of greenway, etc.
How are greenway development and maintenance plans financed and considered for future funding?	i.e. economic needs, upkeep of greenway support through funding,
How do economic goals for the greenway fit with social and environmental goals?	i.e. contradictions and congruence

Appendix 8: Coding Data

Open Code	Focused code	Structured Code	Theme
user behavior	characteristic	RQ 1 Interaction with community	RQ1 For recreation
user conflict	characteristic	RQ 1 Interaction with community	
active, lively	characteristic	RQ 1 Interaction with community	
frequency or patterns of use	characteristic	RQ 1 Interaction with community	
urban trail, linear park, public park	characteristic	RQ 1 Interaction with community	
feeling satisfied with the greenway	sentiment	RQ 1 Interaction with community	
functions, benefits working as a system	function	RQ 1 Interaction with community	
greenway experience	sentiment	RQ 1 Interaction with community	
place to turn around	function	RQ 1 Interaction with community	
scenery, vista	characteristic	RQ1 physical greenway	
Signage	characteristic	RQ1 physical greenway	
Visibility	characteristic	RQ1 physical greenway	
Walkability	characteristic	RQ1 physical greenway	
connection across Roanoke City	function	RQ1 physical greenway	
connection to destinations	function	RQ1 physical greenway	
proximity, access, & connection to water, river	characteristic	RQ1 physical greenway	
free to use	characteristic	RQ1 process	
city & neighborhood plans, planning documents	process	RQ1 process	
greenway awareness	process	RQ1 process	
Maintenance	process	RQ1 process	
planning & development	process	RQ1 process	
kids, youth	stakeholder	RQ1, 1A stakeholders	
older population, elderly	stakeholder	RQ1, 1A stakeholders	

user conflict	characteristic	RQ 1 Interaction with community	RQ1 For accessibility
Walkability	characteristic	RQ1 physical greenway	
rules & regulations	process	RQ1 process	
older population, elderly	stakeholder	RQ1, 1A stakeholders	
user behavior	characteristic	RQ 1 Interaction with community	RQ1 For community (people and place)
comfortable, belonging, home	characteristic	RQ 1 Interaction with community	
Diversity	characteristic	RQ 1 Interaction with community	
friendly atmosphere	characteristic	RQ 1 Interaction with community	
homeless presence	characteristic	RQ 1 Interaction with community	
relaxing, calming, spiritual	characteristic	RQ 1 Interaction with community	
safety on greenway	characteristic	RQ 1 Interaction with community	
successful, popular, etc.	characteristic	RQ 1 Interaction with community	
symbolic or cultural meaning	characteristic	RQ 1 Interaction with community	
unwelcoming	characteristic	RQ 1 Interaction with community	
Connection to nature	Connection to nature	RQ 1 Interaction with community	
feeling gratitude, deserving of greenway	sentiment	RQ 1 Interaction with community	
feeling of knowing the greenway is close	sentiment	RQ 1 Interaction with community	
feelings of ownership	sentiment	RQ 1 Interaction with community	
feelings of pride	sentiment	RQ 1 Interaction with community	
feelings of trust in greenway and its process	sentiment	RQ 1 Interaction with community	
connection to people	function	RQ 1 Interaction with community	

contributes to environmental health	function	RQ 1 Interaction with community	
place to be with family or partner	function	RQ 1 Interaction with community	
greenway emotions	sentiment	RQ 1 Interaction with community	
landmark	function	RQ 1 Interaction with community	
place for passing through	function	RQ 1 Interaction with community	
feeling of collective responsibility	process	RQ 1 Interaction with community	
social dynamics	function	RQ 1 Interaction with community	
surrounding area development	characteristic	RQ1 physical greenway	
trains, rail roads, railways	characteristic	RQ1 physical greenway	
greenway coordinator	process	RQ1 process	
land acquisition	process	RQ1 process	
planning & development	process	RQ1 process	
volunteering	process	RQ1 process	
surrounding area development	characteristic	RQ1 physical greenway	RQ1 For economic development
informal power	process	RQ1 process	
expense, cost, investment, budget, & funding	process	RQ1 process	
intention in planning	process	RQ1 process	
planning & development	process	RQ1 process	
Pathfinders	process	RQ1, 1A stakeholders	
economic donors, businesses, corporations	stakeholder	RQ1, 1A stakeholders	RQ1 For environmental health
user behavior	characteristic	RQ 1 Interaction with community	
contributes to environmental health	function	RQ 1 Interaction with community	
Roanoke River	characteristic	RQ1 physical greenway	
signage	characteristic	RQ1 physical greenway	
vegetation	characteristic	RQ1 physical greenway	
wildlife	characteristic	RQ1 physical greenway	
maintenance	process	RQ1 process	

