

**GENTRIFICATION OR HEALTH-PROMOTING RESOURCE?
LONG-TERM RESIDENTS' PERCEPTIONS AND USE OF THE
ATLANTA BELTLINE**

A Dissertation
Presented to
The Academic Faculty

by

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In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy in Architecture in the
School of Architecture, College of Design

Georgia Institute of Technology
May 2021

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ACKNOWLEDGEMENTS

I want to thank my family, friends, colleagues, and mentors who helped me go through this long and life-changing journey. Without your support, I would not have been able to complete my dissertation.

First of all, I would like to express my sincere gratitude to both of my thesis advisors: professors Dr. Craig Zimring and Ellen Dunham-Jones. I am forever thankful for your help, guidance, enthusiasm, encouragement, and immense knowledge. I would also like to thank Dr. Arthi Rao and Dr. Leandro Tonetto for their guidance, especially for their help with the research methodology and for planting the seeds of this dissertation. I am thankful for Dr. Anjali Joseph for her willingness to join my Ph.D. Committee as an external reviewer. I am grateful to Jennifer DuBose for her unwavering support during the entire COVID-19 lockdown; not only did she provide comments on this dissertation, but also, more importantly, she kept pushing me to the finish line.

I also want to thank the residents of Adair Park and West End neighborhoods for their time and participation in my study.

I am very grateful to Kimberly Bass Seaton, Robin Tucker, Jacob Tzegaegbe, professors Herman Howard, Brani Vidaković, Miroslav Begović, and Richard Dagenhart, who all helped me in numerous ways during various stages of my PhD. journey.

I also want to thank my fellow doctoral students in the School of Architecture, particularly Lisa Lim, Yousef Bushehri, Kati Hadi, Hayri Dortdivanlioglu, Marisabel Marratt, Shani Sharif, Francisco Valdés, Chen Feng, and many others, and my friends and colleagues from the SimTigrate Design Lab: Maria Fernanda Wong, Yeinn Oh, Raha Rastegar, Rachel Dekom, and Herminia Machry.

Last but not least, I want to thank my family.

Merci infiniment to my husband Pierre for your immense support and your patience.

To my loving family in Serbia, father Zoran, mother Miroslava and brother Dušan
- Beskrajno vam hvala na ljubavi i podršci koju ste mi uvek pružali.

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LIST OF SYMBOLS AND ABBREVIATIONS

ACS	American Community Survey
BPA	Atlanta Beltline Planning Area
BRFSS	Behavioral Risk Factor Surveillance System
CT	Census Tract
CDC	Centers for Disease Control and Prevention
Gi	Gentrification index
LPA	Leisure-Time Physical Activity
PA	Physical Activity
PCA	Principal Component Analysis
SRH	Self-Reported Health
PMH	Self-Reported Poor Mental Health
PPH	Self-Reported Poor Physical Health
SES	Socioeconomic Status

SUMMARY

Investments in green infrastructure such as multi-use urban greenways are made with the goal to improve the residents' health by creating space for physical activity, recreation, and social interactions, providing opportunities for active transportation, and increasing exposure to nature's healing effects. Despite the host of benefits, regreening initiatives in lower-income neighborhoods can also catalyze 'green' or 'environmental' gentrification. There is growing empirical evidence that gentrification affects the residents' health and well-being, both positively and adversely.

The previous scholarship mostly focused on greenway users and has mainly adopted quantitative methods (such as observation and intercept surveys) to measure green infrastructure use, activity patterns, and users' satisfaction. However, the research on the incumbent residents living adjacent to a newly developed greenway is limited. It is still not fully understood whether incumbent residents have a positive perception of newly installed greenways, the extent to which they take advantage of these new resources, and whether the new greenways mostly attract new and habitually active residents.

This research seeks to fill this gap by exploring the interrelationships between green infrastructure, green gentrification, and long-term residents' health and healthy behaviors in Atlanta, which that has recently invested into and developed a number of green infrastructure projects.

This dissertation has two studies. Capitalizing on free and readily available U.S. census data, the first study proposes a replicable quantitative approach for developing a composite socioeconomic index as a tool for identifying and measuring gentrification.

In the second study, this research closely looks at two historically African American neighborhoods in the early stages of gentrification and adjacent to the new BeltLine recreational trail. By interviewing long-term residents, this research seeks to develop a deeper understanding of green gentrification from their vantage point and to examine their responses to new greenway and opportunities for adopting health-promoting behaviors.

The quantitative analysis indicated that nearly half of eligible census tracts in Atlanta are gentrifying, while two-thirds will soon be in various stages of gentrification. The census tracts within one-half mile of the BeltLine proposed path are gentrifying at a slightly faster pace. The Atlanta's gentrification patterns echo the previous findings on the proximity of the BeltLine and growing gentrification pressures in the trail-adjacent neighborhoods. Additionally, the results suggest the association between gentrification and residents' better self-rated health. The analysis found a consistent pattern of decreasing rates of residents who report low physical activity and poor self-rated health (both mental and physical) with increasing levels of gentrification.

The interviews revealed much more nuanced responses to the trail construction and green gentrification. Most interviewees perceived and used the new trail as a health-promoting resource; while it enabled the habitual exercisers to maintain active lifestyles, it prompted some new trail users to be physically active. However, concerns regarding gentrification and feeling that new amenities cater to the 'gentrifiers' and not the existing community, in some cases acted as barriers to trail usage and regular physical activity. The findings suggest that perceptions of social environment entwine inextricably with perceptions of the

physical environment and the extent to which groups or individuals take advantage of health-promoting resources.

This study has important implications for future research and design of effective greening infrastructure to increase trail usage among long-term residents, particularly those who are not habitually active.

CHAPTER 1. INTRODUCTION

1.1. Background

New urban green spaces, often called are often introduced to neighborhoods with the rationale that they help improve residents' health and well-being (A. C. Lee & Maheswaran, 2011). However, there is growing evidence that these initiatives in low-income neighborhoods may also contribute to gentrification, (Connolly, 2019; Pearsall & Eller, 2020). Gentrification can have a mediating role in the relationship between green space and health, as it can impact residents' health and well-being both positively and adversely (Cole, Lamarca, Connolly, & Anguelovski, 2017; Cole, Triguero-Mas, Connolly, & Anguelovski, 2019). This dissertation explores the interrelationship between green infrastructure, gentrification, and health-promoting behaviors. This dissertation examines long-term residents' perceptions and use of the recently developed Atlanta BeltLine multiuse trail and, in turn, their subjective experiences of living through the process of gentrification.

Past literature have highlighted various ways in which green space may produce health benefits:

1. by increasing recreation opportunities (Bauman & Bull, 2007; Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Coutts, Chapin, Horner, & Taylor, 2013; Kaczynski & Henderson, 2007; Richardson, Pearce, Mitchell, & Kingham, 2013; Saelens & Handy, 2008);

2. by fostering social interactions (D. A. Cohen, Inagami, & Finch, 2008; Kuo, Sullivan, Coley, & Brunson, 1998; Kweon, Sullivan, & Wiley, 1998; Maas, Van Dillen, Verheij, & Groenewegen, 2009);
3. by providing contact with nature (Hayward & Weitzer, 1984; Pretty, Griffin, Sellens, & Pretty, 2003), and, generally,
4. by influencing physical and mental well-being (Grahn & Stigsdotter, 2003; Health Council of the Netherlands and Dutch Advisory Council for Research on Spatial Planning, 2004; Nutsford, Pearson, & Kingham, 2013; Pretty et al., 2003; Richardson et al., 2013; Sturm & Cohen, 2014; Sullivan & Chung, 2012).

The beneficial effects of physical activity (PA) on health are well established (Piercy et al., 2018). However, according to the 2018 Centers for Disease Control and Prevention's National Center for Health Statistics, only 23% of adult Americans meet PA recommendations (Piercy et al., 2018). The facilitative role of the built environment in promoting PA through neighborhood form, land use, community environment, and availability of recreational resources is now widely recognized (McCormack, Rock, Toohey, & Hignell, 2010; Williams, 2007). Previous studies have demonstrated that health-related behaviors (recreational PA, such as exercise, and utilitarian PA, such as active transportation) increase when opportunities and adequate infrastructure are provided (Frank, Hong, & Ngo, 2019; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Papas et al., 2007; Saelens, Sallis, Black, & Chen, 2003; Zhu, Yu, Lee, Lu, & Mann, 2014).

One type of urban green space that has attracted plenty of attention due to the myriad potential benefits for the health and environment of the urban population is urban

multiuse greenways and urban trails (Fabós, 2004; Searns, 1995). In addition to the already mentioned benefits of green spaces, urban trails are unique due to their linear and connective nature (Ahern, 2002). They provide alternative transportation opportunities and enhance physical connectivity across the city (Gobster, 1995; Moore & Shafer, 2001; Searns, 1995). Trails also play a role in environmental conservation when a public recreational trail is created by converting and regreening an abandoned railroad corridor (Searns, 1995).

Despite the numerous benefits of urban greenways, regreening initiatives can also catalyze “green,” “environmental,” or “ecological gentrification” (Anguelovski, 2016; Anguelovski, Connolly, Garcia-Lamarca, Cole, & Pearsall, 2019; Cole et al., 2017; Dooling, 2009; Suiter, 2016). Previous research has posited some pathways through which neighborhood gentrification influences residents’ health. Gentrification brings many environmental and social changes to a neighborhood—transforming it from a resource-limited area into one with several new health-promoting resources and, thus, positively affecting the health and well-being of the residents (Brummet & Reed, 2019; Chetty, Hendren, & Katz, 2016; Freeman, 2011; Gibbons, Barton, & Brault, 2018; Gould & Lewis, 2016; Lindsey, Han, Wilson, & Yang, 2006; Popkin, Duffey, & Gordon-Larsen, 2005; Vigdor, Massey, & Rivlin, 2002). Gentrification also generates changes in neighborhood conditions such as decreased affordability of the area, residential crowding, and displacement (DeGiovanni & Paulson, 1984; Desmond & Kimbro, 2015; Desmond & Shollenberger, 2015; Ekstam, 2015; Guerrieri, Hartley, & Hurst, 2013; Shmool et al., 2015). These changes may create several stressors and adversely affect residents’ health (Dragan, Ellen, & Glied, 2019; Huynh & Maroko, 2014). Gentrification, especially

displacement, can instigate negative feelings toward green infrastructure development, bring resentment, and discourage residents from using it (Hyra, 2015; Shmool et al., 2015). A growing body of literature has suggested that residents' appraisals or perceptions of the quality of their neighborhoods are also related to their health (Bures, 2003; Rios, Aiken, & Zautra, 2011).

Previous studies have mainly adopted quantitative methods (such as observation, intercept surveys of users, etc.) to measure green infrastructure use, activity patterns, and greenway users' satisfaction (Brownson et al., 2000; Coutts, 2008; Evenson, Herring, & Huston, 2005; Gobster, 1995; Gordon, Zizzi, & Pauline, 2004; J. H. Lee, Scott, & Moore, 2002; Merom, Bauman, Vita, & Close, 2003; Shafer, Lee, & Turner, 2000; Sundquist et al., 2011).

As opposed to quantitative studies, qualitative research is focused on the "why" and "how" rather than the "what", and is used to learn about experience, meaning, and perspective, usually from the standpoint of the participant (Hammarberg, Kirkman, & de Lacey, 2016; University of Texas Arlington Libraries). Qualitative studies that focus on the description of the setting and particularly the stakeholders' experience can provide emergent insights into the physical attributes of green spaces and residents' perceptions of these attributes based on grounded theory. These studies can complement quantitative findings on green space usage and contribute to our understanding of users' PA behaviors and motivations. Most of the qualitative studies of green infrastructure have focused on urban parks (McCormack et al., 2010). To date, there has been very few qualitative studies exploring the perceptions, motivations, and attitudes of both users and nonusers of urban

greenways (Corning, Mowatt, & Chancellor, 2012). This limits the useful information needed to design effective greening interventions that will increase trail usage among long-term residents and particularly those who are not habitually active.

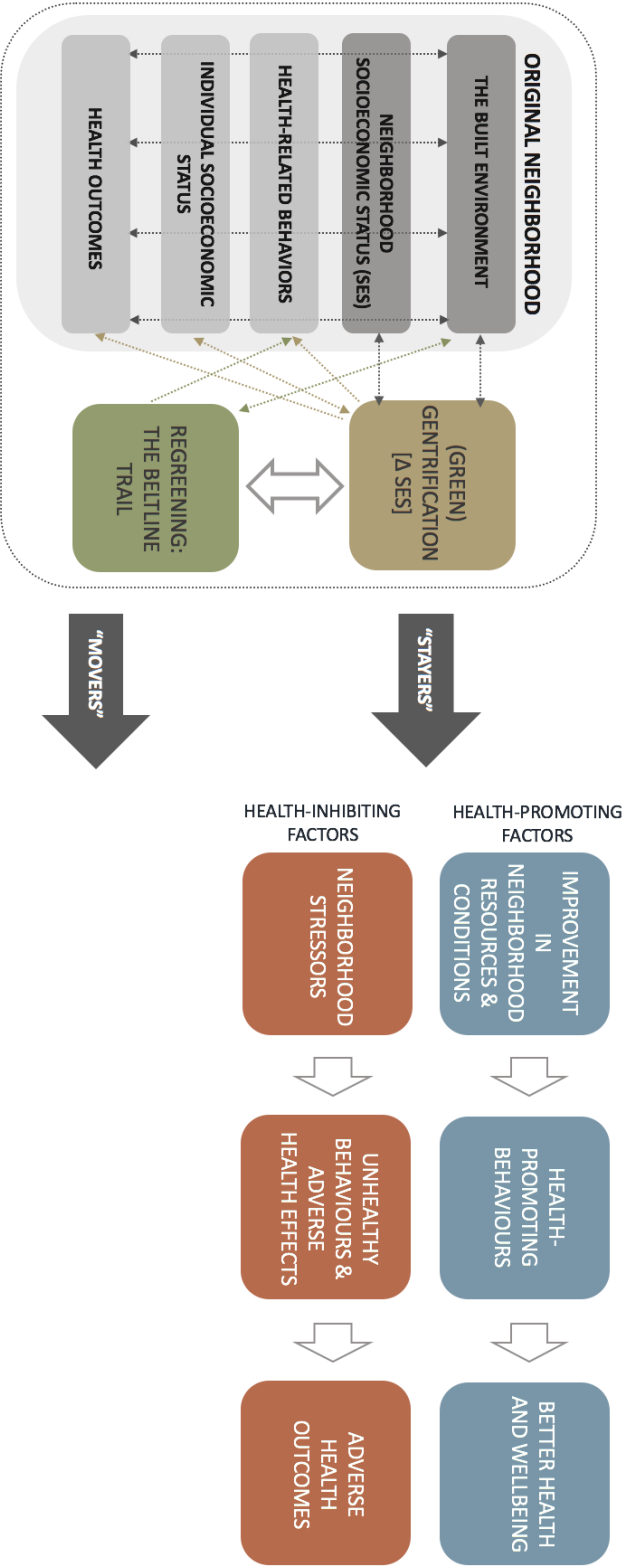


Figure 1.1: Conceptual model of the thesis

Regreening projects, such as urban trails, are changes to the built environment aimed at creating places that support residents' health and well-being. Access to urban trails increases opportunities for residents to engage in health-promoting behaviors (e.g., regular physical activity), which in turn affects their physical and mental health. Despite the numerous benefits, regreening initiatives can also catalyze "green gentrification." Gentrification affects both the physical and social character of the neighborhood. In addition, there is growing empirical evidence that gentrification affects the residents' health and well-being, both positively and negatively.

This study focuses on those residents who choose to stay in the neighborhood undergoing green gentrification. Understanding the links between green infrastructure, green gentrification, and long-term residents' health behaviors may allow us to make assumptions about the effectiveness of green interventions and the health impacts of gentrification.

1.2. Problem Statement

Investments in green infrastructure such as multiuse urban greenways are made to improve the health and well-being of residents by providing space for PA and recreation, active transportation, and increased exposure to nature's healing effects. Adding new green infrastructure to low-income neighborhoods may also lead to green gentrification. There is growing empirical evidence that gentrification affects residents' health and well-being both positively and adversely. While previous scholarships have mostly focused on greenway user dynamics, there is limited research on the incumbent residents living adjacent to newly developed urban trails, who are arguably the most affected due to their proximity to the trails. The extent to which the incumbent residents use the new greenways, their perceptions toward them, and whether their engagement in health-promoting behaviors increased are still not fully understood.

This study seeks to fill this gap by exploring the complex relationships among green infrastructure, green gentrification, and the self-rated health of long-term residents. First, this dissertation aims to establish a replicable quantitative method to identify and measure gentrification, and then utilizes in-depth interviews as a qualitative research method to verify and complement the quantitative findings. Finally, a qualitative content analysis of interview data was conducted to develop a deeper understanding of green gentrification from incumbent residents' vantage point and to examine their responses to urban trail development and increased opportunities for adopting health-promoting behaviors (such as PA and active transportation).

1.3. Scope and Objectives

As shown in Figure 1.2, this thesis consists of four chapters, including Chapter 1: Executive Summary and Chapter 4: Concluding Remarks (Figure 1.1).

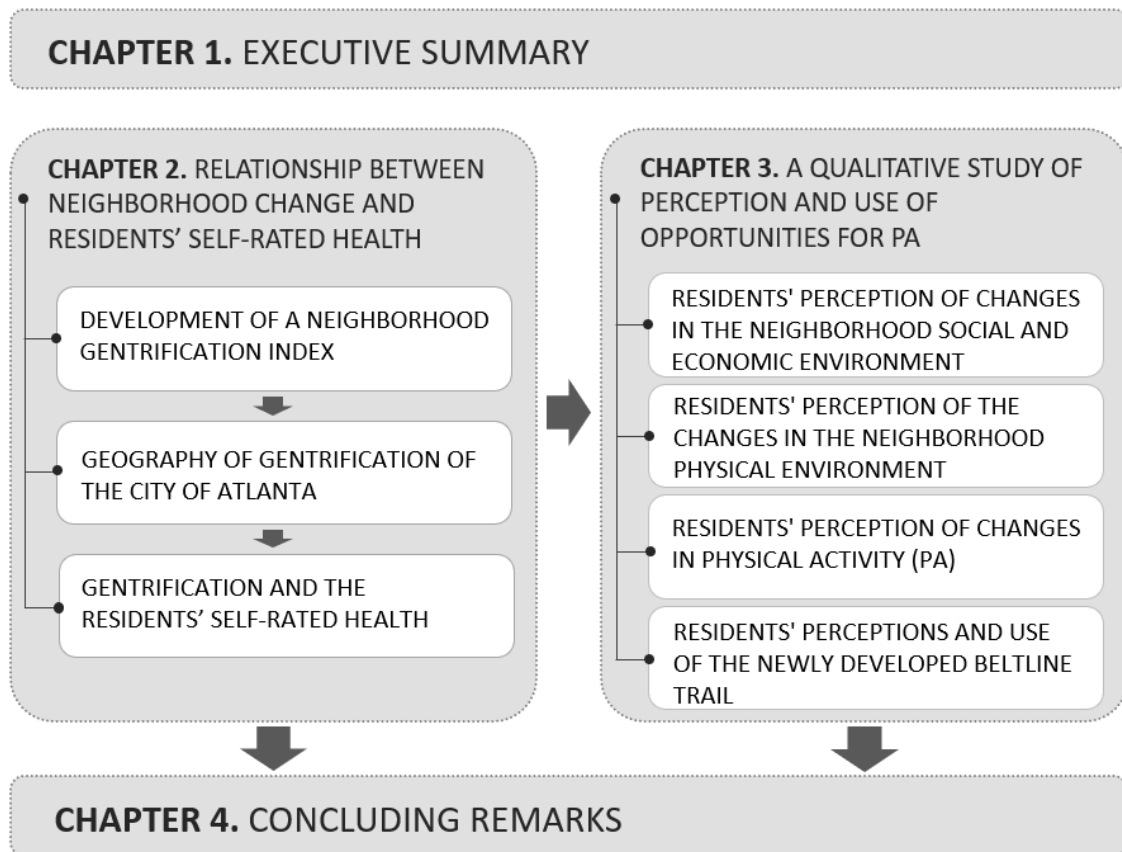


Figure 1.2: Organization of the thesis.

Chapter 1

Chapter 1 introduces the study, provides a background and the problem statement, outlines the thesis's structure, defines the scope and goals of the study, and summarizes the findings.

Chapter 2

Chapter 2 consists of two parts. The first part provides an overview of the most significant indicators, methods, and tools for identifying and measuring gentrification and outlines a replicable method for developing a standardized composite neighborhood gentrification index. The second part utilizes the newly developed gentrification index to describe the geography of gentrification for the city of Atlanta and explore the relationship between gentrification and the residents' self-rated health. The primary objectives include the following:

1. Scan existing literature and identify the most significant indicators, methods, and tools for measuring gentrification
2. Outline a process for developing a neighborhood gentrification index as a tool for determining the gentrification status of neighborhoods and compare two different approaches to identifying gentrification.
3. Create a gentrification index.
4. Apply the gentrification index and describe the geography of gentrification for the city of Atlanta.
5. Explore the relationship between gentrification and self-reported PA and self-rated physical and mental health.

Chapter 3

Chapter 3 employs a qualitative approach to capture lived experiences from the vantage point of incumbent residents of two Atlanta BeltLine-adjacent neighborhoods in

the stages of early gentrification. This chapter seeks to more fully understand the quantitative study's findings (presented in Chapter 2) using interviews with the residents and exploring their perceptions of neighborhood changes. This chapter also examines residents' perceptions of the neighborhood's physical changes and opportunities for healthier lifestyles.

The primary objectives include the following:

1. Assess how do residents' perception of the neighborhood relate to the findings of the secondary data analysis (Gentrification index)
2. Explore long-term residents' perception of changes in the built environment since the BeltLine trail development.
3. Examine the impact of perceived neighborhood changes and the addition of a community trail on long-term residents' PA.
4. Elicit residents' perceptions about their experience and use of the new BeltLine trail, specifically around environmental barriers and facilitators to PA.

Chapter 4

Chapter 4 summarizes the findings of each chapter and defines the study contributions, limitations, and future work.

1.4. Research Questions

Chapter 2

Specific research questions addressed in Chapter 2 include the following:

1. How do different quantitative methodological approaches for identifying and measuring neighborhood change vary? (Drew, 2018)
2. How did the SES status of gentrifying census tracts in Atlanta change from 2000 to 2017 across major indicators of gentrification: (1) Increase in the share of the residents who are white; (2) Increase in the share of college-educated residents; (3) Increase in median income and (4) Increase in median gross rent? (Ding et al., 2016; Gibbons & Barton, 2016)
3. How does the recent geography of gentrification in Atlanta look based on the newly-developed gentrification index?
4. Are the census tracts adjacent to the proposed BeltLine multi-use trail more likely to experience gentrification? (Immergluck, 2009; Immergluck & Balan, 2018)
5. What is the relationship between gentrification and self-rated physical and mental health and level of physical activity? (Gibbons et al., 2018; Gibbons & Barton, 2016)

Chapter 3

Specific research questions addressed in Chapter 3 include the following:

1. What types of transformations in the neighborhood social and economic environment do the long-term residents perceive?
2. How are long-term residents experiencing changes in their neighborhoods?
3. What types of transformations in the neighborhood physical environment do the long-term residents perceive?
4. What are the residents' attitudes toward existing and emerging health-promoting amenities in the neighborhood?
5. Do long-term residents report any changes in their PA level or activity type since the Westside Trail opened?
6. What factors are associated with changes in their PA level based on their assessment?
7. How do long-term residents describe the use of the newly developed BeltLine trail?
8. What potential impacts of the BeltLine trail do the long-term residents perceive?
9. What are the perceived barriers and facilitators to the BeltLine trail use?

1.5. Significance and Implications

The dissertation explores the complex relationship between green infrastructure, green gentrification, and residents' health. The study contributes to gentrification and urban health literature and has significant implications for methodological approaches and study setting, practice, and design.

The significance and expected implications of this thesis are as follows:

Methodological: Tools and metrics

- Scans existing literature and identifies the most significant indicators, methods, and tools for measuring gentrification
- Outlines a replicable method for developing a standardized neighborhood gentrification index for identifying and measuring gentrification
- Demonstrates the usefulness of the principal component analysis approach that capitalizes on free and readily available U.S. census data and suggests it has broad geographic generalizability
- Applies and validates the usefulness of the newly developed gentrification index for identifying and measuring gentrification in the city of Atlanta and compares two different methodological approaches for identifying gentrification.
- Demonstrates the value of qualitative research for capturing information about experience, meaning, and motivations to use new green resources from the standpoint of the long-term residents. This information is essential for designing effective greening interventions that will ensure their usage, especially among long-term residents who are not habitually active
- Demonstrates the value of an in-depth interview as a method of exploring the lived experiences of residents of communities undergoing gentrification

Study setting (Atlanta BeltLine–adjacent neighborhoods)

- Applies the newly developed gentrification index to illustrate the geography of gentrification in the city of Atlanta
- Illustrates the gentrification status of Atlanta neighborhoods and neighborhood change typologies, and identifies neighborhoods that are susceptible to changes in the future
- Demonstrates that proximity to the BeltLine affects accelerated gentrification and the potential to create concentrated affluence in the BeltLine planning area
- Explores the relationship between gentrification and self-reported PA and self-rated physical and mental health. The study suggests the association between gentrification and better self-reported health outcomes
- Demonstrates that proximity to the BeltLine affects accelerated gentrification and the potential of the BeltLine to create concentrated affluence in the adjacent areas
- Provides perspective into residents' experience and use of the newly developed Atlanta BeltLine Westside Trail, specifically around environmental barriers and facilitators to PA

Implications for practitioners (including city planners) and trail use advocacy groups

- Provides an important first step in developing a potentially reproducible method for measuring gentrification across the US. The method would enable tracking neighborhood changes over time. This can significantly improve our understanding of gentrification impacts on long-term residents' health

- Provides insight into the subjective experiences of long-term residents living through the process of gentrification
- Provides practitioners with valuable insight about long-term residents living adjacent to newly developed green amenities. The group of residents who choose to stay in the gentrifying neighborhood was mostly overlooked in gentrification literature. The residents living adjacent to newly developed trails also received scant attention in trail research
- Provides insights into what environmental (design-related), social, and programming factors are perceived as facilitators and barriers to (more) regular use of the urban trail

CHAPTER 2. RELATIONSHIP BETWEEN NEIGHBORHOOD CHANGE AND RESIDENTS' SELF- RATED HEALTH IN THE CITY OF ATLANTA

Chapter 2 provides an overview of the most significant indicators, methods, and tools for identifying and measuring gentrification, outlines a replicable method for developing a standardized neighborhood Gentrification index, and explores the relationship between gentrification and residents' self-rated health in the city of Atlanta.

2.1. Introduction

This dissertation explores the impacts of gentrification and new health-promoting resources on the health of neighborhood residents. A considerable amount of research has been conducted on associations between built environment and health, emphasizing the role that place plays in individual health and neighborhood health disparities (C. Ross & Mirowsky, 2001; Sampson, 2003, 2012). As a neighborhood gentrifies, it transforms from being under-invested in and resource-limited into an area with new health-promoting resources, such as healthy food options, parks, and recreational and other amenities (Brummet & Reed, 2019; Freeman, 2011; Gibbons et al., 2018; Vigdor et al., 2002). At the same time, such rapid socioeconomic shifts can create stressors for the original residents, such as rising costs and risk of displacement, that can adversely affect residents' health (Anguelovski, Triguero-Mas, et al., 2019; Freeman, 2011; Fullilove & Wallace, 2011; Gibbons & Barton, 2016; Huynh & Maroko, 2014; Keene & Geronimus, 2011; Lim et al., 2017; Newman & Wyly, 2006; Shmool et al., 2015; Whittle et al., 2015; Wilder, Mirto,

Makoba, & Arniella, 2017). While previous studies have found negative effects of gentrification on people who end up displaced or fear displacement, recent literature has highlighted some positive effects on health and residents' well-being (Brummet & Reed, 2019; Chetty et al., 2016; Freeman & Braconi, 2004; Gibbons et al., 2018).

In this chapter, I explore whether there is an association between gentrification, as measured by a newly developed Gentrification index, and residents' self-reported health in the city of Atlanta, Georgia. Atlanta was selected for this study as it is one of the cities in the U.S. that has undergone extensive gentrification in recent years (Immergluck, 2009; Immergluck & Balan, 2018; Lerner, 2017; Palardy, Boley, & Gaither, 2018b).

The first part of this chapter outlines a replicable method for developing a standardized composite Gentrification index that capitalizes on free and readily available U.S. census data, using a Principal Component Analysis (PCA) approach. In the second part, this chapter examines the association between neighborhood gentrification and the rates of poor self-rated physical and mental health, and low physical activity.

This chapter argues that residents in gentrified neighborhoods are more likely to report higher self-rated physical and mental health and regular physical activity as new health-promoting resources are introduced, and opportunities to engage in healthier behaviors increase.

2.2. Background

2.2.1. Measuring Gentrification

Gentrification has become one of the most commonly discussed topics in the urban studies discourse, but there is a lack of consensus on how to precisely define it, how to identify the neighborhoods undergoing this type of transformation, and how to measure its magnitude. The first step in identifying where gentrification occurs is to precisely define the term “gentrification” that will be used and operationalized in this study.

A scan of relevant literature reveals that since the term "gentrification" was first used in 1964 by British sociologist Ruth Glass, subsequent research has used varied definitions for this type of neighborhood change. Glass used the term to describe changes taking place in the 1960s in working-class quarters in London. The neighborhoods had “been invaded by the middle class - upper and lower”; and the process would continue until "most of the working class occupiers are displaced and the whole social character of the district is changed," (Glass, 1964).

One of the most frequently cited definitions of gentrification is articulated by Neil Smith. He explains gentrification as a process by which “central urban neighborhoods that have undergone disinvestments and economic decline experience a reversal, reinvestment, and the in-migration of a relatively well-off, middle- and upper-middle-class population” (N. Smith, 1998). Similarly, The U.S. Department of Housing and Urban Development defines it as a process of revitalizing neighborhood(s) occupied by lower-income households (U.S. Department of Housing and Urban Development Office of Policy Development and Research, 2018). Kennedy and Leonard define gentrification as a process

of neighborhood change by which higher-income residents replace the lower-income ones, changing the essential character and flavor of that neighborhood (Kennedy & Leonard, 2001). For some authors, gentrification has a more negative connotation because it disrupts social ties and causes loss of affordable housing units, with effects that go beyond the economic and demographic changes in the neighborhoods (Slater, 2006).

Despite the varied definitions, most authors agree that gentrification entails the following: improvement of physical infrastructure, growth in affluence of the area, the reverse process of decline and disinvestment in inner-city neighborhoods, and possible displacement of original residents, who are often people of lower economic and social status, minorities and people of color (Bostic & Martin, 2003; Ding et al., 2016; Freeman, 2005; Hammel & Wyly, 1996). Gentrification is understood primarily as a continuous process and as “a physical or social manifestation of neighborhood change” (C. L. Ross, 2007). This is the definition used in this study.

Past literature has used both qualitative and quantitative methods to identify gentrifying neighborhoods. Most quantitative studies rely on secondary data sources to identify and measure gentrification or susceptibility to gentrification, such as Decennial Census, American Community Survey (ACS), police records, or County Tax Assessor’s office data (e.g., data on housing sales) (Ellen & Ding, 2016; Hammel & Wyly, 1996; Hamnett & Williams, 1980; Immergluck & Balan, 2018; R. W. Martin). The quantitative studies tracked the selected indicators of gentrification over several years and detect changes in the neighborhood composition (in terms of demographics, racial composition, home values, median rent, etc.).

One group of quantitative studies focused on monitoring a limited number of critical indicators of the gentrification of a neighborhood (Cole et al., 2019; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Izenberg, Mujahid, & Yen, 2018a, 2018b; R. J. Smith, Lehning, & Kim, 2018). Other authors developed and applied a composite Gentrification index as a measure of the change in socioeconomic status (SES) between two observed years (Abel & White, 2011; Chapple, 2009; Colburn & Jepson, 2012; Ley, 1986; Lim et al., 2017; Linton et al., 2017; Morenoff et al., 2007; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Tran et al., 2020). The latter recognized a composite index as a useful tool that can translate a large amount of data into means for measuring neighborhood change. A specific weight is assigned to each variable in these models, and the index's numerical value indicates an area's gentrification level. Using census data also enables the replication of the method in other cities and longitudinal monitoring of neighborhood changes. However, the selection of variables to be tracked and the use of different thresholds impacts the findings and can lead to inconsistencies in reporting where gentrification is occurring and to what extent (Drew, 2018; Enterprise Community Partners, 2019).¹

Using only secondary data to identify and measure gentrification often misses the more subtle changes happening on the ground. Additionally, assigning the changes in neighborhood SES to a single process can lead to incomplete conclusions (Hammel & Wyly, 1996). Some of the limitations of using secondary data sources can be remedied by

¹ Enterprise Community Partners, Inc. developed and used the Gentrification Comparison Tool to map gentrification status in neighborhoods in 93 U.S. cities over four decades applying three different definitions of gentrification. The tool demonstrated that using different measures can lead to different and sometimes conflicting conclusions on where gentrification occurs (Enterprise Community Partners, 2019).

adding other data sources, especially qualitative research in the form of interviews or area fieldwork (Loukaitou-Sideris, Gonzalez, & Ong, 2019).

The qualitative methods usually used case studies or ethnographic techniques and gathered primary data that includes interviews with stakeholders, field surveys and observations, and sometimes media coverage (Barton, 2016; Betancur, 2002; Freeman, 2011). The area observations are done in-person or, with the advancement of technology, remotely, using computer vision and deep learning on Google Street View images (Ilic, Sawada, & Zarzelli, 2019). While qualitative data collection, analysis, and interpretation can be time-consuming, it provides a valuable piece of in-depth information on how a neighborhood is changing. For example, visual surveys on block and parcel level can capture information that cannot be revealed by looking solely at secondary data; the presence or absence of litter or social disorder, major renovations, mom-and-pop stores closures, and opening upscale retail in the neighborhoods can indicate the presence of gentrification or neighborhood decline. Interviews with stakeholders can reveal opinions and feelings of original residents regarding the neighborhood change and paint a richer picture of different types of „gentrifiers“.

2.2.2. Health Effects of Gentrification

A considerable amount of research has been conducted on associations between the built environment and health, emphasizing the role that place plays in individual health and neighborhood health disparities (C. Ross & Mirowsky, 2001; Sampson, 2003, 2012). The model of "neighborhood effect" recognizes four groups of factors that shape one's health (social processes, environmental factors, geographical forces, and neighborhood

resources), suggesting that our zip code might be as important as genetic factors (G. C. Galster, 2014; Graham, 2016). The study by Morenoff et al. found that the level of affluence of the neighborhood and gentrification were stronger markers of hypertension risk than socioeconomic status (SES) or race; hypertension was significantly negatively associated with neighborhood affluence and gentrification (Morenoff et al., 2007). Rapid socioeconomic shifts in neighborhood conditions can also create a number of stressors for original residents, such as rising costs or displacement, and a growing body of research recognizes gentrification as a public health concern because those changes can widen existing health disparities and adversely affect residents' health (Anguelovski, 2016; Cole et al., 2017; Freeman, 2011; Fullilove & Wallace, 2011; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Huynh & Maroko, 2014; Izenberg et al., 2018b; Keene & Geronimus, 2011; Lim et al., 2017; Newman & Wyly, 2006; Rhodes-Bratton, Rundle, Lovasi, & Herbstman, 2018; Wilder et al., 2017; Wolch, Byrne, & Newell, 2014). According to the Centers for Disease Control and Prevention, gentrification, displacement, and fear of displacement in gentrifying neighborhoods can lead to several adverse health outcomes, such as increased stress levels, hypertension, and mental health problems (such as depression) (Centers for Disease Control and Prevention, 2009; Fullilove & Wallace, 2011).

Residents who were displaced from gentrifying neighborhoods in New York City were more likely to make emergency department visits, be hospitalized, and to be diagnosed with mental health conditions than residents who remained in their neighborhoods (Lim et al., 2017). The study by Smith et al. found that seniors living in the gentrifying areas had more depression and anxiety symptoms than seniors living in more

stable neighborhoods (both 'low-income' or 'moderate-to high income' neighborhoods) (R. J. Smith et al., 2018). Looking at the neighborhood food environment, Rhodes-Bratton et al. found that gentrifying neighborhoods experienced a significant increase in both healthy and unhealthy food options (Rhodes-Bratton et al., 2018). Gentrification can increase food insecurities for low-income individuals who cannot afford the healthier and often more expensive food options, especially if a higher percentage of their income needs to cover the rising cost of their housing (Breyer & Voss-Andreae, 2013; Whittle et al., 2015). Research on eviction found that low-income residents who end up being priced out and displaced from gentrifying neighborhoods are often forced to settle for cheaper, substandard housing that can lead to adverse health effects (Desmond & Kimbro, 2015).

At the same time, gentrification brings many positive changes to a neighborhood, transforming it from a decaying, resource-limited area into an area with many new health opportunities. Recent literature has started highlighting some positive effects on health and residents' well-being. Gentrifying communities often see investment in the area that can lead to improved access to health-promoting resources, such as pedestrian infrastructure, green spaces, places for recreation, and food outlets providing healthy food options (Brummet & Reed, 2019; Chetty et al., 2016; Freeman, 2011; Gibbons et al., 2018; Popkin et al., 2005; Vigdor et al., 2002). Repairs of sidewalks and playgrounds renovations and improvements reduce the risk of accidents (Ellen & Ding, 2016). These improvements in services and neighborhood safety can support individuals' healthy choices and positively impact health for both adults and children (Freeman & Braconi, 2004; Newman & Wily, 2006).

Residents of the gentrifying neighborhood with better access to active green spaces were less likely to report fair or poor health, but this was consistent only for residents with higher income and higher education (Cole et al., 2019). For all these reasons, incumbent residents are sometimes willing to absorb the increased housing costs and remain in a neighborhood with better amenities (Ellen & O'Regan, 2011; Vigdor et al., 2002). Smith et al. found that economically vulnerable older adults in gentrifying areas reported higher self-rated health than their counterparts in low-income neighborhoods (R. J. Smith et al., 2018).

However, several recent studies report that different demographic groups (economically vulnerable, elderly, or minorities) are disproportionately affected by gentrification and more likely to experience adverse health outcomes. For example, non-Hispanic black women in highly gentrified community districts in New York City experienced higher rates of preterm births than non-Hispanic white women in the same district (Huynh & Maroko, 2014). While gentrification was associated with better self-rated health overall, but it had the opposite effect on African Americans, and gentrifying census tracts that saw a decline in the non-white population were more likely to report above-average stress (Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016). African Americans in gentrifying neighborhoods were much more likely to report overall poor/fair health than their counterparts living in non-gentrifying areas (Gibbons & Barton, 2016).

2.3. Research Objectives and Research Questions

This Chapter has four main objectives:

Objective 1: Scan existing literature and identify the most significant indicators, methods, and tools for measuring gentrification

Objective 2: Outline a process for developing a neighborhood gentrification index as a tool for determining the gentrification status of neighborhoods and compare two different approaches to identifying gentrification.

Objective 3: Create a gentrification index

Objective 4: Apply the Gentrification index and describe the geography of gentrification for the City of Atlanta, and

Objective 5: Explore the relationship between gentrification and self-rated PA, and self-rated physical and mental health

This chapter aims to address the following research questions:

Research Question 1: How do different quantitative methodological approaches for identifying and measuring neighborhood change vary? (Drew, 2018)

Research Question 2: How did the SES status of gentrifying census tracts in Atlanta change from 2000 to 2017 across major indicators of gentrification: (1) Increase in the share of the residents who are white; (2) Increase in the share of college-educated

residents; (3) Increase in median income and (4) Increase in median gross rent? (Ding et al., 2016; Gibbons & Barton, 2016)

Research Question 3: How does the recent geography of gentrification in Atlanta look based on the newly-developed gentrification index?

Research Question 4: Are the census tracts adjacent to the proposed BeltLine multi-use trail more likely to experience gentrification? (Immergluck, 2009; Immergluck & Balan, 2018)

Research Question 5: What is the relationship between gentrification and self-rated physical and mental health and level of physical activity? (Gibbons et al., 2018; Gibbons & Barton, 2016)

2.4. Data and Methods

2.4.1. Data Sources

As one of the cities in the United States that has undergone extensive gentrification, Atlanta was selected for this study (Immergluck, 2009; Immergluck & Balan, 2018; Lerner, 2017; Palardy et al., 2018b). This study is conducted as a cross-sectional analysis. It draws on two secondary data sources: data from Decennial Census and the American Community Survey (ACS) and data from the 500 Cities project. Census and ACS data on socioeconomic status (SES) were compiled from the American FactFinder - the United States Census Bureau's online data dissemination system to capture the tract level changes

over time.² The 500 Cities dataset provides model-based small area estimates for chronic disease risk factors, health outcomes, and clinical preventive services use for the largest 500 cities in the US. The dataset links geocoded data from Behavioral Risk Factor Surveillance System (BRFSS) surveys and high spatial resolution population demographic and socioeconomic data (Centers for Disease Control and Prevention). The census tract-level data on health outcomes of interest for 2016-2017 were gathered from the 500 Cities & PLACES Data Portal – a public, interactive website.³

2.4.2. Unit of Analysis

Due to their size, census tracts are often used as proxies for neighborhoods, so census tract was chosen as the unit of analysis (Browning & Soller, 2014; Cort, Lin, & Stevenson, 2014; Cutler, Glaeser, & Vigdor, 1999). The terms ‘neighborhood’ and ‘community’, and sometimes more generic term ‘area’, are used in health research to refer to an individual's immediate residential environment, hypothesized to have both material and social characteristics potentially relevant for health (Diez Roux, 2001). The U.S. Census Bureau created census tracts to provide a stable set of boundaries for statistical comparison from census to census. They are small and relatively

² The system provides access to data from the Decennial Census, the American Community Survey (ACS), and the Economic Census.

³ The 500 Cities project, a collaboration by the CDC, the CDC Foundation, and the Robert Wood Johnson Foundation (RWJF), reports data for 27 chronic disease indicators in three categories of measurement—preventive care (9), health outcomes (13), and unhealthy behaviors (5). Data is provided for counties, places (incorporated and census-designated places), census tracts, and ZIP Code Tabulation Areas (ZCTAs) for the 500 largest American cities. Data sources used to generate the measures include Behavioral Risk Factor Surveillance System (BRFSS) data, Census Bureau 2010 census population data, and the American Community Survey (ACS) estimates. BRFSS surveys are administered by phone (both landline and cellular phones), and the target sample size is usually 4000 interviews per state each year.

homogenous geographic areas that usually have a population between 1,200 and 8,000 people (those numbers vary), containing on average 4,000 people (Messer et al., 2006). Tracts are also useful units of analysis because many datasets are available at this level.