who isn't involved, who isn't involved enough	process	RQ1 process	
community or club built around activities and interactions on the RRG	stakeholder	RQ1, 1A stakeholders	
non-profits, foundations, charity stakeholders	stakeholder	RQ1, 1A stakeholders	
type of people who use greenway	characteristic	RQ 1 Interaction with community	RQ1 For neighborhood improvement
improves surrounding area	function	RQ 1 Interaction with community	
functions, benefits working as a system	function	RQ 1 Interaction with community	
Mountain View neighbors	neighborhood	RQ 1 Interaction with community	
expectations for the greenway	process	RQ 1 Interaction with community	
reciprocal relationship between greenway and neighborhoods	process	RQ 1 Interaction with community	
surrounding area development	characteristic	RQ1 physical greenway	
planning awareness	process	RQ1 process	
city & neighborhood plans, planning documents	process	RQ1 process	
factors that make it possible to participate	process	RQ1 process	
involvement with greenway	process	RQ1 process	
planning & development	process	RQ1 process	
transparency, communication	process	RQ1 process	
who isn't involved, who isn't involved enough	process	RQ1 process	
neighborhoods, residents	stakeholder	RQ1, 1A stakeholders	
user conflict	characteristic	RQ 1 Interaction with community	RQ1 Who is the greenway for?
people take the greenway for granted	sentiment	RQ 1 Interaction with community	
who is the greenway for?	stakeholder	RQ 1 Interaction with community	
power in leadership position	process	RQ1 process	
power in popularity	process	RQ1 process	
relationships or familiarity for cooperation in greenway planning	process	RQ1 process	
accessibility	characteristic	1A Needs	
safety on greenway	characteristic	1A Needs	RQ1A Accessibility

visibility	characteristic	1A Needs	
walkability	characteristic	1A Needs	
proximity to greenway	characteristic	1A Needs	
greenway awareness	process	1A Needs	
attractive, desirable place to be	function	1A Uses	
symbolic or cultural meaning	characteristic	1A Needs	RQ1A Connection to community (people and place)
connection across Roanoke City	function	1A Needs	
greenway emotions	sentiment	1A Needs	
MV neighborhood identity	neighborhood	1A Needs	
personal meaning	sentiment	1A Needs	
community activity	function	1A Uses	
place to be with family or partner	function	1A Uses	
social network	system	1A Uses	RQ1A Connection to nature
natural integrity	characteristic	1A Needs	
Environmental sustainability	Environmental Sustainability	1A Needs	
Values	Values	1A Values	
expansion, extension	change	1A Needs	RQ1A Fair negotiation of space
revitalization, improvement	neighborhood	1A Needs	
Values	Values	1A Values	
Values	Values	1A Values	
ability to last	function	1A Needs	RQ1A Maintenance and sustainability
industry, industrial use	characteristic	1A Needs	RQ1A Neighborhood Improvement
type of people who live in MV	characteristic	1A Needs	
improves surrounding area	function	1A Needs	
hopes, visions, & possibilities	future	1A Needs	
revitalization, improvement	neighborhood	1A Needs	
neighborhood safety	neighborhood	1A Needs	
Place for people who are excluded	neighborhood	1A Values	
Place for second chances	neighborhood	1A Values	
alternative transportation	function	1A Needs	RQ1A Recreation, exercise, and transportation
connection to Salem	future	1A Needs	
daily life use	function	1A Uses	
destination	function	1A Uses	



physical health, fitness, public health	function	1A Uses	
recreation & exercise	function	1A Uses	
hopes, visions, & possibilities	future	1B Needs	RQ1B
city leadership	stakeholder	1B Stakeholder	
city planners, employees in planning and management	stakeholder	1B Stakeholder	
greenway commission	stakeholder	1B Stakeholder	
federal gov, Corps of Engineers, VDOT	stakeholder	1B Stakeholder	
access to jobs	function	1B Uses	RQ1B Alternative transportation
alternative transportation	function	1B Uses	
visibility	characteristic	1B Needs	RQ1B Community building
physical health, fitness, public health	function	1B Needs	
greenway awareness	process	1B Needs	
non-profits, foundations, charity stakeholders	stakeholder	1B Stakeholder	
improves surrounding area	function	1B Uses	
attractive, desirable place to be	function	1B Uses	
community activity	function	1B Uses	
destination	function	1B Uses	
public good	function	1B Uses	
neighborhood revitalization, improvement	function	1B Uses	
Roanoke identity	function	1B Uses	
Valuing	Valuing	1B Uses	
importance to city	Valuing	1B Uses	
connection across Roanoke City	function	1B Uses	RQ1B Connectivity
connection to destinations	function	1B Uses	
connection to parks & other greenways	function	1B Uses	
connection to world outside Roanoke	function	1B Uses	
economic development for property owners, businesses, city (macro)	function	1B Needs	RQ1B Economic development
economic donors, businesses, corporations	stakeholder	1B Stakeholder	
regional organizations, partnerships	stakeholder	1B Stakeholder	
Economic Sustainability	Economic Sustainability	1B Uses	
destination	function	1B Uses	
economic development for property owners, businesses, city (macro)	function	1B Uses	

tourism	function	1B Uses	
Roanoke identity	function	1B Uses	
Valuing	Valuing	1B Uses	
importance to city	valuing	1B Uses	
contributes to environmental health	function	1B Uses	RQ1B Environmental health
safety on greenway	characteristic	1B Needs	RQ1B Maintenance and protection
ability to last	function	1B Needs	
physical health, fitness, public health	function	1B Needs	RQ1B Recreational amenity
recreation & exercise	function	1B Needs	
connection to Salem	future	1B Needs	
amenity	function	1B Uses	
physical health, fitness, public health	function	1B Uses	
recreation & exercise	function	1B Uses	
Social Justice & Equity	Social Justice & Equity	1C	RQ1C Affordable housing protection
Social Justice & Equity	Social Justice & Equity	1C	RQ1C Environmental Justice
Environmental sustainability	Environmental Sustainability	1C	RQ1C Environmental restoration and protection
Environmental sustainability	Environmental Sustainability	1C	RQ1C Environmental stewardship
Social Justice & Equity	Social Justice & Equity	1C	RQ1C Fair land acquisition
Economic Sustainability	Economic Sustainability	1C	RQ1C Generate revenue and business development
Economic Sustainability	Economic Sustainability	1C	RQ1C Government finance of public good
Economic Sustainability	Economic Sustainability	1C	RQ1C More funding needed for more benefits
Social Justice & Equity	Social Justice & Equity	1C	RQ1C Power of the public
change quickly or instantly	change	RQ UPE frame	RQ2
unexpected change	change	RQ UPE frame	
Class	Class	RQ UPE frame	
Future greenway	future	RQ UPE frame	
Roanoke	history	RQ UPE frame	

greenway	history	RQ UPE frame	
Power	Power	RQ UPE frame	
Race	Race	RQ UPE frame	
informal power	Power	RQ2 Power	
Power	Power	RQ2 Power	
power in leadership position	Power	RQ2 Power	
power in popularity	Power	RQ2 Power	
relationships or familiarity for cooperation in greenway planning	Power	RQ2 Power	RQ2 Change in perception of how land is valued as asset
neighborhood revitalization, improvement	history	RQ 2 development process	
city & neighborhood plans, planning documents	process	RQ 2 development process	
expense, cost, investment, budget, & funding	process	RQ 2 development process	
intention in planning	process	RQ 2 development process	
Valuing	Valuing	RQ 2 development process	
change over time	change	RQ UPE frame	RQ2 Events shaped the greenway
awareness of history	process	RQ 2 development process	
flood project	history	RQ 2 development process	
sewer project, sewer lines	history	RQ 2 development process	
greenway coordinator	process	RQ 2 development process	
timing	process	RQ 2 development process	RQ2 Greenways change historical patterns
feelings of trust in greenway and its process	sentiment	RQ 2 development process	
unrealistic vs. realistic expectations	process	RQ 2 development process	
informal power	process	RQ 2 development process	
persistence, consistence, long term planning	process	RQ 2 development process	