2.4.3. Variable Selection

Based on a literature review, 15 census-tract level variables were identified as leading indicators of neighborhood gentrification (Table 2.1). The identified variables were grouped in five socio-demographic domains: I) Demographics, II) Housing, III) Economic conditions, IV) Employment and V) Educational attainment.⁴

The data were compiled for the following years: 2000 (Decennial Census) and 2017 ACS five-year estimates. Choosing which dataset to use involved balancing between currency and sample size (reliability and precision). For this study, precision was more important than currency and the 5-year datasets are more reliable due to their larger sample size.⁵

The primary health outcomes of interest were two forms of neighborhood self-rated health: 1) poor self-rated physical health and 2) poor self-rated mental health. Additionally, self-rated no leisure-time physical activity was included as a measure of unhealthy

⁴ After meeting with Dr. Dan Immergluck (personal communication, September 25, 2018), I decided to exclude the Median Value of Owner-Occupied Housing Units from the analysis. Namely, the Median Value is a self-reported estimate of how much the property (house and lot) would sell for if it were for sale. These estimates often do not accurately reflect actual unit market value. When it comes to measuring gentrification, the variables such as monthly rent or median sale price of the units in the area are much more indicative of the increase in housing costs.

⁵ Also, in 5-year estimates, data is collected for all areas, unlike 1-year and 3-year estimates that are collected for areas with a population of 65,000 and more, and 20,000 or more, respectively.

behaviors. The 500 Cities Project provides estimates for unhealthy behaviors, available preventive care, and adult chronic diseases and adverse health outcomes that are the most common, costly, and preventable.⁶ For this reason, information on self-rated health is provided as the percentage of people who reported "poor" health, as people who suffer chronic conditions and disabilities are most likely to rate their mental or physical health as "poor" (Hoeymans, Feskens, Kromhout, & Van den Bos, 1999; Molarius & Janson, 2002). Self-rated health (SRH) is among the most frequently used indicators in public health studies. Despite being frequently debated, several studies have found that subjective health measures are a good predictor of morbidity and mortality (Cramm, Bornscheuer, Selivanova, & Lee, 2015; Idler & Benyamini, 1997; Izenberg et al., 2018b; Verropoulou, 2009). Self-rated health is also a useful measure of the general well-being of individuals (Gibbons & Yang, 2018). Self-rated mental health is selected as a variable as gentrification and fear of displacement can adversely affect individuals' mental health, causing increased stress, anxiety, and depression (Centers for Disease Control and Prevention, 2009; Fullilove & Wallace, 2011). As opportunities to engage in healthier behaviors in gentrified neighborhoods can increase, the third health measure of self-rated leisure-time physical activity was also included in the analysis (Brummet & Reed, 2019; Chetty et al., 2016; Freeman, 2011; Gibbons et al., 2018; Popkin et al., 2005; Vigdor et al., 2002).

Poor self-rated mental health is the percentage of respondents aged ≥ 18 years who reported that their mental health was not good on 14 or more days during the past 30 days

⁶ Public health officials are using this data to fine-tune prevention efforts.

(Centers for Disease Control Prevention, 2014).⁷ Similarly, poor self-rated physical health presents the percentage of those who reported 14 or more days of poor physical health in the past 30 days. No leisure-time physical activity is the percentage of respondents who answered “no” to the following question: “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?”.

One significant limitation to the 500 City data is that estimates present only the overall rates of poor self-rated health, without any normalization or stratification by socioeconomic or demographic characteristics such as age, income, and race/ethnicity.⁸

⁷ The BRFSS survey asks, “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” and the possible answers are a) Self-reported number of days; b) None; c) Do not know / Not sure; d) Refused (Centers for Disease Control Prevention, 2014).

⁸ Age-adjusting rates of health conditions (disease, injury, health status) ensure that differences between two geographic areas, or from one year to another, or are not due to differences in the age distribution of the populations being compared.

Table 2.1: The indicators of gentrification; 1986–2020 literature review.

Domain	Indicator	Description	Study (Authors and year)
I) Demographic Characteristics			
Age ⁹	Change in Age Cohort 25-44. * (+)	The change in the percentage of the population in this age range	(Abel & White, 2011; Anguelovski, Connolly, Masip, & Pearsall, 2018; Bilal et al., 2019; Bostic & Martin, 2003; Cole et al., 2019; Ley, 1986; Morenoff et al., 2007; Skaburskis, 2012)
Racial Composition	Change in white population share. (+)	The change in the percentage of the white population	(Abel & White, 2011; Bostic & Martin, 2003; Breyer & Voss-Andreae, 2013; Cole et al., 2019; Ellen & Ding, 2016; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons & Barton, 2016; Helms, 2003; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Racial Composition of Householders	Change in the share of white householders. (+)	The change in the percentage of the white householders	/
Family Structure	Change in average household size. (-)	The percentage change in average household size	(Ley, 1986; Skaburskis, 2012)
II) Housing Characteristics			
Housing Occupancy	Change in vacancy/occupancy of housing units (+)	The change in the percentage of housing units that are occupied by either renters or their owners	(Helms, 2003; Ley, 1986)
Housing Ownership	Change in ownership rate (+)	The change in the percentage of housing units occupied by their owners	(Abel & White, 2011; Bostic & Martin, 2003; Chapple, 2009; G. Galster & Peacock, 1986; Helms, 2003; Ley, 1986; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Skaburskis, 2012; E. K. Wyly & Hammel, 1999)

⁹ Different authors define the change in different age cohorts as indicators of ongoing gentrification. Ley looked at the change in population aged 20-35, while Bostic and Martin looked at the change in share of tract population ages 30-44 (Bostic & Martin, 2003; Ley, 1986).

III) Economic Characteristics of the area (income/poverty)			
Area Median Household Income	Increase in area median household income (AMI) (+)	The percentage change in AMI	(Abel & White, 2011; Anguelovski et al., 2018; Bostic & Martin, 2003; Chapple, 2009; Cole et al., 2019; Dragan et al., 2019; Ellen & Ding, 2016; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Gould Ellen & O'Regan, 2008; Helms, 2003; Huynh & Maroko, 2014; Izenberg et al., 2018a, 2018b; Ley, 1986, 1992; Lim et al., 2017; Linton et al., 2017; McKinnish, Walsh, & White, 2010; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Schnake-Mahl, Sommers, Subramanian, Waters, & Arcaya, 2020; R. J. Smith et al., 2018; Steinmetz-Wood et al., 2017; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Households in Poverty	Change in the number of families living below the federal poverty level (-)	The change in the percentage of families living below the federal poverty level	(Abel & White, 2011; Bostic & Martin, 2003; Huynh & Maroko, 2014; Ley, 1992; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Housing Units Value	Change in Median owner-occupied unit value (+)	The percentage change in the value of owner-occupied single-family residential units	(Abel & White, 2011; Anguelovski et al., 2018; Bilal et al., 2019; Freeman, 2005; G. Galster & Peacock, 1986; Gibbons, 2019; Helms, 2003; Ley, 1986, 1992; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; R. J. Smith et al., 2018; Tran et al., 2020)
Housing Costs (owner-occupied units)	Change in Median monthly costs for owner-occupied units (+)	The percentage change in Median monthly costs for Owner-Occupied Units	(Helms, 2003)
Housing Costs (renter-occupied units)	Change in Median gross rent for renter-occupied units (+)		(Chapple, 2009; Ellen & Ding, 2016; Freeman & Braconi, 2004)

IV) Employment Characteristics			
Labor Force	Change in labor force participation rate (population>16) (+)	The change in the percentage of the population that is in the labor force	(Ley, 1986; Skaburskis, 2012)
Employment	Change in employment rate (population>16) (+)	The change in the percentage of the population that is employed	(Bilal et al., 2019; Lester & Hartley, 2014; Meltzer & Ghorbani, 2017)
Occupation	Change in population working in management occupations (+)	The change in the percentage of population working jobs requiring post-secondary education (AA, AS, BA, BS, MA, MS, Ph. D., technical certificate); management, business, science, and arts occupations	(Abel & White, 2011; Bostic & Martin, 2003; Cole et al., 2019; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; E. K. Wyly & Hammel, 1999)
V) Educational Attainment			
Education level	Change in the population that has a bachelor's degree (college degree) or higher (+)	The change in the percentage of the population that is college-educated	(Abel & White, 2011; Anguelovski et al., 2018; Bilal et al., 2019; Bostic & Martin, 2003; Cole et al., 2019; Dragan et al., 2019; Ellen & Ding, 2016; Freeman, 2005; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Gullón et al., 2017; Helms, 2003; Huynh & Maroko, 2014; Izenberg et al., 2018a, 2018b; Ley, 1986, 1988; Lim et al., 2017; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Skaburskis, 2012; R. J. Smith et al., 2018; Steinmetz-Wood et al., 2017; Tran et al., 2020; E. K. Wyly & Hammel, 1999)

2.4.4. Data Cleaning, Standardization and Transformation

In order to conduct the analysis, it was first necessary to choose the census tracts to included. Past literature found that gentrification is a highly selective process that occurred in areas within inner cities (Gibbons & Barton, 2016; Hwang & Sampson, 2014). Thus, for this study, only urban census tracts in the city of Atlanta in Fulton and DeKalb counties were included in the analysis (n=115 for 2000, and n=124 for 2017; n=9 in DeKalb and n=106 in Fulton County).¹⁰

Another issue is missing values for some variables or some census tracts, which may occur more frequently in census tracts of lower SES. Census tracts with missing data or reporting invalid data were excluded from the analysis. In the case that only some values are missing, it is possible to take two approaches: to exclude the entire census tract (if missing the value for at least one variable), as recommended by Cortinovis et al., or to replace the missing value with the mean value for that variable, as in the study by Gwatkin et al. (Cortinovis, Vella, & Ndiku, 1993; Gwatkin, Rustein, Johnson, Pande, & Wagstaff, 2000). While attributing the mean score can reduce the variation among census tracts, excluding data points might reduce the sample size. Since this study looks at a relatively small number of census tracts (n= 115 in 2000, and n=124 in 2017), it was decided to keep the census tracts that are missing values for three or fewer variables and replace the missing value with the mean score in order to maximize the number of census tracts to be analyzed.

¹⁰ However, according to recent studies, gentrification is no longer exclusively a "small inner-city process"; it has expanded to rural areas and the suburbs and emerged in metropolitan areas and smaller cities and towns (Loretta Lees, 2015).

This approach has previously been used with little impact on overall results (Vyas & Kumaranayake, 2006).

Furthermore, boundaries for all Census administrative geographies (tract-level and below) change across decennial censuses; while some census tracts can grow in size and split in two or more new census tracts, some census tracts, due to loss in population, are merged with adjacent census tracts. A data crosswalk strategy between 2000 and 2017 had to be created to make census tracts correspond geographically in different decades. A simpler approach for dealing with boundary changes was to aggregate the data into larger units or larger geographies (Gregory & Ell, 2005). When needed, the dummy census tracts presenting aggregated tracts were created to enable the comparison across censuses (Appendix E). ¹¹ After these transformations were done, data for 95 census tracts and 15 aggregated census tracts were compared across 2000 and 2017 (n=111, n=9 in DeKalb and n=106 in Fulton County).

2.4.5. Data Reduction

Principal Component Analysis (PCA) is a useful tool for developing socio-demographic indices on neighborhood and census tract level (Friesen, Seliske, & Papadopoulos, 2016; Lalloué et al., 2013; Vyas & Kumaranayake, 2006). PCA is a multivariate statistical technique that reduces a large set of highly correlated variables into several uncorrelated variables or Principal Components (Jolliffe, 2002; Vyas & Kumaranayake, 2006). In this case, when the initial dataset consists of a substantial number

¹¹ For example, if in 2000 two census tracts combined in a larger tract in 2017, the 2017 census tract was used as a *dummy tract* and all required data transformation was applied; if, however, 2000 census tract was subdivided into smaller units, the original census tract from 2000 was used as a dummy tract

of correlated variables that measure different aspects of a census tract's SES, PCA is the most suitable data compression method. Additionally, PCA assigns different weights to each variable, as opposed to arbitrarily weighing each variable equally.

2.4.6. *Gentrification Index Construction*

Gentrification was proxied by the change in socioeconomic status (SES) of the census tract between 2000 and 2017, following the methodology of previous studies on gentrification (Ley, 1986). The socioeconomic status (SES) of the census tract was measured by the composite Socioeconomic Status index (SESi) derived from 15 selected variables (Table 2.1). After adjusting all variables to have the same direction as the outcome variable (SES), data was cleaned and transformed.¹²

The Principal Component Analysis was performed separately on datasets for 2000 and 2017. The PCA was performed using the JMP®Pro Version 14 statistical software package (SAS Institute, <http://www.sas.com>). Since the first principal component (Prin1) accounts for the largest possible variance in the data set, it was selected as the given year's linear SES index or SESi (Tabachnick & Fidell, 1996). The values of SESi were standardized (z-scores) to have a mean of 0 and a standard deviation (SD) of 1 by subtracting the mean and dividing the value by the standard deviation (Barnett, 2017):

$$Z_{\text{sesi}} = (x_{\text{sesi}} - \bar{x}_{\text{sesi}}) / \sigma_{\text{sesi}}$$

¹² Positive, higher values indicate higher SES levels

Where:

- Z_{sesi} is the standardized value for variable SESi
- x_{sesi} is the raw value of variable SESi
- \bar{x}_{sesi} is the mean for variable SESi
- σ_{sesi} is the standard deviation for variable SESi

To estimate gentrification over the period of the study, census tract SES change was calculated by subtracting the SES index (standardized value Z_{sesi}) for 2000 for each census tract from the corresponding SES index for 2017. The Gentrification index (Gi) was calculated as follows:

$$Gi \text{ (Gentrification index)} = Z_{sesi2017} - Z_{sesi2000}$$

Where:

- $Z_{ses2017}$ is the standardized value of SESi for 2017
- $Z_{ses2000}$ is the standardized value of SESi for 2000

All Atlanta census tracts (n=124 for 2017) are classified according to the Gentrification index value and divided into quartiles (Q), reflecting different gentrification levels, with the highest quartile corresponding to the most gentrified areas. Since the index's goal was to facilitate comparison of neighborhood gentrification and health, rates of poor self-rated mental and physical health (not age-adjusted) are calculated for each quartile of the Gentrification index using tabular analyses (Sapsford, 2007). The quartiles were used to avoid linearity assumptions in the association of gentrification and SRH.

2.5. Results

2.5.1. Results of the Principal Component Analysis

The resulting first principal component accounts for 59.6% (2000) to 61.1% (2017) of the variability in the component measures (Table 2.2.). Together, the first two principal components accounted for more than 72.4% and 72.3% of the variability, respectively.¹³ All variables are positively correlated with the first Principal Component. The variable loadings on the first principal component ranged from 0.26 (Percent of Occupied Housing Units) to 0.95 (White population share and Population that has Bachelor's degree), with a mean loading of 0.74 for 2000, and from 0.48 (Average Household size) to 0.96 (Population that has Bachelor's degree), with a mean loading of 0.77 for 2017.¹⁴ Since all variables loaded above 0.32, all of them were included in the index.¹⁵

¹³ The second principal component accounts for 12.8% (for 2000) and 11.2% (for 2017) variability in the component measures.

¹⁴ Based on Evans, 1996, the following estimates were used to interpret correlation: .00-.19 as "very weak"; .20-.39 as "weak"; .40-.59 as "moderate"; .60-.79 as "strong"; and .80-1.0 as "very strong" (Evans, 1996)

¹⁵ Tabachnick and Fidell cite 0.32 as a good rule of thumb for the minimum loading of an item and suggest that items loading less should be dropped from the analysis. Only one variable loaded less than 0.32 (Percentage of Occupied Housing Units loading was 0.26 in 2000), but it was decided to include it in the index because the variable loading was 0.54 in 2017 (Tabachnick & Fidell, 2001)

Table 2.2: First Principal Component SES score loadings for years 2000 and 2017 for the city of Atlanta.

Domains and variable loadings	2000	2017
Demographic Characteristics		
% Age Cohort 25-44	0.721	0.619
% White Population	0.947	0.947
% White Householder	0.944	0.934
% Average HH size	0.664	0.484
Housing Characteristics		
% Occupied Housing Units	0.257	0.535
% Owner-occupied Housing Units	0.420	0.593
Economic Characteristics		
Area Median Household Income ¹⁶	0.868	0.900
% Households Living Above Poverty	0.816	0.792
Median Monthly Housing Costs (owners)	0.777	0.761
Median Gross Rent	0.852	0.796
Employment Characteristics		
% Labor force participation	0.754	0.663
% Employment	0.477	0.798
% Management occupations	0.952	0.941
Educational Attainment		
% Bachelor's degree	0.948	0.961
% variance	59.6%	61.1%

¹⁶ Expressed as a percentage (%) of the City of Atlanta median household income

2.5.2. The Geography of Gentrification of Atlanta: Using the Gentrification Index to Determine the Gentrification Status of Atlanta Neighborhoods

This study adopts a two-step process for identifying gentrified areas; in the first step, the eligible census tracts were identified using the adapted “threshold strategy” developed by Ding et al.; in the second step, the gentrification status of the eligible census tracts was determined using the newly created Gentrification index (Ding et al., 2016). Eligible census tracts are those that had a median household income below that of the city of Atlanta in 2000.¹⁷ The citywide median income was used as the threshold, because using the metropolitan area median income tends to overestimate the gentrification levels, and a larger number of census tracts would be identified as eligible to gentrify (Ding et al., 2016; Gibbons & Barton, 2016). Based on this criterion and Gentrification index values, three categories of census tracts were created:

1. Not eligible to gentrify (or ‘non-gentrifiable’)
2. Eligible to gentrify and gentrifying
3. Eligible to gentrify but not gentrifying (as of 2017) (Table 2.5.)

A neighborhood was deemed gentrifying if it was eligible to gentrify and experienced an increase in socioeconomic status between 2000 and 2017 (values of $G_i > 0$).

¹⁷ The median household income for the City of Atlanta in 1999 was \$34,770; however, many households were at extremes, 24% earned less than \$15,000, while 15% earned more than \$100,000 (U.S. Census Bureau, 2003)

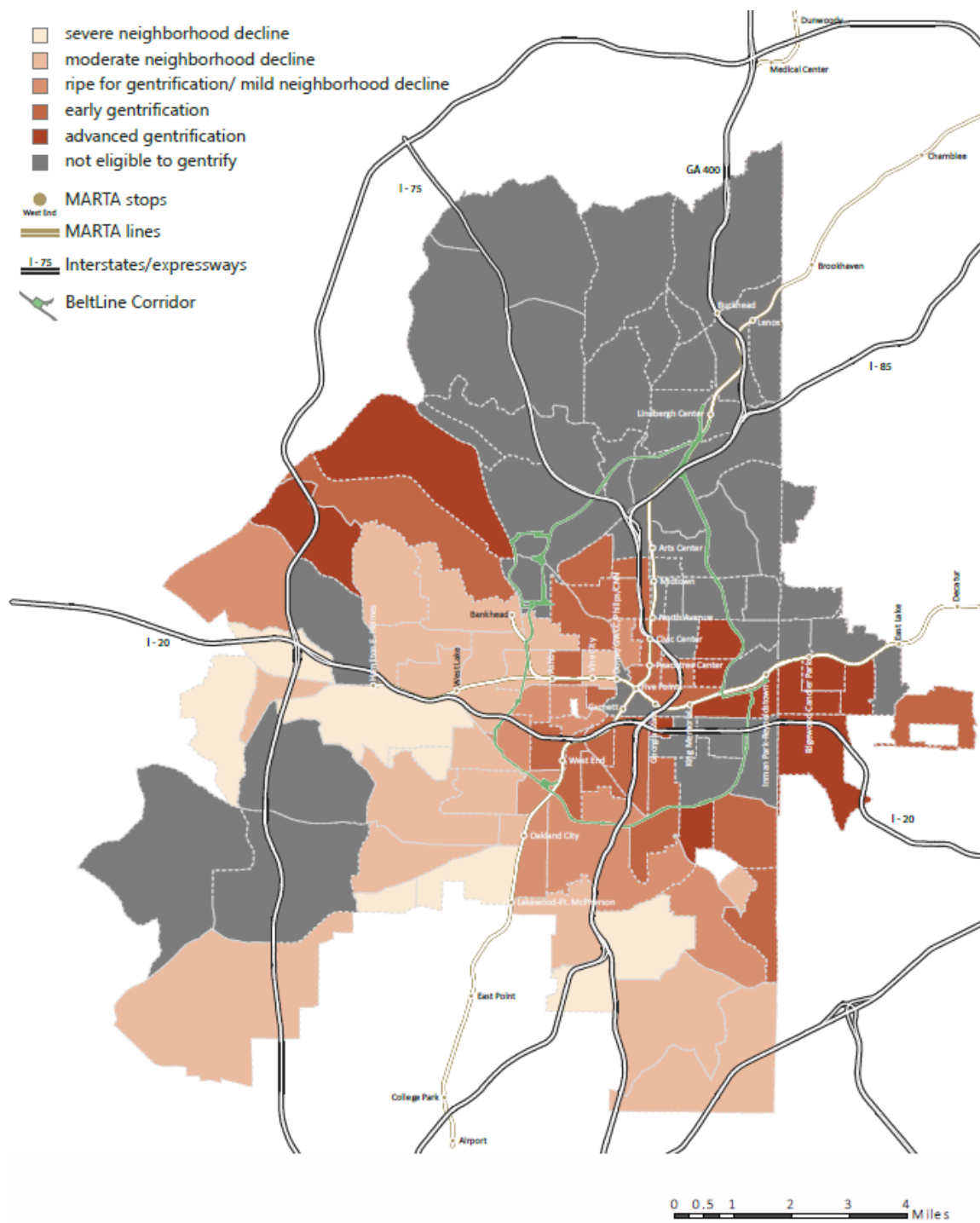


Figure 2.1: Comparative Gentrification Status of Census Tracts in City of Atlanta Based on the composite Gentrification index (Gi)

Table 2.3: Mean changes in SES indicators between 2000 and 2017 for every type of neighborhood change, for the city of Atlanta.

mean Δ %	Advanced Gentrification	Early Gentrification	Ripe for Gentrification	Moderate decline	Severe Decline
% Age cohort 25-44 [Δ]	14.8	2.8	0.8	-2.3	-4.6
% White population [Δ]	28.9	7.7	5.1	4.4	-3.3
% White householder [Δ]	29.3*	11.0	2.4	5.9	-3.7
% Average HH size [Δ]	7.8	9.1	-3.5	0.7	-1.7
% Occupied housing units	-3.8	-8.0	-16.7	-16.3	-14.0
% Owner-occupied Housing Units	10.1	2.9	2.3	-7.7	-9.4
Area median household income	19.7	10.7	7.3	1.9	-2.5
% Households living above poverty	19.9	9.8	0.0	-8.1	-13.7
Median Monthly Housing Costs (owners)	26.4	19.3	20.1	11.0	4.1
Median gross rent	30.6	25.1	20.6	16.5	12.2
Median house value	17.7	8.5	4.1	0.9	2.9
% Labor force participation	14.1	0.5	4.7	1.6	-7.1
% Employment	10.5	21.1	2.3	-2.7	-10.5
% Management occupations	25.2	15.3	10.4	4.4	0.5
% Bachelor's degree	32.7	20.1	8.9	4.7	0.6

* The numbers marked in bold indicate values of the indicators that have changed the most significantly from 2000 to 2017, for each type of neighborhood change.

Table 2.4: Typologies of Neighborhood Change for Census Tracts in City of Atlanta Based on the composite Gentrification index (Gi)

Not Eligible to Gentrify (‘Non-Gentrifiable’)	<ul style="list-style-type: none"> - Tracts that had a median household income above that of the city of Atlanta in 2000. - Many of the non-gentrifiable tracts were affected by the earlier gentrification waves in the 80s and 90s. They are considered stable or established neighborhoods, with little room for reversal.
Eligible to Gentrify (‘Gentrifiable’)	<ul style="list-style-type: none"> - Tracts that had a median household income below that of the city of Atlanta in 2000
Eligible to Gentrify and Gentrifying Tracts that experienced an increase in socioeconomic status between 2000 and 2017 (values of $Gi > 0$).	
Advanced Gentrification (Gi Values: 0.68 to 1.35)	<ul style="list-style-type: none"> - Tracts that have positive Gi index values and experienced a positive change ($\Delta > 0$) in most SES indicators. - The only variable with negative change was the homeownership rate that dropped in 2017, compared to 2000. - The most notable changes are the gain in the population that has bachelor's degree (+ 32.66%), median gross rent (+30.63%), and an average increase in the share of householders who are white (+ 29.34%)
Early Gentrification (Gi Values: 0.06 to 0.63)	<ul style="list-style-type: none"> - Tracts that have positive Gi index values and experienced a moderate positive change ($\Delta > 0$) in most SES indicators. - The only variable with negative change was the homeownership rate that dropped in 2017, compared to 2000. - The most significant changes for the census tracts in the early stages of gentrification are an increase in rent (+25.09), an average increase in the employment rate (+21.11%), and an increase in the share of college-educated residents (+ 20.05%).

Eligible to Gentrify but not Gentrifying (As Of 2017)	
Tracts with values of $G_i < 0$	
Ripe for Gentrification (Gi Values: -0.17 to 0)	<ul style="list-style-type: none"> - Census tracts that are deemed 'ripe for gentrification' had negative G_i index values (as of 2017) but still experienced a moderate positive change ($\Delta < 0$) in most SES indicators. It is expected that those census tracts will soon be in the early stages of gentrification. - The only variable with negative change was the homeownership rate that dropped in 2017, compared to 2000. - The most significant changes for the census tracts in the early stages of gentrification are a rent increase (+20.63%), an average increase in the monthly housing costs (+20.07%), and an increase in the share of residents working in managerial and administrative occupations (+ 10.38%).
Moderate Neighborhood Decline (Gi Values: -0.50 to -0.21)	<ul style="list-style-type: none"> - Census tracts in stages of moderate decline had negative G_i index values (as of 2017) and experienced a moderate negative change ($\Delta < 0$) in the following: 1) share of households living above poverty; 2) employment rate; 3) decrease in a cohort of residents who are 25-44 years old, 4) occupancy rate and 5) rate of owner-occupied units. - However, these census tracts still experience a modest increase in 10 out of 15 SES indicators. The most significant changes were an increase in rent (+16.52%), an increase in the monthly housing costs (+11.03%), and the share of householders who are white (+5.92%).
Severe Neighborhood Decline (Gi Values: -0.77 To -0.58)	<ul style="list-style-type: none"> - Census tracts in stages of severe decline had negative G_i index values (as of 2017) and experienced a negative change ($\Delta < 0$) in most SES indicators (10 out of 15). - The positive change was found only in the following: 1) residents in managerial occupations (+ 0.49%); 2) college-educated residents (+ 0.59%), 3) Median house values

(+2.87%); 4) monthly housing costs (+4.11%) and 5) monthly rent for the rental units (+12.25%)

The census tracts with positive values for Gi are considered gentrifying, while negative Gi indicates neighborhood decline or ‘de-gentrification’ (Fong, Cruwys, Haslam, & Haslam, 2019). The Gi for Atlanta ranged from -0.77 to 1.35, with a mean value of 0.03 (Table 2.7; Table 2.4.). The gentrifying census tracts were divided into two sub-categories based on the Gi value: census tracts in the stage of advanced gentrification and census tracts experiencing early gentrification (Table 2.4, Figure 1.1).

It was found that 37% of the census tracts in the City of Atlanta were not eligible to gentrify, and out of the 70 eligible census tracts, less than half (44%) were gentrifying (Table 2.5). However, an additional 17% of the eligible census tracts were deemed as 'ripe for gentrification' and will likely start to gentrify in the near future.

The census tracts in advanced stages of gentrification are geographically grouped in two clusters; one on the east side of the city, along Interstate 20 (I-20) and the MARTA East-West rail (Blue and Green Lines), and the other on the northwest side of the city, situated along the Chattahoochee River.¹⁸

¹⁸ The highly gentrified census tracts on the Atlanta eastside encompass the following neighborhoods or their parts: East Atlanta, Edgewood, Kirkwood, Old Fourth Ward, and Reynoldstown.

The census tracts experiencing early gentrification are almost always adjacent to already gentrified census tracts (ineligible to gentrify at the beginning of the period of analysis) and located throughout Atlanta. Early gentrification pressures are identified in Downtown and Midtown, as well as on Atlanta's Southside (Table H-1, Figure 1.1).¹⁹

Looking at the areas within one-half mile of the planned BeltLine trail, similarly, roughly two-thirds of the neighborhoods were eligible to gentrify (63%), but the percentage of those that are gentrifying is slightly higher than the average for the City of Atlanta overall, or 52% (Table 2.5).

The advanced gentrification in Northwest Atlanta is identified in the following neighborhood or their parts: Riverside, Bolton, Hills Park, Whittier Village, Watts Road, Bowen Apartments, Carey Park.

¹⁹ Early gentrification was identified in the following neighborhoods or part of the neighborhoods: On the eastside: East Lake; on the northwest side: Bolton Hills, Lincoln Homes, Scotts Crossing, West Highlands, Rockdale, Carver Hills; in central Atlanta: Downtown, Butler Street, Castleberry Hill, Midtown, Home Park, Bellwood, Georgia Tech, Centennial Place, Vine City, English Avenue, Herndon Apartments; on the southwest side: West End, Harris Chiles, Adair Park, South Atlanta, The Villages at Carver, Chosewood Park, McDaniel Glenn, Mechanicsville, Summerhill, Peoplestown, Pittsburgh; on the southside: South Atlanta, Thomasville Heights, Leila Valley, Norwood Manor, Custer/McDonough/Guice, Woodland Hills, Benteen, Boulevard Heights.

Table 2.5: The gentrification status of census tracts in the city of Atlanta, based on the composite Gentrification index.

Census tracts	City of Atlanta (n=111*)		1/2-mile buffer (n=46)	
Gentrification classification	Number	Percent	Number	Percent
Not eligible to gentrify	41	37%	17	37%
Eligible to gentrify	70	63%	29	63%
Not gentrifying (eligible)	39	56%	14	48%
Gentrifying (eligible)	31	44%	15	52%
Severe decline (eligible)	7	10%	0	0%
Moderate decline (eligible)	20	29%	8	28%
Ripe for gentrification (eligible)	12	17%	6	21%
Early gentrification (eligible)	19	27%	10	35%
Advanced gentrification (eligible)	12	17%	5	17%

* Number of census tracts that is used for comparison between 2000 and 2017 (95 unchanged and 16 aggregated)

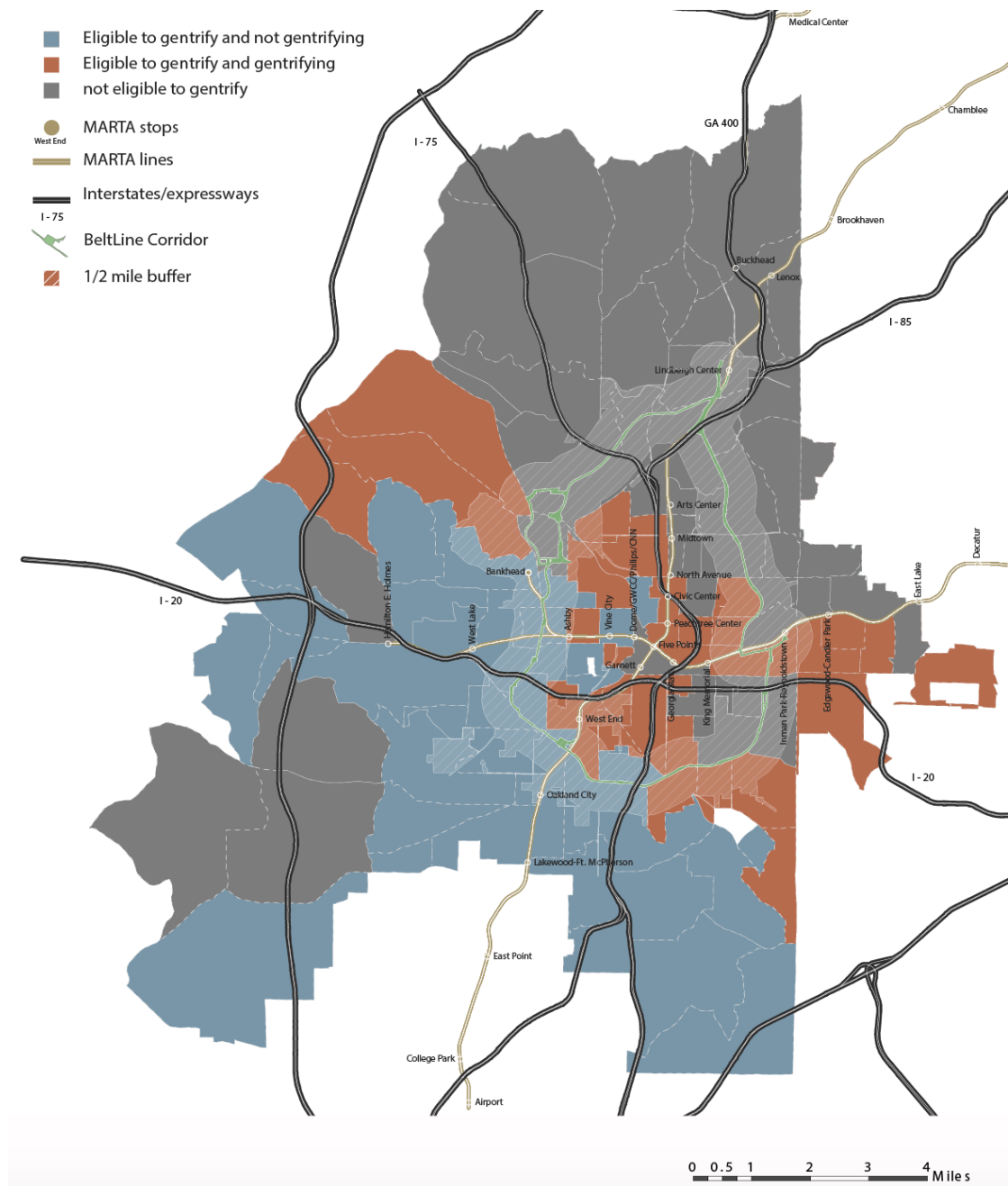


Figure 2.2: Comparative Gentrification Status of Census Tracts in City of Atlanta using the adapted threshold strategy and the Gentrification index (Gi)

2.5.3. Comparing Two Different Methodological Approaches for Identifying Gentrification: Validating the Results of the Gentrification Index and Exploring Neighborhood Changes Across Major Indicators of Gentrification

I used a modification of Ding et al.'s methodology to validate the composite Gentrification index results (Ding et al., 2016). A tract was deemed gentrifying if the increase in 1) share of college-educated residents, 2) share of the white population, and 3) median gross rent or 4) median income were higher than the citywide increase in the same indicators for the same period (Table 2.6.).²⁰

Table 2.6. shows the conditions of gentrifying, non-gentrifying, and non-gentrifiable census tracts in Atlanta in 2000 and how they changed between 2000 and 2017. The share of the white population increased in roughly two-thirds (66%) and the share of the college-educated population in almost a third of the census tracts (31%) in Atlanta. Since 2000, the median gross rent grew in nearly half of the census tracts (43%), and the median income in roughly one-quarter of the census tracts (26%). If we look at the census tracts that were deemed eligible to gentrify in 2000 (n=70, or 63%), we can see that they gained a white and college-educated population faster than the rest of the city; 55 (79%) experienced an increase in the share of the white population, while 26 (37%) saw an increase in residents with a bachelor's degree. However, both median gross rent and median income were rising at a slower pace than the city overall for the observed period.

²⁰ Most studies look at the increase in either median gross rent or median home value as critical indicators of changing affordability in a previously low-income neighborhood. Since the median home value was excluded from the index creation, in order to be consistent, it was decided to look at only median gross rent. Freeman argues that tracking the increase in the college-educated share of the population is a better way to determine whether the area is gentrifying because newcomers are often young professionals with relatively low incomes (Freeman, 2005)

Finally, 22 or nearly one-third of the eligible census tracts showed an increase in all the observed gentrification indicators since 2000 (Table 2.6.).

Table 2.6: The Gentrification status of census tracts in the City of Atlanta, using the adapted threshold strategy (Ding et al., 2016).

Census tracts	City of Atlanta (n=111*)					
	Gentrification classification	Number (%)	WP	CE	MGR	MHI
All census tracts		111 (100%)	73 (66%)	34 (31%)	48 (43%)	29 (26%)
Not eligible to gentrify		41 (37%)	18 (16%)	8 (7%)	21 (19%)	29 (26%)
Eligible to gentrify		70 (63%)	55 (79%)	26 (37%)	27 (39%)	17 (24%)
Gentrification Criteria						
Increase in % white population (WP)						
Increase in % college-educated population (CE)						
Increase in median gross rent (MGR)						
Increase in median household income (MHI)						
* Census Tracts that are gentrifying. Note: Census Tract is gentrifying if meeting all criteria (WP and CE and MGR or MHI)						
						22 (31%) *

2.5.4. Relationship Between Neighborhood Gentrification index and Self-Rated Health

Results of Quartile Analysis

To understand the relationship between gentrification and health, the census tracts were classified according to the Gentrification index (Gi) value and divided into quartiles (Q). Different quartiles reflect different gentrification levels, with the highest quartile corresponding to the most gentrified areas. The primary health measures of interest were poor self-rated mental health (PMH), poor self-rated physical health (PPH), and no leisure-time physical activity (LPA). The unadjusted proportion of LPA, PMH, and PPH were estimated for each quartile of the gentrification level using tabular analyses (Table 2.7. and Table 2.8).

There was a negative relationship between gentrification level and a percentage of residents who report Low Physical Activity and Poor Physical Health (Table 2.7) for the census tracts in Atlanta. For instance, the census tracts with the highest values of the Gi (tracts that fell into the fourth quartile of gentrification) had the lowest percentage of people reporting low physical activity, with a mean of 27.73% (ranging from 17.90% to 41.80%). The rates of self-rated LPH were also the lowest in the most gentrified areas, ranging from 5.20 to 16.80%, and a mean value of 9.72%. The relationship between gentrification and self-rated mental health was not entirely as consistent. A slightly higher percentage of people reported poor mental health in the census tracts in the third quartile of gentrification than the less gentrified census tracts in the second quartile (mean values 12.97 and 12.87, respectively).

For the census tracts eligible to gentrify, the pattern of decreasing the proportion of PMH, PPH, and LPA with increasing levels of gentrification was consistent (Table 2.8, and Figure 2.3). For instance, the lowest rates of poor mental and physical health and low physical activity occurred in the areas with a higher level of gentrification.

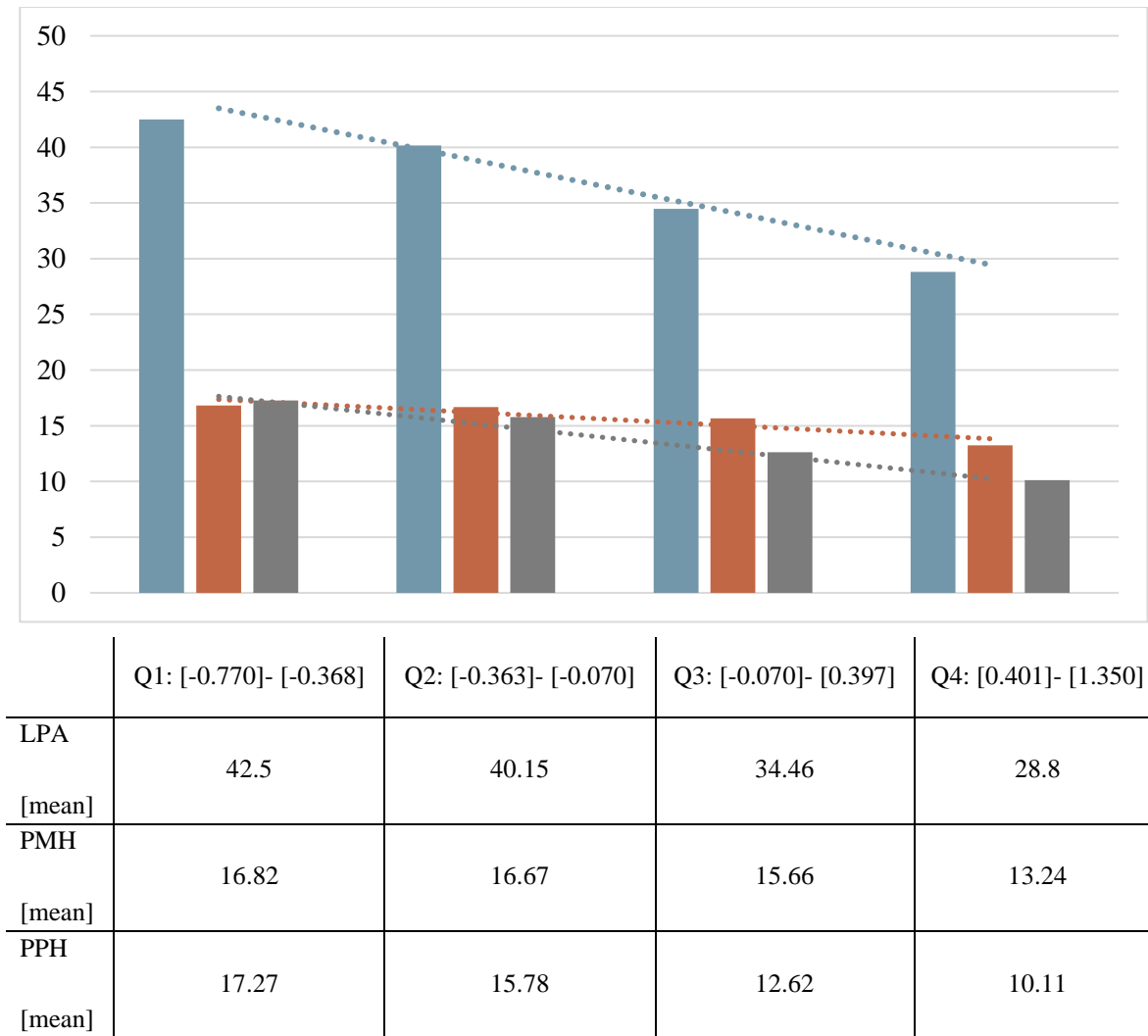


Figure 2.3: Percentage of residents who in 2016-2017 reported Low Physical Activity, Poor Mental Health, and Poor Physical Health in each quartile [Qe] of gentrification in the study area, for the eligible census tracts (Total N=73).