intergovernmental, 5 municipalities	process	RQ 2 development process	
maintenance	process	RQ 2 development process	
Pathfinders	process	RQ 2 development process	
public participation	process	RQ 2 development process	
relationships or familiarity for cooperation in greenway planning	process	RQ 2 development process	
rules & regulations	process	RQ 2 development process	
transparency, communication	process	RQ 2 development process	
who isn't involved, who isn't involved enough	process	RQ 2 development process	
System	system	RQ 2 development process	
urban redevelopment	history	RQ 2 development process	RQ2 Intentional land acquisition
challenges	process	RQ 2 development process	
feeling conflicted, negotiating tensions	process	RQ 2 development process	
land acquisition	process	RQ 2 development process	
fear, instability, uncertainty	future	RQ 2 development process	RQ2 Protect the greenway
informal power	process	RQ 2 development process	
power in popularity	process	RQ 2 development process	
protect the greenway	sentiment	RQ 2 development process	
Roanoke River	characteristic	RQ 2 development process	RQ2 Transformational land use and development
previous land use	history	RQ 2 development process	

land use	process	RQ 2 development process	
neighborhood revitalization, improvement	history	RQ 2 development process	
reciprocal relationship between greenway and neighborhoods	process	RQ 2 development process	
System	system	RQ 2 development process	
change over time	change	RQ UPE frame	
comparison to other city	Context		Context
comparison to other Roanoke Parks	Context		
flooding	Context		
personal history	Context		
time of day or year	Context		
weather	Context		
greenway perspective	Context		
MV neighborhood involvement	Context		
perspective- broader cultural context	Context		

Appendix 9: Structural Codebook

**Structural Codebook**

Mnemonic: Connection to nature

Short description: Human connection to nature

Detailed description: Role of the greenway serving as a way to connect with the natural environment

Inclusion: Experiences of connecting to nature through activity, proximity, or viewing.

Exclusion: Experiences of being in nature but not feeling connected to it, or feeling fear of it.

Close but no: Recognition or appreciation of environmental services or infrastructure, such as stormwater drainage, river cleanliness, or noise reduction.

Mnemonic: Evolution

Short description: Evolution in the greenway

Detailed description: Transition, evolution, or growth of the greenway or its development process

Inclusion: Ways that the perception, process of development, ideology, impact, usage, or participation has changed since the greenway's beginning.

Exclusion: instant change, momentary change, individual change or growth

Mnemonic: Moment

Short description: Moment of change in the greenway

Detailed description: Event or instance that instigated a change or spurred growth in the greenway

Inclusion: Moments that were significant in changing the course of the greenway's development, perception, function, or use

Exclusion: gradual changes, individual change or growth

Mnemonic: Physical Greenway

Short description: The physical greenway trail

Detailed description: The physical presence of the greenway trail as it exists in a space and interacts with its surroundings

Inclusion: Geographical location, path, appearance, interaction with space, interaction with people, surrounding environment, connections of the greenway, etc.

Exclusion: Documents, papers, meetings having to do with the greenway; the physical process of laying down the trail or its maintenance.

Mnemonic: Greenway Process

Short description: Process of trail development

Detailed description: Implementation, maintenance, planning, engineering of the greenway trail

Inclusion: documents, papers, meetings, relationships, habits, requirements, the process of clearing or paving the trail, maintaining the trail, etc.

Exclusion: Use or purpose of the greenway

Mnemonic: System

Short description: Systems of the greenway

Detailed description: Systems that make up how the physical greenway and/or greenway development process operate

Inclusion: Connections of people and processes interacting in a way that perpetuates the greenway. Policy, politics, procedure, culture, ideology, conditions surrounding greenway

Exclusion: social networks or connections, physical networks or connections

Mnemonic: Network

Short description: Networks related to the greenway

Detailed description: Networks of people who are utilized or strengthened by the greenway system (development process or the greenway itself).

Inclusion: social networks or connections, physical networks or connections

Exclusion: effects or actions of the networks working together (system)

**RQ1. How have planning, implementation, management, and user-adaptation of the Roanoke River Greenway trail represented the needs and values of residents in Mountain View?**

**RQ1A: What are the perceived uses for and values of the Roanoke River Greenway from the perspectives of Mountain View residents?**

**RQ1B: What are the perceived uses for and values of the Roanoke River Greenway from the perspectives of greenway planning commissioners and Roanoke government planning officials?**

Mnemonic: Usage

Short description: Use of the greenway

Detailed description: Ways the greenway is used by people and the City of Roanoke

Inclusion: Activities done on and near the greenway

Exclusion: Things used in the process of development or that are manipulated for other purposes and usefulness

Mnemonic: Valuing

Short description: Valuing of the greenway

Detailed description: Things about the greenway and its development process to which participants attribute tangible and intangible value.

Inclusion: Processes, relationships, usefulness, sentiment, meaning or significance, practical value, experiential value, etc.

Exclusion: usage of the trail

Mnemonic: Need

Short description: Needs for the greenway

Detailed description: Ways the greenway is used or viewed by people and the City of Roanoke as something essential to their daily lives or to their community.

Inclusion: Everyday usage or benefits that are viewed as important to health, wellness, and ability to stay or live in an area.

Exclusion: Everyday usage or benefits that are viewed as an amenity

**RQ1C: To what extent do these residential, planning, and government official stakeholders' values for the greenway fit with social, environmental, and economic sustainability values?**

**Mnemonic: Environmental Sustainability**

Short description: Environmental Sustainability in the greenway development and usage

Detailed description: Ways in which the environment is conserved, protected, or enhanced through greenway development or by its presence.

Inclusion: Policies, user behaviors, priorities, procedures that interviewees believe conserve, protect, or improve the natural environment.

Exclusion: Policies, user behaviors, priorities, procedures that are related to nature, but don't affect its sustainability.

Close but no: Valuing of environment or nature

**Mnemonic: Social Justice and Equity**

Short description: Social Justice and Equity in the greenway

Detailed description: Ways in which the greenway serves the residents living near it proportionately.

Inclusion: Things that address livability of Roanoke for residents in an equitable way, including access to greenspace, safety, affordable housing, environmental health, food access, etc.

Exclusion: Things that are viewed as amenities or that are available to only a privileged group.

**Mnemonic: Economic Sustainability**

Short description: Economic Sustainability in the greenway

Detailed description: Ways economic sustainability is present in the greenway development and usage

Inclusion: Funding for the greenway's development, programming, and maintenance, and economic development produced as a result of the greenway, such as business development, job access, property values and taxes.

Exclusion: Economic history of individuals or individual businesses before the greenway's existence

**Mnemonic: Values**

Short description: Values associated with the greenway

Detailed description: Values that people have that are seen in the greenway development process or usage.

Inclusion: Ethical and philosophical beliefs about what is right or wrong

Exclusion: Things of value or things that people think are valuable

**RQ2: In what ways does development and use of greenway space reflect the historical complexity of Roanoke city planning, including class and race?**

**Mnemonic: Power**

Short description: Power in greenway planning and usage

Detailed description: Who or what has agency in planning the greenway development



**Inclusion:** People, institutions, natural events or nature, groups of people, processes who have agency in determining how the greenway develops, or ability to change the system of development.

**Exclusion:** physical power, other kinds of power

**Mnemonic:** History

**Short description:** History of Roanoke and/or the greenway

**Detailed description:** Roanoke and the greenway in the past

**Inclusion:** Events that happened before now, description of times before this research

**Exclusion:** Events that happened this year up until now.

**Mnemonic:** Post-greenway Roanoke

**Short description:** Roanoke after the greenway's initiation

**Detailed description:** Mentions of how Roanoke has changed since the greenway and perhaps because of the greenway's influence

**Inclusion:** policies, outlooks, demographic, other characteristics of Roanoke that

**Exclusion:**

**Mnemonic:** Race

**Short description:** Race and ethnicity

**Detailed description:** racial and ethnic identities

**Inclusion:** skin color, cultural heritage

**Exclusion:** religion

**Mnemonic:** Class

**Short description:** Social class

**Detailed description:** level of income and power in society

**Inclusion:** descriptions of degree of wealth and privilege

**Exclusion:** other social grouping, like esteem