Table 2.7: Percentage of residents who in 2016-2017 reported Low Physical Activity, Poor Mental Health, and Poor Physical Health in each quartile [Q] of gentrification in the City of Atlanta (Total N=124). *

Gindex	Census Tracts (N)	Gindex mean (min, max)	SR Low Physical Activity [CrudePrev] mean (min, max)	SR Poor Mental Health [CrudePrev] mean (min, max)	SR Poor Physical Health [CrudePrev] mean (min, max)
City of Atlanta	124	-0.03 (-0.77; 1.35)	30.07 (15.40; 50.70)	13.14 (6.90; 25.00)	11.26 (4.70; 22.00)
Gentrification index quartiles					
Q1: [-0.770]- [-0.374]	31	-0.52	33.58 (16.90; 49.20)	13.84 (7.20; 20.80)	13.19 (5.90; 22.00)
Q2: [-0.368]- [-0.123]	31	-0.26	30.35 (5.40; 50.70)	12.87 (6.90; 25.00)	11.70 (4.70; 20.00)
Q3: [-0.117]- [0.216]	31	-0.01	28.61 (16.30; 42.00)	12.97 (7.30; 20.00)	10.45 (4.80; 16.50)
Q4: [0.224]- [1.350]	31	0.66	27.73 (17.90; 41.80)	12.88 (8.10; 19.00)	9.72 (5.20; 16.80)
P-value for trend	/	/	$P < 0.001$	$P < 0.001$	$P < 0.001$

* For this part of the analysis, to simplify the test the 2017 census tracts boundaries were kept. The health data are reported for the 2017 census tracts, and this way weighting the health outcomes data for the merged census tracts was avoided (N=124)

Table 2.8: Percentage of residents who in 2016-2017 reported Low Physical Activity, Poor Mental Health, and Poor Physical Health in each quartile [Qe] of gentrification in the study area, for the eligible census tracts (Total N=73).

Gindex	Census tracts (N)	Gindex mean (min, max)	SR Low Physical Activity [CrudePrev]	SR Poor Mental Health [CrudePrev]	SR Poor Physical Health [CrudePrev]
			mean (min, max)	mean (min, max)	mean (min, max)
City of Atlanta	124	-0.03 (-0.77; 1.35)	30.07 (15.40; 50.70)	13.14 (6.90; 25.00)	11.26 (4.70; 22.00)
Not Eligible to gentrify	51	/	/	/	/
Eligible to gentrify	73	0.05 (-0.77; 1.35)	36.37 (18.20; 50.70)	15.56 (9.20; 25.00)	13.89 (4.80; 22.00)
Gentrification index					
quartiles (eligible tracts)					
Qe1: [-0.770] - [-0.368]	18	-0.54	42.50 (36.70; 49.20)	16.82 (12.90; 20.80)	17.27 (14.10; 22.00)
Qe2: [-0.363] - [-0.070]	18	-0.22	40.15 (25.80; 50.70)	16.67 (13.30; 25.00)	15.78 (6.50; 20.00)
Qe3: [-0.070] - [0.397]	18	0.15	34.46 (18.40; 42.00)	15.66 (9.20; 20.00)	12.62 (4.80; 16.80)
Qe4: [0.401] - [1.350]	19	0.77	28.80 (18.20; 40.60)	13.24 (9.60; 19.00)	10.11 (5.80; 15.40)
P-value for trend	/	/	$P < 0.001$	$P < 0.001$	$P < 0.001$

2.6. Discussion

Past literature has used different methods to identify gentrifying neighborhoods: both qualitative and quantitative. However, very few studies have sought to create a way of synthesizing quantifiable and available data on gentrification indicators to understand neighborhood change trends and measure gentrification. This chapter outlined a standardized and reproducible approach for summarizing various socioeconomic domains and developing a composite index for measuring the change in socioeconomic status of neighborhoods. Additionally, this study also applied and compared the results of two methods for identifying gentrification and tested the composite gentrification index (Gi) accuracy in capturing the neighborhood change. Understanding the dynamics of neighborhood change is a critical first step in identifying areas likely to gentrify.

This chapter's main findings are organized according to the main research questions and discussed in detail below.

2.6.1. Identifying and Measuring Neighborhood Change

a) Using Principal Component Analysis (PCA) is a suitable data compression method useful for summarizing a substantial number of correlated variables and offers a reproducible approach for developing SES neighborhood indices.

The SES neighborhood index (SESi) was constructed by applying Principal Component Analysis (PCA) on 2000 and 2017 data for census tracts in the city of Atlanta. The analysis showed that the share of white residents (and share of white householders),

the share of the population that has a bachelor's degree or higher, and the share of residents working in managerial and administrative occupations were highly correlated variables. These variables, in addition to Area Median Household Income (AMI), also had the highest loadings on the SES index (Principal Component 1), meaning that those four variables are the most important metrics of the socioeconomic status of a neighborhood. The past literature on gentrification found that changes across those variables: changes in racial composition, especially drop in the share of the residents who were people of color, increase in the share of college-educated residents, and increased median income are the most significant markers that an area is gentrifying. Given this, the proposed index is expected to quickly and rather accurately detect areas that are gentrifying or are likely to gentrify in the near future.

b) The threshold-based methodology underestimated the gentrification in Atlanta compared to the composite Gentrification index (Gi) developed in this study.

Another method of measuring neighborhood change is to track relevant indicators over time. The “threshold strategy” that is used to validate the results of the composite index compares the increase in median rent, the share of the white population, and the share of college-educated residents or median household income to the citywide median percentage increase. The tract was ‘gentrifying’ if it experienced an increase above the citywide median increase in these indicators between 2000 and 2017. Only one-third (31%) of the Atlanta census tracts were considered ‘gentrifying’ based on these criteria. The percentage of the census tracts deemed ‘gentrifying’ was higher based on the composite index, since it measures absolute rather than relative shifts in neighborhood status,

regardless of the citywide SES change. The use of a composite index enables measuring the gentrification magnitude and stage. In addition, the use of a larger number of SES variables paints a richer picture of how the neighborhood is changing and tracking changes in each individual indicator.

Looking at the tracts eligible to gentrify (those that had a median household income below the citywide median in 2000) we can see that they are gaining a white and college-educated population faster than rest of the city: 79% experienced an increase in the share of the white population, and 37% saw an increase in college educated residents (Table 2.6.). It is important to note that those demographic trends correspond with trends in both the city and the Atlanta metropolitan area for the same period. Both the city and metro Atlanta saw strong population growth, and the city's racial and ethnic profile is changing. While the city gained Hispanic, white, and Asian residents, the share of the Afro-American population is decreasing. Of the 111 census tracts, the share of the white population increased in roughly two-thirds (66%) and the share of the college-educated population in almost a third of the census tracts (31%).

However, in gentrifiable tracts, both median gross rent and median income were rising at a slower pace compared to the city. The results echo the previous findings that neighborhoods in the early stages of gentrification usually attract young professionals who may have relatively low income compared to the rest of the city, but higher SES than incumbent residents, as they look for more affordable areas to live (Freeman, 2005).

2.6.2. *The Geography of Gentrification of Atlanta Based on the Newly-Developed Gentrification Index (Gi)*

- a) According to the newly-developed composite Gentrification index (Gi), in 2000, 63% of the census tracts in Atlanta were eligible to gentrify, and by 2017 almost half of them (44%) were in the process of gentrification.

Table 2.6. shows the gentrification status of census tracts in the city of Atlanta, based on composite Gentrification index. The study used the adapted “threshold strategy” developed by Ding et al., to identify the tracts eligible to gentrify in 2000 (Ding et al., 2016). For gentrification to occur, the neighborhood needs to have a lower median income than the city at the beginning of the observed period. In 2000, 70 census tracts (63%) had a median household income below that of the city of Atlanta in 2000 and were deemed as eligible to gentrify. For example, for the same year in Philadelphia, a city that ranks among the most rapidly gentrifying in the nation, according to Ding et al., just 50% of the census tracts (184 out of 365) tracts had income below the citywide median and were eligible to gentrify, while Gibbons and Barton found that in 2005 that number was already much lower, less than 20% (Ding et al., 2016; Gibbons & Barton, 2016).²¹ Out of 70 census tracts eligible to gentrify, 31 or 44% were showing signs of gentrification, while 56% tracts failed to gentrify as yet. As the additional 12 census tracts are deemed as 'ripe for gentrification', it is expected that 61% of the Atlanta census tracts will soon be in various stages of gentrification.

²¹ In 2000s, city of Atlanta (Fulton and DeKalb counties) had a disproportionate share of the Metro Atlanta's burden of poverty (The Brookings Institution Center on Urban and Metropolitan Policy, 2000).

b) The results show that proximity to the BeltLine was associated with accelerated gentrification and the potential to create concentrated affluence in the BeltLine Planning Area.

Looking at the census tracts located in the larger BeltLine Planning Area (BPA), which includes areas within one-half mile of the BeltLine trail path, we can see that roughly two-thirds of the neighborhoods were eligible to gentrify, but the percentage of those that are actually gentrifying is slightly higher than the average for the City of Atlanta (52%). With an additional 21% census tracts that are 'ripe to gentrify', nearly three quarters (73%) of the census tracts within one-half mile to the BeltLine are expected to experience changes in SES and upward economic swings. These results support previous findings on the effect of the BeltLine on property values, housing affordability, and sales prices within one-half mile and growing gentrification pressures in the BPA (Byahut, Ghosh, & Masilela, 2020; Immergluck & Balan, 2018).²²

Looking at the geography of the SES change based on the newly developed composite Gentrification index (Gi), it is possible to see some patterns in location, stages, and timing of gentrification of Atlanta neighborhoods.

²² Immergluck and Balan report that from 2011 to 2015 housing values rose between 17.9 percent and 26.6 percent more for homes within a half-mile of the Beltline than elsewhere in the city of Atlanta (Immergluck & Balan, 2018)

c) *The higher-income census tracts not eligible to gentrify are concentrated in the north and northeast portion of Atlanta.*

The census tracts not eligible to gentrify are concentrated in the north and northeast portion of the city (Figure 2.1.). They include middle and upper-income neighborhoods in the Neighborhood Planning Units (NPU) NPU-A, NPU-B, and NPU-C in the north, and NPU-E and NPU-F in the northeast. This north-south dividing line corresponds to the long-standing residential racial segregation patterns in the city (The Brookings Institution Center on Urban and Metropolitan Policy, 2000).

Another group of neighborhoods deemed ineligible to gentrify stretches north of the MARTA East-West rail. Inman Park, Candler Park, Lake Claire, and the eastern portion of Kirkwood were affected by the first gentrification waves in the 80s and 90s, and at the beginning of the period of analysis, they are already considered relatively affluent neighborhoods (Laura Jeanne Dedenbach, 2016). Previous literature found that the neighborhoods that began gentrifying in the first wave are often in close proximity to waterfronts or situated along the lines of public transit (Walks & Maaranen, 2008).

Neighborhoods south of I-20 that had an average income above the citywide median in 2000 (Grant Park and Ormewood Park) are now considered to be fully gentrified or in the stages of mature gentrification. It is important, however, to note that gentrification is a continuous and evolving process (Ding et al., 2016; Glass, 1964; Hwang & Sampson, 2014).

d) The census tracts in early stages of gentrification or ripe for gentrification are adjacent to already gentrifying areas and/or well-established affluent area.

As the process of neighborhood change often crosses administrative boundaries, the spillovers into adjacent neighborhoods are evident. The census tracts that are experiencing early gentrification are usually adjacent to already gentrified census tracts, while the ‘ripe for gentrification’ are contiguous to those that are seeing the first signs of gentrification. This pattern has almost a concentric form. The early gentrification pressures are identified in the areas of Downtown and Midtown, as well on Atlanta’s Southside (Table H.1, and Figure 1.1).²³

The index identified early gentrification in the areas along the proposed Southside BeltLine trail that officially closed for construction in February 2020, and along the Westside trail, construction for which started in 2015 and was officially opened in 2017. It should be noted that the period of analysis was 2000-2017 and that using the most recent census data (2020) would most likely yield different results and show accelerated gentrification along the entire BeltLine corridor.

²³ Early gentrification was identified in the following neighborhoods or part of the neighborhoods:

On the eastside: East Lake; *on the northwest side:* Bolton Hills, Lincoln Homes, Scotts Crossing, West Highlands, Rockdale, Carver Hills; *in central Atlanta:* Downtown, Butler Street, Castleberry Hill, Midtown, Home Park, Bellwood, Georgia Tech, Centennial Place, Vine City, English Avenue, Herndon Apartments; *on the southwest side:* West End, Harris Chiles, Adair Park, South Atlanta, The Villages at Carver, Chosewood Park, McDaniel Glenn, Mechanicsville, Summerhill, Peoplestown, Pittsburgh; *on the southside:* South Atlanta, Thomasville Heights, Leila Valley, Norwood Manor, Custer/McDonough/Guice, Woodland Hills, Benteen, Boulevard Heights

e) The census tracts within the BeltLine Planning Area experienced an increase in white and college-educated population, and an increase in housing vacancy from 2000 to 2017.

Out of 48 census tracts entirely or partially within one-half mile to the BeltLine, nearly three-quarters (73%) were either gentrifying or considered 'ripe for gentrification'. They all experienced an increase in median gross rent, median household income, and the share of the residents working in managerial and administrative occupations. In all but one tract (Chosewood Park), there was a significant influx of white residents since 2000. Another obvious trend was an increase in the share of college graduates; the outlier was census tract 44, part of the Mechanicsville neighborhood.

It is expected that as a neighborhood gentrifies and transitions to a more stable stage, the number of vacant housing units drops. However, this is not the case even for the census tracts in advanced stages of gentrification, even though the rate of vacancy increase was lower compared to the tracts in the early phases. Some of the tracts that were 'ripe for gentrification' had vacancy rates increase by almost 30%; in 2017, in Census tract 41 (part of the West End neighborhood), home vacancies increased by 28% and in Census tract 63 (part of the Pittsburg neighborhood). Both are directly adjacent to segments of proposed or already completed BeltLine trails. This can indicate that during the early stages of neighborhood change, many previously-occupied buildings in deteriorating and unhealthy physical conditions are being purchased from the original owners and that many dilapidated properties are being renovated (M. Cohen & Pettit, 2019; Helms, 2003).

f) The census tracts in advanced stages of gentrification are grouped in two clusters, concentrated in the oldest parts of the Atlanta and older suburbs and adjacent to well-established affluent areas.

The analyses of the changing SES highlighted two clusters of census tracts in advanced stages of gentrification. The first cluster is in Northwest Atlanta which is experiencing major gentrification pressure. It is situated along the Chattahoochee River and encompasses the neighborhoods Riverside, Bolton, and Whittier Mill Village. For the last couple of years, Atlanta's so-called "Upper Westside" witnessed intense residential and additional retail development and adaptive-reuse projects that are transforming this area into one of the most desirable neighborhoods inside the perimeter (Bagby, 2020; Keenan, 2018, 2020).

The second, larger cluster is located on the east side of the city and includes the following neighborhoods: East Atlanta, Edgewood, Kirkwood, Old Fourth Ward, and Reynoldstown. Two possible explanations can help understand this trend. First, this supports previous findings that the process of neighborhood change often crosses administrative boundaries and spills over to adjacent neighborhoods. Thus, this can be understood as continuity of the first wave of gentrification that affected Grant Park and areas north of MARTA rail tracks in the late 80s and 90s (Hammel & Wyly, 1996). However, Dekalb Avenue and MARTA train tracks bisected the city, forming a racial and economic boundary between the north and the south. What helped gentrification to cross the train tracks into once-blighted neighborhoods was the development of the Eastside BeltLine trail that officially opened in 2012. Even though technically outside of the

BeltLine Planning Area, Edgewood, East Atlanta, and Kirkwood are connected to the BeltLine through a network of walking and biking trails and parks. Corroborating previously reported findings, the Gentrification index identified that neighborhoods in proximity to the completed portion of the Eastside trail are in advanced stages of gentrification (Byahut et al., 2020).

These findings correspond to the previous literature that found that gentrification, as a highly selective process is taking place in specific areas in the cities (Gibbons & Barton, 2016; Hwang & Sampson, 2014).

2.6.3. Relationship Between Neighborhood Gentrification and Self-Rated Health

a) For the ‘gentrifiable’ census tracts, the lowest rates of poor self-rated mental and physical health and low physical activity occurred in areas with a higher level of gentrification.

While it is difficult to isolate the effects of gentrification on individuals' health, previous literature identified potential pathways through which gentrification might affect residents' health and well-being both positively and negatively. This study explored whether there is an association between gentrification, as measured by a newly developed Gentrification index, and residents' poor self-rated physical and mental health, and low levels of physical activity.

If we look at only census tracts that were eligible to gentrify in 2000, there was a consistent pattern of decreasing rates of poor self-rated health (both mental and physical) as well as a decreasing rate of residents who report low physical activity with increasing

level of gentrification. These findings suggest that, as the gentrification process improves the conditions and resources available in neighborhoods, these can translate into lower rates of poor self-rated health. The upgrading and physical improvement of the neighborhood, reduction in crime and increased safety, as well as lower poverty have positive effects on health and residents' well-being (Cole et al., 2019; Freeman & Braconi, 2004; Newman & Wyly, 2006).

These findings do not tell us, however, how different groups of residents were affected by the gentrification of their neighborhood. As this study does not control for any of the socioeconomic factors (such as age, income level, race, or years living in the neighborhood), it is impossible to determine how different groups of residents are affected by neighborhood changes. More importantly, looking at health outcomes at the census tract level, as opposed to individual residents' health, we are not able to distinguish between new residents (gentrifiers) and longstanding residents. It remains unclear whether the residents of gentrifying census tracts report better health as a result of neighborhood improvements, or better health is reported by the newer (and often younger and healthier) residents. These findings echo previous studies' results that we still lack the evidence of actual health improvements resulting from the BeltLine development. For example, Dai et al. used Urban Health Index (UHI) to study changes in geographic disparities in social determinants of health in Atlanta and found that areas that experienced improved social determinant status and reduced disparities between 2000 and 2010 also underwent significant demographic changes (Dai, Rothenberg, Luo, Weaver, & Stauber, 2017).

While this study's results show associations between gentrification and lower rates of self-rated poor health, these are not sufficient to claim that gentrification has a positive effect on health and well-being. It remains unclear whether incumbent residents' health is improving or higher rates of reported good health may indicate an influx of new, more affluent, younger, and healthier residents.

2.7. Concluding Remarks

This study contributes to the gentrification and urban health literature by outlining a replicable method for developing a neighborhood gentrification index, capitalizing on free and readily available U.S. census data. In addition to the development of the composite neighborhood Gentrification index (Gi) using the Principal Component Analysis (PCA) approach, this study also sought to compare the results of two methods and test the accuracy of the Gi in capturing the neighborhood change. As noted previously, it was found that using an index could portray a large amount of data in a simple and easy to comprehend manner. While tracking relevant single indicators over time can be an effective way to approximate socioeconomic changes, this approach can oversimplify the transformation that a neighborhood is going through. A composite index is also less affected by changes in a single variable. Finally, one of the biggest strengths of the index is that it enables us to quantify the change and identify “at-risk” neighborhoods before gentrification occurs.

The newly-developed Gentrification index identified advanced gentrification in areas contiguous to the neighborhoods gentrified in the first waves of gentrification (now considered stable), prior to 2000s, as gentrification often spills over to adjacent

neighborhoods. It was also observed that census tracts within one-half mile of the BeltLine trail path are undergoing gentrification pressures.

In addition, this chapter documents the relationship between gentrification and residents' self-rated health. It was found that gentrifying neighborhoods in Atlanta, especially those in the more advanced stages of gentrification, have lower rates of poor self-rated physical and mental health, and lower rates of residents who report no leisure-time physical activity. However, it remains unclear whether better health outcomes are reported by newer, healthier residents moving to up-and-coming neighborhoods, or by long-term residents of the neighborhood.

This study has several limitations. First, using census tract-level data in gentrification studies is a challenge, as census tracts change boundaries over time. Even though this study developed a data crosswalk strategy to overcome these issues, this can affect the accuracy of the results in a large data sample. The boundaries of census tracts do not necessarily align with neighborhood boundaries, or what residents perceive as "neighborhoods" themselves. The data reported in the Census and American Community Survey do not capture some small changes and actual conditions on the ground. Even though census tracts are widely used as an approximation of neighborhoods, gentrification often crosses those administrative boundaries (Hammel & Wyly, 1996). Finally, assigning socioeconomic changes in the neighborhood to a single process, such as gentrification, or in this case to the development of the BeltLine, can lead to incomplete conclusions.

Data on health outcomes from 500 Cities Data portal should be used with caution (Seaberry & Abraham, 2017). It is important to understand that the estimates are not direct

survey measures of health and well-being. They are based on an innovative peer-reviewed statistical model that links BRFSS survey data and high-resolution demographic and socioeconomic data. Additionally, estimates are not age-adjusted, and should not be used to compare the health status of census tracts in different cities. As noted earlier, the census-tract level data do not offer the ability to discern between the health of the incoming residents and the longstanding ones. While gentrification was proxied by the change in the socioeconomic status of the census tract between 2000 and 2017, the data on health outcomes are from the 2016-2017 BRFSS survey, and 2000 data are not available on census tract level. To better understand the impact that gentrification has on the health of the original residents, longitudinal health data collected over a longer period is needed.

Other studies on gentrification have used a qualitative approach to capture visible aspects of neighborhood upgrading, but also to gather qualitative evidence from the vantage point of incumbent residents and examine their perceptions of urban changes and their impacts on health. The results of these qualitative studies provide important insight into residents' perception and use of health-promoting community resources in gentrifying neighborhoods and can serve as a piece of valuable information for crafting effective community-improvement health strategies.

CHAPTER 3. A QUALITATIVE STUDY OF PERCEPTION AND USE OF OPPORTUNITIES FOR PHYSICAL ACTIVITY IN TWO ATLANTA NEIGHBORHOODS ADJACENT TO MULTIUSE URBAN TRAIL

In the previous chapter, I proposed and tested the Standardized Neighborhood Gentrification index and demonstrated the index's utility in identifying areas undergoing rapid socioeconomic changes.

Chapter 2 also explored the relationship between gentrification and residents' self-rated health using available secondary data on health outcomes. I found that as the level of change in socioeconomic status increased the rates of residents who report poor physical and mental health and low physical activity decreased.

Chapter 3 explores the underlying perceptions and attitudes for the findings in Chapter 2 by employing a qualitative approach to capture the lived experiences from the vantage point of incumbent residents of the two Atlanta neighborhoods adjacent to the BeltLine trail in the stages of early gentrification. In this chapter, I report on interviews with 14 long-term residents to examine residents' perceptions of the neighborhood's environmental changes and opportunities for healthier lifestyles.

3.1. Introduction

Urban greenways continue to receive plenty of attention both in popular and academic literature due to their benefits for urban populations' health and well-being (Fabós, 2004; Searns, 1995). Much of the academic research has focused primarily on trail users' dynamics and patterns of use and on exploring the health benefits of greenways (Frank et al., 2019; Harnik & Welle, 2011; J. H. Lee et al., 2002; Shafer et al., 2000; Tzoulas et al., 2007). Many of these studies have found that greenways are consistently used. However, part of the rationale for these greenways is that local residents will use them for everyday physical activity. It unclear from the existing literature if the users of greenways are new residents who are already active and whether long-term residents take advantage of these opportunities (Corning, Mowatt, & Charles Chancellor, 2012; Palardy et al., 2018b; S. Weber, Boley, Palardy, & Gaither, 2017). This exploratory study seeks to fill this gap by focusing on subjective experiences of incumbent residents who lived in the neighborhood before the greenway was developed, exploring whether they might experience some negative impacts in addition to potential benefits (Corning, Mowatt, & Charles Chancellor, 2012; Lindsey, Man, Payton, & Dickson, 2004; Lindsey, Maraj, & Kuan, 2010).

Once completed, the Atlanta BeltLine trail will be a 22-mile long regreening "rails-to-trails" development that converts unused railroad into a network of trails, parks, housing, transit, connecting 45 diverse neighborhoods in the Atlanta inner core (ADA, 2005a, 2005b). Based on the classification proposed by Searns, the Atlanta BeltLine belongs to the third generation of greenways that can have a multitude of ecological, social, and health

impacts (Searns, 1995).²⁴ They promote active transportation (such as biking and walking), create recreation opportunities, strengthen the local economy, and preserve the environment (Corning, Mowatt, & Charles Chancellor, 2012; Gobster, 1995; Schasberger et al., 2009; Searns, 1995). At the same time, those multi-objective projects can catalyze area gentrification and create a number of stressors for original residents, such as decreased affordability of the area and displacement (Anguelovski et al., 2018; Draus et al., 2020; Gould & Lewis, 2016; Palardy, Boley, & Gaither, 2018a; Rigolon & Németh, 2020).

In the previous chapter, the newly developed Gentrification index (Gi) identified that areas within one-half mile of the BeltLine trail path are undergoing gentrification pressures. Chapter 2 also documents the relationship between gentrification and higher rates of residents who report good overall health. However, relying solely on census tract level data does not distinguish between new residents ('gentrifiers') and incumbent residents. Little is known about incumbent residents' attitudes towards the newly-developed urban trails and health-promoting resources, nor the extent to which they use them. A growing literature suggests that residents' appraisals of their neighborhood's quality are also related to residents' health (Bures, 2003; Rios et al., 2011).

This chapter aims to develop a deeper understanding of perception and use of green amenities by incumbent residents and experience of living through neighborhood gentrification from incumbent residents' vantage point. The chapter examines long-term

²⁴ Searns identified three distinct stages or 'generations' of greenways:

- Generation 1: The ancestral greenways, axes, boulevards, and parkways (pre- 1700s-circa 1960)
- Generation 2: The car-free greenways with the primary goal of providing recreational opportunities. They usually provide access to rivers, streams, ridgelines, railbeds (circa 1960-circa 1985)
- Generation 3: The 'multi-objective' greenways that, in addition to recreation and beautification, address environmental and infrastructure needs (circa 1985 onward) (Searns, 1995)

residents' responses to the urban trail development and their subjective experiences of living adjacent to the trail. As multi-use trails provide new opportunities for physical activity and social interactions, this study uses a retrospective approach to evaluate self-reported changes in individual health behavior before and after the trail construction. Finally, this chapter asks what factors and elements of the trail design the long-term residents identify as facilitators and barriers to use and engaging in healthier lifestyles (e.g. access points, trail amenities, trail surfacing).

The chapter looks closely at two neighborhoods adjacent to the recently opened segment of the Atlanta BeltLine- the Westside Trail, Adair Park, and West End. Both neighborhoods are showing signs of early gentrification, according to the Gentrification index (Table H.1).

The underlying rationale of this study is grounded in the social-ecological model of health promotion and health behavior. This model suggests that individual health behavior results from a complex and multi-level interaction between situational and personal factors, rather than focusing exclusively on biological, environmental, or behavioral patterns of well-being (Stokols, 1996).

3.2. Background

An urban greenway is a “linear open space established along either a natural corridor such as a riverfront, stream valley or ridgeline or overland along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route” (Little, 1995). New trails and greenways are often introduced to neighborhoods with the rationale that

they help improve residents' health by offering opportunities for recreation and non-motorized transportation and by improving the overall environmental quality (Searns, 1995; Shafer et al., 2000). The growing literature on urban greenways highlighted many additional benefits, including stimulation of local economies, tourism, flood damage reduction, and preserving culturally and historically significant places (Corning, Mowatt, & Charles Chancellor, 2012; Lindsey et al., 2004; Moore & Ross, 1998; Searns, 1995; Siderelis & Moore, 1995). Several studies emphasized the social and psychological benefits of living close to, and using, shared green spaces. The residents in one study reported using the trail improved family relationships and friendships and created connections with the neighbors (Corning, Mowatt, & Charles Chancellor, 2012). Common green spaces have also been found to foster positive social interactions, help develop a sense of community and social ties and strengthen the neighborhood's cohesion (Corning, Mowatt, & Charles Chancellor, 2012; Coutts, 2016; Moore & Shafer, 2001; Shafer et al., 2000; Wendel, Zarger, & Mihelcic, 2012).

Introducing greenways to lower socioeconomic status neighborhoods, with higher percentages of minorities (African Americans or Hispanics), can have a more significant impact, as those neighborhoods tend to lack health-promoting environmental resources (Wen, Zhang, Harris, Holt, & Croft, 2013). Urban greenways can be one way to mitigate the adverse effects of lack of amenities, as residents of those neighborhoods often have disproportionate rates of obesity and chronic diseases (Lopez & Hynes, 2006; Singh, Siahpush, & Kogan, 2010; W. C. Taylor, Poston, Jones, & Kraft, 2006). Previous studies have shown that health-related behaviors such as physical activity (exercise, utilitarian walking, and biking) increase when opportunities and physical infrastructure exist (Frank

et al., 2019; Gordon-Larsen et al., 2006; Papas et al., 2007; Saelens et al., 2003; Zhu et al., 2014). However, creating a supportive infrastructure is not sufficient on its own to promote physical activity and ensure that residents will adopt healthier lifestyles (Cleland, Ball, & Crawford, 2013; C. Lee & Moudon, 2004; J. Sallis, Bauman, & Pratt, 1998).

The previous literature found that parks and open spaces increase the value of nearby properties, and trails and greenways may have a similar effect (Crompton, 2001). Crompton looked at the eight studies that surveyed people's perceptions of the impact of trails, and between 20% and 40% of those surveyed believed that the presence of a trail enhanced home values. However, the prevailing opinion was that greenways have neutral impact on nearby home values (Crompton, 2001). Lindsey et al. used geographic information systems (GIS) and real estate sales data in Indianapolis, Indiana, and found that some, but not all, greenways have a positive, significant effect on property values (Lindsey et al., 2004). Regreening interventions and converting vacant urban land into community parks and unused rail corridors to trails can catalyze 'green', 'environmental', or 'ecological gentrification' (Anguelovski, 2016; Anguelovski, Connolly, et al., 2019; Cole et al., 2017; Dooling, 2009).

Green gentrification brings many changes to a neighborhood, transforming it from a resource-limited area into one with many new health-promoting resources, such as pedestrian and bike infrastructure, parks, recreational amenities and outlets providing healthy food options (Brummet & Reed, 2019; Chetty et al., 2016; Freeman, 2011; Gibbons et al., 2018; Gould & Lewis, 2016; Lindsey et al., 2006; Popkin et al., 2005; Vigdor et al., 2002). These improvements in services and neighborhood safety can support individuals'

healthy choices and positively impact health for both adults and children (Freeman & Braconi, 2004; Newman & Wyly, 2006). Residents of gentrifying neighborhoods with better access to active green spaces were less likely to report fair or poor health, but these apparent health benefits held only for residents with higher income and higher education (Cole et al., 2019).

Despite the numerous benefits of urban greenways, regreening initiatives can create many concerns for original residents (S. Weber et al., 2017). Common concerns include amount of traffic, safety, lack of privacy, gentrification and decreased affordability of the area, and fear of physical and cultural displacement of the legacy residents (Cole et al., 2017; Lindsey et al., 2006; Lindsey et al., 2010). These concerns can instigate negative feelings towards greenway development, bring resentment, and discourage the residents from using it (Hyrá, 2015; Shmool et al., 2015).

Even though investments in green infrastructure in resource-limited neighborhoods are often made with the hope of improving the quality of life of existing community, it is still not fully understood whether incumbent residents have a positive perception of newly provided greenways, to what extent do they use them, and whether these residents are engaging in health-promoting behaviors. The previous literature on urban greenways focused primarily on patterns of use, and the research on health-related experiences of legacy residents living adjacent to newly developed trails is limited (J. H. Lee et al., 2002).

This study seeks to fill this gap by focusing on the subjective experiences of residents who lived in the neighborhood before the trail was developed. The previous chapter found that two case study neighborhoods adjacent to the Atlanta BeltLine Westside

trail are in the early stages of gentrification. The results also suggest the association between gentrification and better self-rated residents' health. These quantitative findings rely solely on secondary data and point to a need to use qualitative methods to understand the residents' perceptions of changes in the built environment and engaging in health-promoting behaviors.

3.3. Research Objectives and Research Questions

The overall aim of this chapter is to explore what factors are associated with the perception and use of health-promoting resources in two gentrifying neighborhoods adjacent to the newly developed urban greenway based on long-term residents' assessment. Table 3.1. presents the chapter's four main objectives and specific research questions.

This chapter's first objective is to explore long-term residents' perceptions and attitudes towards changes in the neighborhood's social and economic environment. Further, the chapter aims to assess whether the residents' perceptions are consistent with the Gentrification index results.

The second objective is to explore what types of transformations in the neighborhood physical environment the long-term residents perceive and their attitudes towards emerging health-promoting resources.

This chapter's third objective is to examine whether long-term residents perceive changes in their physical activity (PA) level or type now that they have access to the urban greenway (such as bicycling, walking).

Finally, the fourth objective is to elicit residents' perceptions about their experience and use of the newly developed BeltLine trail, specifically around environmental barriers and facilitators to PA.

Table 3.1: Study aim, goals, and specific research questions.

Overall aim: To explore what factors are associated with the perception and use of health-promoting resources in two gentrifying neighborhoods adjacent to newly developed urban greenway trails, based on long-term residents' assessment.

<p>Objective 1:</p> <p>Assess how do residents' perception of the neighborhood relate to the findings of the secondary data analysis (Gentrification index)</p>	<ul style="list-style-type: none"> • What types of transformations in the neighborhood social and economic environment do the long-term residents perceive? • How are long-term residents experiencing changes in their neighborhoods?
<p>Objective 2:</p> <p>Explore long-term residents' perception of changes in the built environment since the BeltLine trail development.</p>	<ul style="list-style-type: none"> • What types of transformations in the neighborhood physical environment do the long-term residents perceive? • What are the residents' attitudes towards existing and emerging health-promoting amenities in the neighborhood?
<p>Objective 3:</p> <p>Examine the impact of perceived neighborhood changes and the addition of a community trail on long-term residents' physical activity.</p>	<ul style="list-style-type: none"> • Do long-term residents report any changes in their PA level or activity type since the Westside Trail opened? • What factors are associated with changes in their physical activity level, based on their assessment?
<p>Objective 4:</p> <p>Elicit residents' perceptions about their experience and use of the new BeltLine trail, specifically around environmental barriers and facilitators to PA.</p>	<ul style="list-style-type: none"> • How do long-term residents describe the use of the newly developed BeltLine trail? • What potential impacts of the BeltLine do the long-term residents perceive? • What are the perceived barriers and facilitators to the BeltLine trail use?

3.4. Materials and Methods

3.4.1. Study Setting

Adair Park and West End, located southwest of downtown Atlanta, were selected for further analysis based upon the following criteria. They are:

- Census tracts with ready access to already completed segments of the BeltLine trail
- Census tracts within one-half mile of the BeltLine trail path (a half-mile roughly corresponds to the distance someone can walk in 10 minutes at 3 miles per hour. According to The Trust for Public Land, a 10-minute walk is considered a reasonable distance for accessing public parks (The Trust for Public Land, Park score)).
- Census tracts in early stages of gentrification based on the Gentrification index values (primarily to increase chances of recruiting long-term residents, as neighborhoods in advanced stages of gentrification can have higher population turnover rates)

These two historic neighborhoods were developed as streetcar suburbs in the late nineteenth century. The recently opened Atlanta BeltLine Westside trail follows the path of the former Railroads of the Atlanta Belt Line operating on the city's west side (Gravel, 2016). By studying two neighborhoods, the goal was to increase the relevance of findings and reveal patterns in the data that are not specific for only one area.

I. Study Area Historic Context

Adair Park and West End are part of the Atlanta Westside, where many of the city's historic Black neighborhoods lie. The neighborhoods were mostly white until the 1960s and transitioned to overwhelmingly African American by the 1970s due to white flight. Adair Park was a working-class community "filled with very modest homes" and "few illusions of its own upward mobility" (Kruse, 2013). West End, on the other hand, catered to the white upper-middle class. Many white families fled to the northern suburbs around Atlanta in reaction to court-ordered desegregation of municipal spaces and services in the 1960s and especially the 1970s. West End became home to many African-American families, especially along the northern edge of the neighborhood, where many African-Americans associated with the Atlanta University Center (AUC), the hub of historically black colleges and universities (HBCU), lived.²⁵ The construction of Interstate 20, which began in the late 1950s to provide better access to the West End business district, actually served as "the boundary between the white and Negro communities" on the Atlanta Westside, and deepened racial segregation (Kevin M. Kruse, 2019).²⁶

However, as Kruse writes, the 'white flight' in Atlanta was not just physical migration; the white middle class started withdrawing their "political, social, and financial" support from the city (Kruse, 2005). The "tax revolt" and opposition of using the "white

²⁵ Clark Atlanta University was founded in 1865, three months after the end of the Civil War, as the first HBCU in the Southern United States.

²⁶ In the words of Atlanta mayor William B. Hartsfield, Interstate 20 served as "the boundary between the white and Negro communities" on the west part of Atlanta (Kevin M. Kruse, 2019)

taxpayers' money" to fund shared public spaces and services led to decades of disinvestment in areas with a predominately African-American population.

The ongoing transformation of the neighborhoods in southwest Atlanta resulted from the number of factors that the previous literature recognized as harbingers of gentrification. Since the 1990s, both city and metro Atlanta saw strong population growth, and the city's racial and ethnic profile is changing. The white population share increased in roughly two-thirds (66%) of the city census tracts and the percentage of the college-educated population in almost a third of the city census tracts (31%). The economy has been shifting towards white-collar corporate and tech jobs, and from 2000 to 2017, there was a 27% increase in residents working jobs that require post-secondary education. Due to their proximity to the Downtown business district, access to transit, and initially affordable housing that often attracts young professionals with relatively low incomes, Adair Park and West End became desirable in-town neighborhoods (Freeman, 2005).

II. Study Area Characteristics

As prewar streetcar suburbs and inner-city areas, older housing stock, and minutes from the Beltline trail, Adair Park and West End were ideal candidates for gentrification. Both neighborhoods have the layout of a typical early 20th-century residential suburb with a walkable grid.

Adair Park is a small, thin, long neighborhood, only three blocks wide and originally six blocks long. It has the layout of a typical early 20th-century residential suburb, with long, narrow lots and houses; usually mid-sized bungalows placed close to

the street (Kruse, 2013; National Park Service - U.S. Department of the Interior). The southern portion of Adair Park was predominantly residential, zoned for single-family housing, while the northern portion was primarily industrial.

West End, on the other hand, always had a commercial district, a cluster of more than 50 businesses along Ralph David Abernathy Boulevard (RDA). Today, the Mall at West End that serves as the commercial core is located in the northeast part of the neighborhood, south of I-20, at the intersection of Lee Street and RDA Boulevard.

Both neighborhoods are adjacent to the trail and belong to the BeltLine Planning Area (WestEnd is part of the Subarea 1: Ralph David Abernathy (RDA) Boulevard / Cascade Avenue; Adair Park belongst to Subarea 2: Pittsburgh/Peoplestown East – Figure 3.1.) (Atlanta Beltline Inc. GIS). West End neighborhood was home to the BeltLine's first segment to be built when the 2.4-mile West End Trail opened in 2008 (Atlanta BeltLine). Adair Park got direct access to the BeltLine when the Westside Trail opened in September 2017 (Atlanta BeltLine). Both neighborhoods were showing signs of early gentrification in 2017.

A map depicting the locations of the two communities within the BeltLine is shown in Figure 3.1.

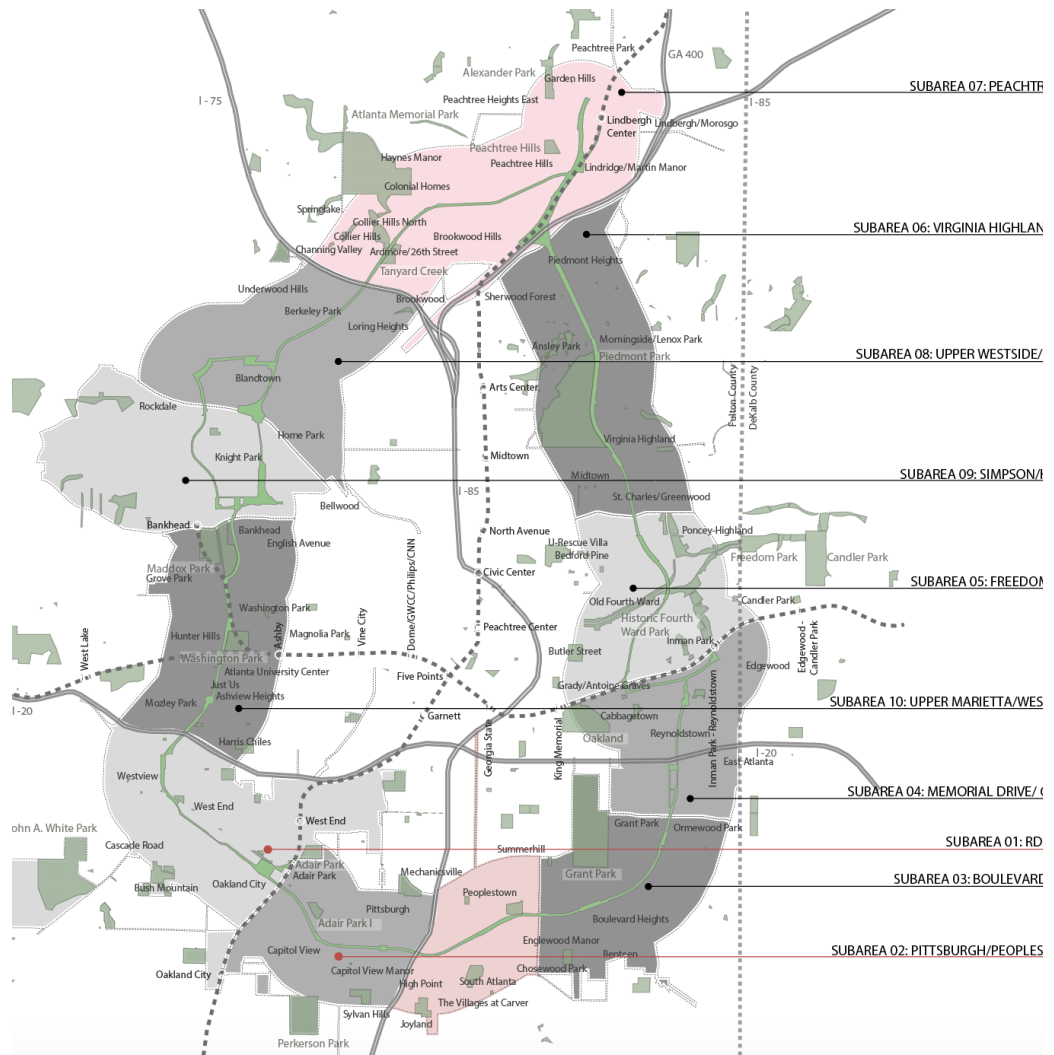


Figure 3.1: Atlanta BeltLine Planning Area and Subareas. WestEnd is part of the Subarea 1: Ralph David Abernathy (RDA) Boulevard / Cascade Avenue; Adair Park belongst to Subarea 2: Pittsburgh/Peoplestown East

In 2015, both Adair Park and West End were in the category of somewhat walkable neighborhoods, based on the Walk Score®. This score assesses the changes in both neighborhoods' walkability (Appendix J, Figure 3.2.). Walk Score® is a free and publicly available web-based tool that calculates the walkability score of an area as a function of access to local destinations within 1 mile (such as parks, grocery shops, restaurants, schools, fitness centers).²⁷ Additional factors are average block length and population density (Front Seat Management, 2017).

Their score indicates that residents of both neighborhoods could accomplish some errands on foot. Having retail and other amenities within a 5-minute walk, West End scored 17 additional points, indicating better walkability. Both neighborhoods had a higher walkability scores than the zip codes of the larger area to which they belong (30310). In 2017, both neighborhoods' walk score increased a few points; while Adair Park stayed somewhat walkable, West End became a very walkable neighborhood. Current Walk Scores indicate a small decline, but still, both neighborhoods have much higher walk scores than the 30310 zip code and the average for Atlanta (Figure 3.2).

²⁷ Several previous studies used Walk Score® as a measure of area walkability (An & Pivo, 2016; Cortright, 2009; Gilderbloom, Riggs, & Meares, 2015; Koohsari et al., 2018; Koschinsky & Talen, 2015; Leinberger & Lynch, 2015).

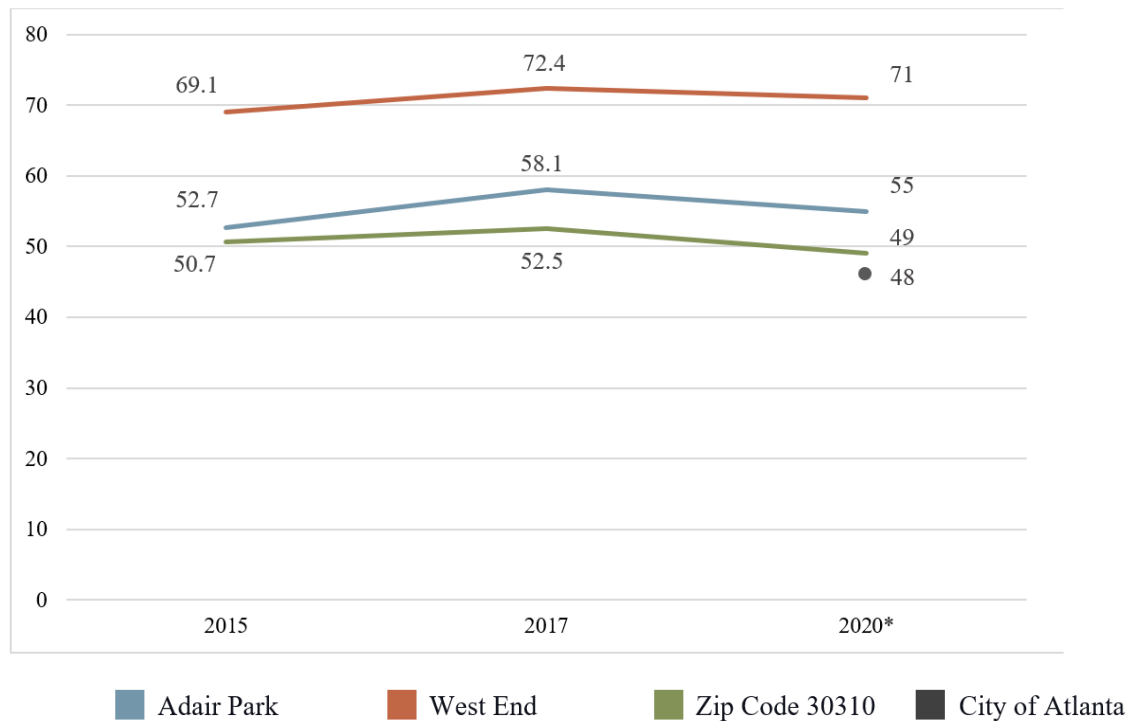


Figure 3.2: The changes in the walkability between 2015 and 2017 measured by Walk Score. (Appendix J)

III. Study Area Socioeconomic Status

In the previous chapter, census tracts are used as a geographic approximation for neighborhoods (Browning & Soller, 2014; Cort et al., 2014; Cutler et al., 1999). The census tracts' boundaries do not necessarily align with neighborhood boundaries or what residents perceive as "neighborhoods" themselves. Figure 3.3. shows the census tracts that are part of the case study neighborhoods: Adair Park and West End.

Adair Park consists of a single census tract (tract 58; ID 13121005800), and only a small portion of that tract on the northern edge falls outside of the neighborhood (Figure 3.3). The West End is a larger neighborhood, extending across four census tracts. Two were excluded from this analysis because only small portions of them (less than 30%) are within

the official West End boundaries; only Census Tract 41 (ID 13121004100) and Census Tract 42 (ID 13121004200) were included in the analysis. These tracts also correspond to what is designated as the West End Historic District (National Park Service - U.S. Department of the Interior). The socioeconomic characteristics for selected neighborhoods are shown in Table 3.2.

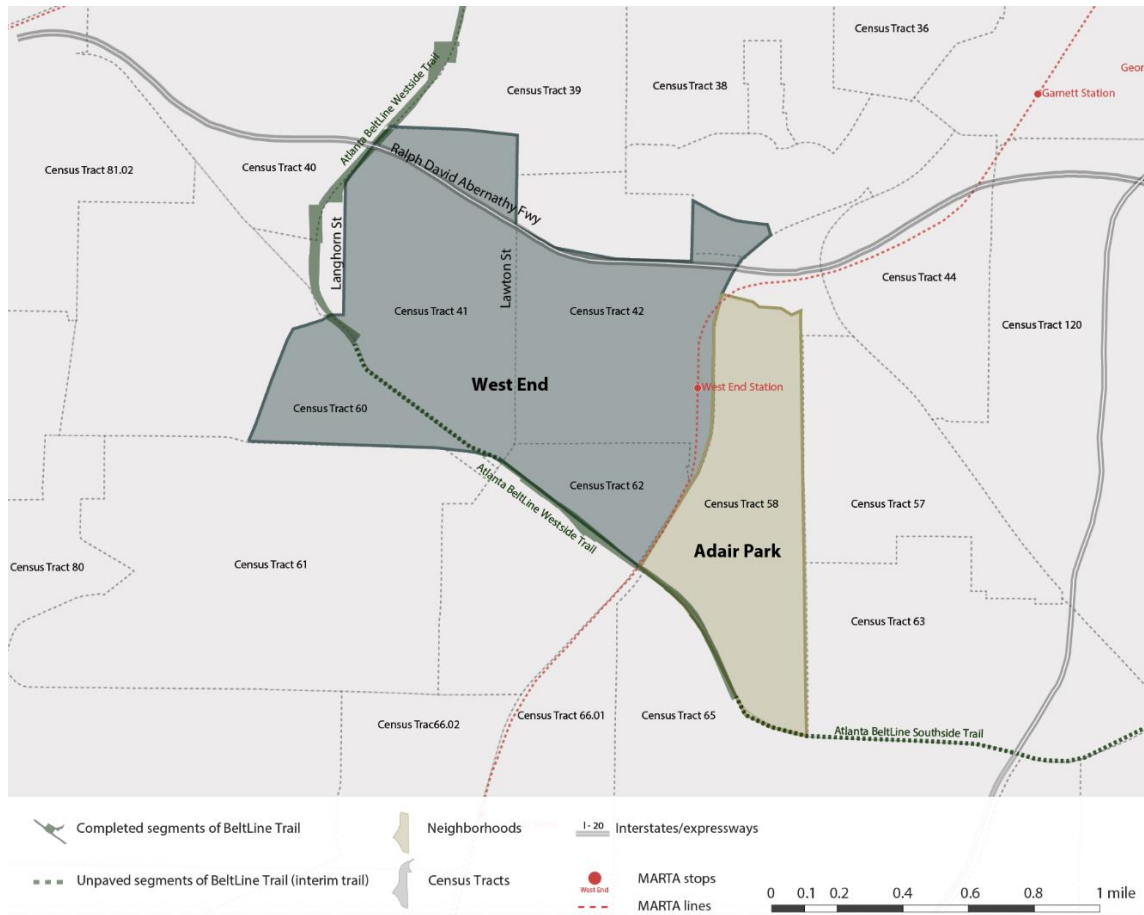


Figure 3.3: Map depicting locations of two case study communities. West End, on the left, and Adair Park, on the right. Adair Park consists of a single census tract (tract 58; ID 13121005800). For the West End, two Census tracts (Census Tract 41; ID 13121004100, and Census Tract 42; ID 13121004200) were included in the analysis.

Table 3.2: Socioeconomic characteristics for West End and Adair Park in 2000 and 2017

Neighborhood	Adair Park	West End		Adair Park	West End	
Area [acres]	260 acres	702 acres		260 acres	702 acres	
Census Tract Number	58	41	42	58	41	42
Year	<div>2000</div> <div>2017</div>					
Population [total]	2230	2565	2493	1924	2127	2546
White [%]	8	2	2	16	7	12
African American [%]	73	94	96	78	91	88
Age Cohort 25-44 [%]	32	34	27	35	33	25
White Householders [%]	11	3	2	25	12	7
Average Household (HH) Size	3.2	2.7	2.1	3	3.2	1.8
Occupied Housing Units [%]	86	85	88	79	57	89
Owner-occupied Units [%]	39	33	15	46	32	19
Median HH Income [USD]	27096	21741	13880	31625	38519	18569
HH Living Above Poverty [%]	72	69	57	69	78	65
Median Monthly Housing Costs (owners) [USD]	192	414	268	343	378	332
Median Gross Rent [USD]	525	565	287	1105	1042	335
Labor Force Participation [%]	59	59	52	71	62	53
Employment Rate [%]	86	84	83	79	90	87
Population in Management Occupations [%]	22	21	17	30	35	34
Population with bachelor's degree [%]	8	13	11	31	22	26

As shown in Table 3.2. the two communities were roughly similar in terms of demographics and socioeconomic status (SES), with some differences (all variables and data sources are described in depth in Chapter 2). The West End is almost three times the size of Adair Park; the neighborhoods are 702 acres and 260 acres, respectively. Compared to West End, in 2000, residents of Adair Park had higher median incomes, but a lower share of the residents had a college degree. Adair Park had a lower poverty rate, a lower percentage of African American population, and a higher percentage of white homeowners. The families in Adair Park were slightly bigger on average.

In terms of economic status, in 2000, the part of the West End right of Lawton Street (Census Tract 42) had the lowest median income, highest rates of poverty, the lowest cohort of people between 25 and 44 years old, and only 15% of the housing units were owner-occupied. This area also had the highest percentage of residents who were African Americans. The portion of the West End that belongs to census tract 41 left of Lawton Street and Adair Park were somewhat similar in terms of socioeconomic characteristics.

However, according to the Gentrification index, the portion of West End between Lawton Street and Lee Street (Census Tract 42) experienced quite dramatic changes by 2017 and was in the early stages of gentrification. The part of West End left of Lawton Street is adjacent to the newly developed Westside BeltLine and was deemed as 'ripe for gentrification', though it is not yet gentrifying (Table 3.3). Adair Park was also showing signs of early gentrification.

Looking at health status indicators, the two communities have roughly similar rates of poor mental and physical health and residents who report no leisure physical activity.

Adair Park shows slightly lower rates of adverse health outcomes and unhealthy behaviors than the West End neighborhood (all variables and data sources are described in depth in Chapter 2).

Table 3.3: Gentrification status and health status of West End and Adair Park in 2017. The table shows the level and stage of gentrification for the observed census tract and the percentage of residents who in 2016-2017 reported Low Physical Activity, Poor Mental Health, and Poor Physical Health

Neighborhood	Adair Park	West End	
Census Tract ID	13121005800	13121004100	13121004200
Census Tract Number	58	41	42
Gentrification index (Gi)	0.11	-0.14	-0.06
Gentrification status	Early gentrification	Ripe for gentrification	Early gentrification
SR Low Physical Activity [%]	37.8	38.6	39.8
SR Poor Mental Health [%]	15.4	15.9	15.6
SR Poor Physical Health [%]	14.3	15.6	16.3

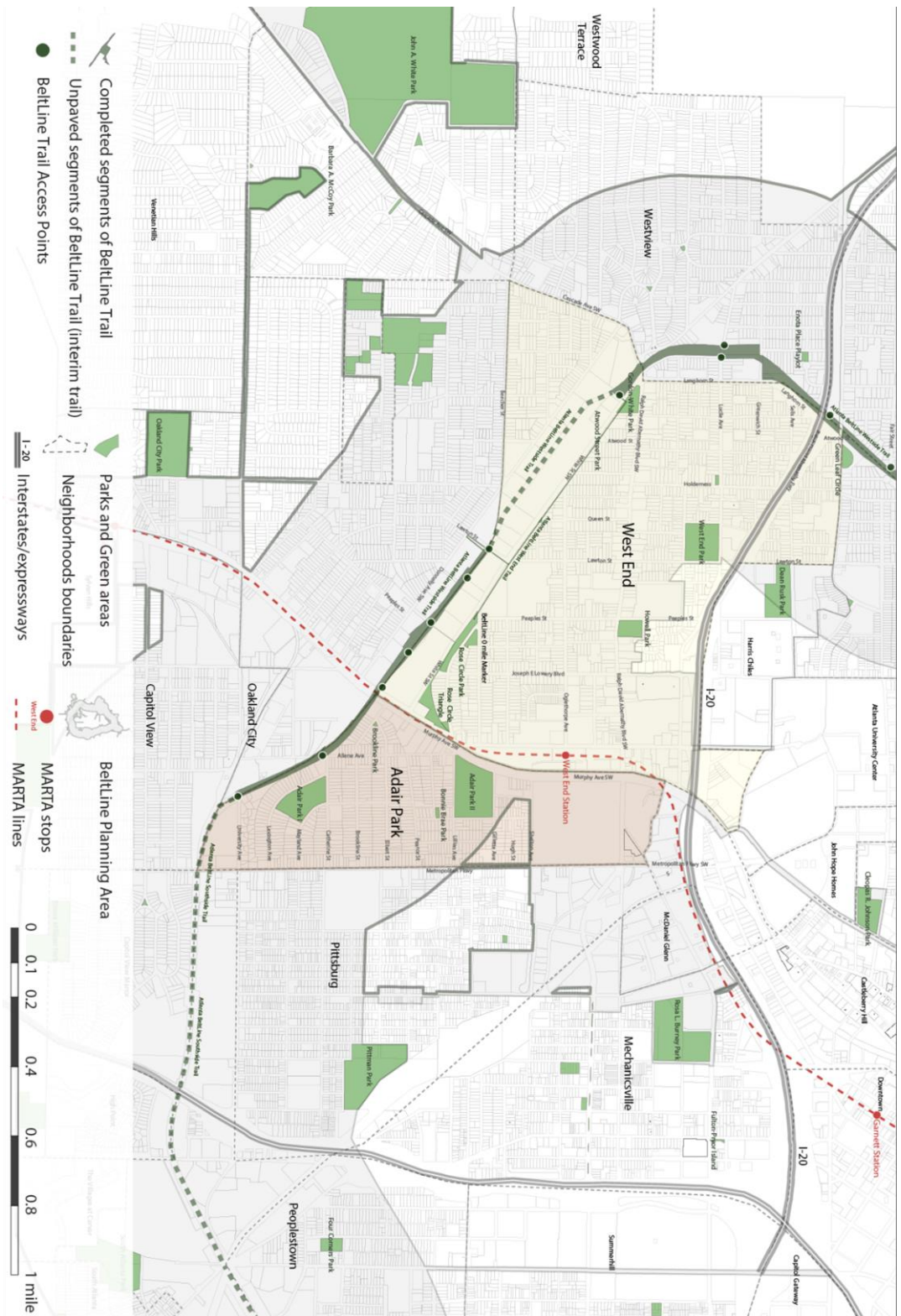


Figure 3.4: Map depicting two case study communities and the Atlanta Beltline trail.

3.4.2. Study Design

The underlying rationale of the study was driven by the social-ecological model of health behavior (Stokols, 1996).

A semi-structured in-depth interview was selected as a qualitative research technique for data collection. As opposed to quantitative studies (Chapter 2), 'qualitative' methods are used to learn about experience, meaning, and perspective, usually from the standpoint of the participant (Hammarberg et al., 2016). Qualitative studies focus on the "why" rather than the "what", and these data are generally not amenable to counting or measuring (University of Texas Arlington Libraries).

The multistep process in conducting the in-depth interviews included the following steps: 1) Developing a sampling strategy, 2) Developing the in-depth interview guide, 3) Obtaining the IRB (Institutional Review Board) approval, 4) Recruiting the interview subjects, 5) Conducting the interviews, 6) Analyzing the interview data and 7) Reporting results.

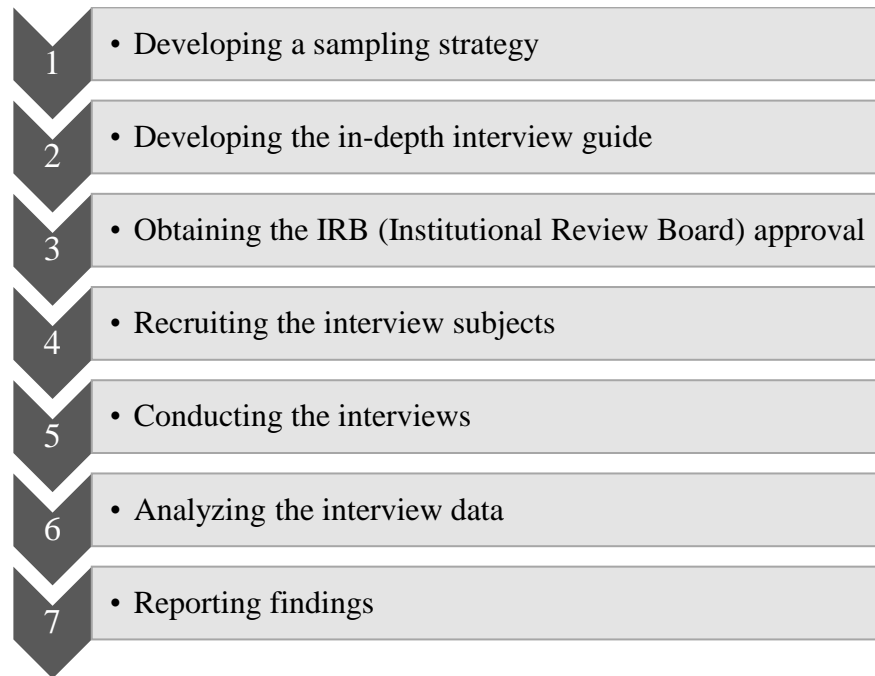


Figure 3.5: The multistep process adopted in the study design.

I. Recruitment Strategy

After all research protocols were approved by the Georgia Tech Institutional Review Board (IRB), study subjects were identified and recruited. Participants ages 18 and older were selected on the following basis: a) they reside in one of the two selected neighborhoods; b) they lived in the neighborhood before BeltLine trail construction had started; c) they are fluent in English, and d) they are willing and able to consent to participate in the study and to answer questions coherently (Appendix B).

The initial plan was to recruit participants in the community by attending community meetings and using a voluntary response sampling technique (McCombes,

2019; Murairwa, 2015). Adair Park and West End neighborhoods belong to different Neighborhood Planning Units (NPU), namely NPU-V and NPU-T, respectively.^{28, 29}

The first step was contacting community leaders in each study area. The presidents of the NPUs were emailed or phoned to get formal permission to attend the monthly community meeting. The researcher attended one meeting at each of the two NPUs, on March 9th (NPU-V) and March 11th (NPU-T), 2020. At the end of each community meeting, the researcher introduced herself to the community members, briefly described the study and handed recruitment flyers to interested residents. The flyer provided information about the study, eligibility criteria, and contact information of the researcher.

The initial plan was upended by the coronavirus disease 2019 (COVID-19) pandemic that caused all the community meetings and activities to be canceled or postponed (World Health Organization, 2020b). Initial recruitment progressed slowly, and only one participant was recruited in this period. As a result, the approach needed to be reconsidered. The subjects were then recruited from a referral from individuals in the researcher's personal network, using both the snowball sampling and purposeful sampling techniques (Palinkas et al., 2015). By using a snowball or referral sampling technique, each person was asked to help identify other residents who might be interested in participating

28 Back in 1974, the Atlanta Mayor Maynard Jackson established the NPU system, and the City of Atlanta was divided into twenty-five (25) Neighborhood Planning Units (NPUs). NPUs are citizen advisory councils that meet once a month to make recommendations to the Mayor and City Council on zoning, land use, and other planning-related matters (City of Atlanta).

29 NPU-V includes Adair Park, Mechanicsville, Peoplestown, Pittsburgh, and Summerhill/Capitol Homes. NPU T is made up of Ashview Heights, Atlanta University Center, Harris Chiles, Just Us, The Villages at Castleberry Hill, West End, and Westview (City of Atlanta).

in the study. In *purposeful sampling*, also known as judgment sampling, participants are identified based on pre-defined criteria, as described above.

II. Sample size

The sample size was based on *data saturation* – the point in data collecting when additional interviews no longer result in new information and concepts emerging (Marshall, 1996; Sandelowski, 1995). The data collection occurred concurrently with data analysis, and the researcher continued the interviews with the residents until the same themes started to appear again. The research team felt the interviews had achieved saturation when both coders could not identify new themes in additional interviews (Guest, Bunce, & Johnson, 2006). However, it should be noted that the saturation point was reached well before the fourteenth interview and that this is most likely due to sampling. This will be elaborated on separately, in the limitations section of this chapter.

3.5. Data Collection

The initial plan was to conduct the interviews in person. Given the ongoing COVID-19 pandemic and following guidance from the Centers for Disease Control and Prevention (CDC) to limit face-to-face contact with others and practice social and physical distancing, the study was redesigned to use remote data collection strategies (Centers for Disease Control and Prevention, 2020). It was decided to conduct interviews via phone or video and conference technologies like Skype or Zoom.

The initial pilot interview script was developed based on the literature scan. The pilot interview was conducted in June 2019, in person, in a quiet conference room at Georgia Institute of Technology, in Atlanta. The results from the pilot interview was analyzed to identify possible issues. After this, minor revisions to the Interview Script were made, and questions were modified to increase clarity. For example, the initial interview included questions such as access to local food markets, access to health care services, etc., to address multiple determinants of health, but it was decided to focus on opportunities for recreational and leisure-time activities.

Each participant received the description of the study and consent form by e-mail. All interviews were audio- and video recorded, and participants provided consent verbally prior to the interviews. Consent included the right to stop the session at any time. After the interview was completed, participants received a gift card as compensation for the interview time. The recordings were transcribed and de-identified.

The first part of the interview included collecting the background information related to gender, race/ethnicity, education, and homeownership. The second part of the interview followed a pre-defined interview guide, and follow-up questions were asked, when necessary (Appendix D). Interview questions were used to elicit information about four key topics (or main topics) that were defined *a priori*, based on the findings of the literature scan: A) Residents' perception and attitudes towards changes in the neighborhood social and economic environment; B) Residents' perception of conditions and changes in the neighborhood physical environment; C) Residents' perception of changes in the level

or type of their own physical activity (PA); D) Residents' appraisal and use of the BeltLine trail.

The residents were asked to compare how the neighborhood looked when they first moved in to how it looks today. The questions explored the factors that were previously identified in the literature to have an impact on health-promoting behaviors - the safety of the neighborhood, physical connectivity to other neighborhoods and the rest of the city, opportunities for being physically active, social ties and sense of community and costs of living. The interview guide included questions about the new and emerging amenities in the neighborhood that can support healthier lifestyles, and residents' self-reported health-related behaviors and perceived changes in behaviors since the trail has opened. The last part of the interview was focused on the use and characteristics of the BeltLine trail. The residents were asked more specifically about reasons they use the trail, and the questions were used to elicit information about the perceived barriers and facilitators of trail use.

3.6. Data Analysis

After transcribing all the audio recordings, the transcripts were coded according to content analysis methods. Given the relatively small number of interviews, two researchers independently coded the data manually. Content analysis was used to identify and report patterns, concepts, and themes within qualitative data (Krippendorff, 2018; R. P. Weber, 1990).³⁰ Both researchers read interview transcripts. The four main topics were defined *a*

³⁰ The final products of thematic data analysis are themes (or patterns) and subthemes, while in qualitative content analysis, we are defining categories and subcategories (Braun & Clarke, 2006; Vaismoradi, Turunen, & Bondas, 2013).

priori. The initial list of categories and subcategories was developed both from the interview guide and from the preliminary review of the data as it was being gathered (Figure 3.6). Each researcher independently read the transcripts several times and developed a list of categories and subcategories. This provided the researchers with an organizing framework while also allowing for new categories to emerge from the data. The codes were clustered by meaning by both researchers in six two-hour Zoom meetings through inter-evaluator agreement (Morse & Field, 1995).

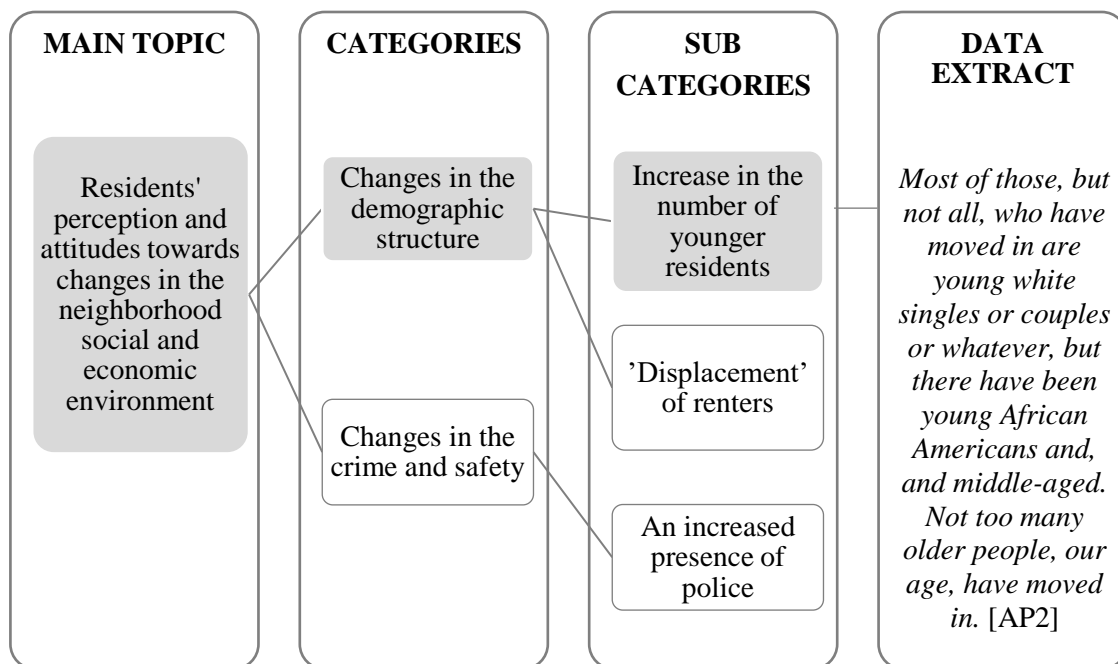


Figure 3.6: An example of qualitative data analysis and organizing framework. Example of the data extract from the interview, with the subcategories, categories, and the main topics.

The consensus was reached before assigning each quote to a specific category. Before moving to the next step, researchers reviewed the quotations set to ensure they were correctly classified and that category were distinct in meaning. Quotes were reassigned to other category when needed, and categories were reorganized to the point that maximizes mutual exclusivity and exhaustiveness (R. P. Weber, 1990).

The data collection occurred concurrently with data analysis until information redundancy (or data saturation) was reached (Elo et al., 2014). Once we completed the data analysis, we refined the category and subcategories (Appendix I).

3.7. Findings

Interviews with residents were conducted between April and June 2020. The subjects were asked to choose how they felt most comfortable participating in the interview: via video and conference technologies (Skype or Zoom), or phone call. All but one chose Zoom. For those who opted for conferencing, there was a choice to do the interview without a camera, but all agreed to use video interviewing. The conversations lasted between 36 and 119 min (Mean=70; SD=25 min).

Fourteen residents of Adair Park and West End-Westview neighborhoods were interviewed, including the Pilot interview. Residents' ages ranged from 35 to 71. Most participants were in good general health and had at least a high school degree. Participant characteristics are reported in Table 3.4 and Appendix H.

Findings are presented in four main sections, following the four main topics that were defined *a priori*: A) Residents' perception and attitudes towards changes in the neighborhood social and economic environment; B) Residents' perception of conditions and changes in the neighborhood physical environment; C) Residents' perception of changes in the level or type of their own physical activity (PA); D) Residents' appraisal and use of the BeltLine trail. Twenty-two (22) categories emerged from the interviews; they were defined *a posteriori* and not based on predefined theoretical concepts (Appendix I). Throughout the text, verbatims are literal excerpts from the residents' narratives, cited by the participants' coded names (Neighborhood name 'AP' for Adair Park and 'WE' for West End followed by the interview number).

Table 3.4: Study Participants Demographics.

Neighborhood	Adair Park	West End
Respondents' Characteristics		
Female	2	4
Male	4	3
Total	6	7
Age		
35-44	1	3
45-54	2	2
55-64	3	1
65-74	0	1
Tenure		
Renters	0	4
Homeowners	6	3
Years in the neighborhood		
mean (min, max)	18 (7, 30)	12 (5, 24)
	15 (5, 30)	
Level of Education		
High school	2	0
Bachelor's degree	2	4
Master's degree	1	3
Doctorate and/or professional degree	1	0
Race or Ethnicity		
Non-Hispanic white	4	1
Hispanic and Latino (of any race)	1	0
Black or African American	1	7
Other	0	0

3.7.1. Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment

The first section of the interview was designed to elicit residents' perceptions of Adair Park and West End and their perception of changes in neighborhoods' social and economic environments. The neighborhood social environment is considered to include the sociodemographic composition of the neighborhood and its residents as well as the "relationships, groups, and social processes that exist between individuals who live in a neighborhood" (Suglia et al., 2016). According to the Census data, both West End and Adair Park started transforming from predominantly African American neighborhoods to more diverse communities, as new residents have begun to move in. The residents were asked how their neighborhood's social and economic environment had changed since the BeltLine trail opened. Analysis of the interviews identified six primary subcategories (Table 3.5, and Appendix I).

Table 3.5: List of identified categories and subcategories for long-term residents' perceptions and attitudes towards changes in the neighborhood social and economic environment

Categories (6)	Subcategories (when applicable) (31)
1. Changes in the demographic structure (11)	1.1. Drop in the share of residents who are African American/black
	1.2. Increase in share of residents who are white, Hispanics and, Asian
	1.3. Presence of "Black Gentrification" (Freeman, 2011; Gibbons & Barton, 2016; M. M. Taylor, 1992) or an influx of young, college-educated, middle and upper-middle-class African Americans
	1.4. Increase in the number of younger residents
	1.5. Increase in the number of young families who have kids
	1.6. Decline in number of children
	1.7. 'Displacement' of renters
	1.8. Loss of affordable housing units
	1.9. The legacy residents are still here, and they are not being displaced
	1.10. Resentment regarding displacement and fear of displacement of some of the residents (especially renters)
	1.11. Concerns that demographic changes are happening too rapidly
2. Changes in the crime and safety in the neighborhood (8)	2.1. The neighborhood felt safe during the day
	2.2. The neighborhood did not feel safe at night
	2.3. No perceived a significant reduction in the level of crime
	2.4. Unchanged feeling of personal safety
	2.5. Somewhat improved safety of the neighborhood
	2.6. The safety of the neighborhood is greatly improved
	2.7. The increase in foot traffic added to the feeling of safety
	2.8. Increased presence of police added to the feeling of safety

Table 3.5. Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment (continued)

Categories (6)	Subcategories (when applicable) (31)
3. Changes in the cost of living in the neighborhood (3)	3.1. Increases in property values
	3.2. Increases in property taxes
	3.3. Increases in rents
4. Changes in social ties in the community (6)	4.1. Feeling of a tight-knit neighborhood that is still racially and class divided
	4.2. The neighborhood does not feel as close-knit as it felt before
	4.3. The neighborhood feels like a close-knit community
	4.4. The elder members of the community now feel left out
	4.5. Sense of a high level of neighbors' support
	4.6. Concerns over the demise of the community
5. Perception that the neighborhood is gentrifying	---
6. The neighborhood is experiencing an influx of wealth and investments (3)	6.1. Perception that the neighborhood is undergoing the economic revitalization
	6.2. Concerns regarding the growing attention and investments in the area
	6.3. Concerns regarding lack of transparency

One of the Adair Park residents who lived in the neighborhood since 2013 is concerned that the changes are happening too rapidly:

The change has been somewhat rapid; if you've lived with 30 and 40 years and never saw a white resident, I mean in the short span of five years, the neighborhood, or the block that you're on switched from black to white, um, that's got to be jarring, I am sure. (Adair Park Resident 1, male, 48, living in the neighborhood for 7 years)

Residents reported many changes occurring in the area, and it was apparent from their narratives they are describing many aspects of gentrification without explicitly using that term. Others, often younger, were very familiar with the process.

It's typical of any large city that's undergoing a lot of growth at a fast rate. Those properties that were at bargains are being scooped up by lighter-skinned people. That's generally what happens. We call it gentrification; some call it "putting finances back" into areas that had money taken out of them for whatever reasons, I don't know. So that is evident. (West End Resident 1, male, 44, living in the neighborhood for 7 years)

There's been a lot of money thrown at these areas...I would say because of all that; there has been gentrification and general lifting in this area. Adair Park has been affected the most because of the BeltLine, and just a couple years ago, it was called the hottest neighborhood in the city. But also, being affected is West End and all the other neighborhoods all the way to the Washington park; Ashview Heights, Oakland City - they're all feeling it to a little bit lesser degree, the gentrification and getting more attention. And it looks bad when you have white people and all of a sudden you have money come in, and people have very mixed feelings about it. (Adair Park Resident 2, male, 63, living in the neighborhood for 9 years)

A prominent theme was a drop in the share of African American (black) residents, and a growing number of those who are White, Hispanics, or Asian:

And I guess, the biggest change is in the racial composition. When I moved here 20 years ago, it was probably 99.9% African American. Now I would say it's still predominately African American, but there has been a huge increase in the white population. From the anecdotal point of view, I would say maybe it is 75% of African Americans, which is still predominantly African Americans, but there was a huge increase in the non-African American population. (West End Resident 5, male, 71, living in the neighborhood for 20 years)

I would say as far as ethnicity, it was around 80% African American and 20% white and others. It might have been even higher when we first moved in; it might have been 90-10% when we first moved in. And now it could be 50/50, I would say. And that is indicative of gentrification, like many other neighborhoods. So many of the previous residents have either died or could not afford to live here anymore. (Adair Park Resident 3, female, 60, living in the neighborhood for 30 years)

Despite the growing numbers of white residents, both Adair Park and West End are still predominately black neighborhoods. One respondent, an African American, has led walking history tours through the Atlanta Westside for years. He lived in the West End for more than 25 years and witnessed the neighborhood transformation. He pointed out that many newcomers, who would be classified as 'gentrifiers' (young professionals, college-educated, higher-income) were, in fact, black.

The interesting thing about West End is that the first gentrifiers were African Americans. And that started in the late 70ies, 1979 or so. This neighborhood just turned from being a predominately white neighborhood to being a predominantly black neighborhood in a span of 10 years. After the civil rights movement, they couldn't legally stop people from moving wherever they wanted,

so people started moving here, and African American professionals started moving in in the late 70s. A lot of them were Atlanta University Center faculty or recent graduates. And then in 2008, when the housing market crashed, and you could buy a house over here for \$100,000, \$120,000, you had a huge influx of young African American professionals, families. I would say from 2008 to 2014, most of what we would call 'gentrifiers' were young African American couples. And you did not have so much friction. (West End Resident 5, male, 71, living in the neighborhood for more than 20 years)

The participants also reported that many of the people moving in are young, childless couples or single residents. The number of children declined with the renters' displacement, and as the newcomers are starting to have kids, the area's demographic structure is changing.

So, the renters had all of the kids; now that we've displaced all the renters, ... So the best number I can give you is that the local elementary school enrollment dropped from 370 to 340 this school year because there's just less renters and less kids in the neighborhood...But losing the kids in the neighborhood has probably been the biggest noticeable change on this block, and it's not just this block. (AP1)

But a lot of families have moved in. A lot of couples have moved in. Now they're starting to have kids. When we first moved in, there were a lot of kids, especially elementary, maybe middle school-aged kids from Section 8 homes. (AP2) ³¹

³¹ The Section 8 Housing Choice Voucher (HCV) program is a federal rental assistance program that helps low-income renters pay a portion of their income for rent. The rest is paid by the Public Housing Agency that manages the household's voucher (U.S. Department of Housing and Urban Development).

Many interviewees noted that while the legacy residents who are homeowners are not being displaced, many renters moved because of rent increases and a decline in the number of available rental properties in the area.

And the, um, what I call our legacy residents - they've been here for over 30 years. They're still here; there's 12 of them left. You know, they are here, they stay until they're basically dying. Their families are usually Southern folks, and they are homeowners...It's definitely odd, you know because the area is definitely gentrifying in the sense that who's moving in...I would say that the legacy African American families that have children here, we still have a lot of them. And that's wonderful. How do we make sure they stay? Definitely, legacy elderly people who had families here are remaining. So, like next door, my neighbor, she has been here forever. (AP1)

... Um, and so what we've done in the last seven years here specifically is we've displaced all of our renters. Um, there's no more black renters left. We have white renters, but we have displaced all of our black renters. So, it's, it's not even in the rents went up. There was just nowhere left to rent...The city's lack of focus on housing has been crushing it. Our renters have all been displaced because nothing new has been built here. (AP1)

When asked about perceived changes in neighborhood safety, respondents had mixed views. Many residents offered recollection of the time when the area had a lot of criminal activity; however, they felt safe because they knew "what areas to avoid and how to navigate the neighborhood". Some residents said they had seen an increased police presence in the last couple of years. Gender played a role in how safety and changes in the safety of the neighborhood were perceived. While male participants generally felt that the neighborhood does not feel any safer now than it had felt before, female respondents noticed appreciable differences:

Because I got here very early in this phase of people moving in, it was almost like there was this perceived sense of safety. Like there was no value here, so that was no reason to come here to try to commit a crime. (AP1, male)

But overall, we are getting close to 180. Because when I moved in here as a young child, there was a lot of boundaries. This was not the neighborhood you would dare to raise a child at all. There was a lot of drugs, prostitution, infested, it was, aargh, you could not walk down the street without running into a prostitute or someone trying to sell you drugs, ... And there were certain streets that you were not allowed to walk down when I was growing up (AP5, female)

Interestingly, the same female participant reported that the neighborhood felt safer before than it does now because of higher social cohesion, the finding previously reported in the literature (Sampson, Raudenbush, & Earls, 1997).

So, when I was here younger, at night, it was not a place to be outside at all. But in the daytime, it was actually a safe place. Nobody was coming to bother you or try to abduct your child because most of your neighbors were sitting out on the porch, and they would report anything: "Hey, it's a red car in the neighborhood. We don't know that red car". They would get on the phone and call each other, and it was really policed by the neighbors. (AP5)

When asked about changes in housing costs, the responses varied. The majority of the participants were homeowners and had a somewhat positive reaction to the increase in home values based on narrow economic self-interest. The interviews also highlighted the concerns regarding the costs of living in the area and fears of displacement for the renters. Even though the property taxes increased significantly in the last couple of years, the homeowners stated they are still paying less than some of their friends living north of I-20 and that tax increase will not propel them to leave the neighborhood.

Certainly, it's helped us financially by increasing the value of our property whenever we would sell. And I think largely because of the BeltLine, all of those empty houses have people in them now. And that's obviously a positive thing. A lot of the houses that were falling apart are nice houses now. That's a good thing for a neighborhood. (AP2)

Oh, yes. I have two neighbors that about three years ago, they were like: "I can't afford the taxes here", you know? So that was a pretty bummer for them. (AP5)

The long-term residents expressed concerns that rising costs and major demographic shifts would impact social ties and lead to the community's demise. The rapid neighborhood changes trigger the feeling of social exclusion among older adults. However, throughout the interviews, the sense of a close-knit community and neighbors' support were present. This was even more evident during the COVID-19 pandemic when younger residents provided help to the elderly in the community:

So, this neighborhood was a tight-knit neighborhood, and changes have been pretty dramatic. But right now, even with all the COVID stuff happening, one of our older white residents has set up a network where we can interact with all of our older residents and check on them to make sure they don't have any needs. And it's mostly like new white residents checking on the older black residents. And so, it's still a tight-knit neighborhood. But there's definitely a class divide and a race divide. (AP1)

3.7.2. Long-Term Residents' Perception of Changes in the Neighborhood Physical Environment

The participants were asked to describe their neighborhoods and perceived changes in the built environment, especially in terms of physical activity opportunities: infrastructure and amenities. The analysis identified eight categories and 24 subcategories (Table 3.6, and Appendix I).

Table 3.6: List of identified categories and subcategories for long-term residents' perception of changes in the built environment

Categories (8)	Subcategories (when applicable) (24)
1. Changes in housing stock (3)	1.1. Houses are renovated and fixed up
	1.2. Decrease in housing vacancy rate
	1.3. The decrease in the number of rental properties
2. Buildings are being rehabilitated (2)	2.1. Neighborhood spaces are being rehabilitated
	2.2. The neighborhood has not lost any cultural markers
3. Changes in the neighborhood amenities (10)	3.1. The new amenities are meeting the needs of the community
	3.2. A lot of things are being added to the neighborhood
	3.3. There is an increased diversity of places (venues and restaurants)
	3.4. Residents do not have to leave neighborhood to get to a restaurant or a bar
	3.5. The neighborhood has healthier food options
	3.6. Creation of the amenities that cater to 'gentrifiers' and not the existing community ('this is not for us' sentiment)
	3.7. New amenities lack diversity
	3.8. Lack of awareness of the already existing amenities
	3.9. Sense of nostalgia for some of the amenities being removed
	3.10. Concern that the residents will lose some of the new amenities they use
4. Neighborhood physical activity opportunities (4)	4.1. The neighborhood offers opportunities to be physically active
	4.2. The neighborhood has a lot of community parks
	4.3. The existing neighborhood parks need upkeeping
	4.4. Neighborhood lacks (better) biking infrastructure

Table 3.6. Long-Term Residents' Perception of Changes in the Built Environment (continued)

Categories	Subcategories (when applicable)
5. The changes in the built environment are too slow	--
6. Changes in the connectivity to the rest of the city (2)	6.1. The neighborhood felt isolated from the rest of the city
	6.2. The neighborhood feels more connected to the rest of the city
7. Changes in public spaces (2)	7.1. Improved quality of the local parks
	7.2. Improved quality of sidewalks
8. Opportunities for social interactions (1)	8.1. The neighborhood layout is supportive of social and communal life

Many residents had a positive attitude towards updating the housing stock and a decrease in the number of vacant and derelict properties in the area. There was a feeling of excitement that the dormant industrial buildings and abandoned spaces are being rehabilitated and repurposed into neighborhood assets.

When we moved in, so, there were about 200 houses; I believe; I may have that wrong...And at that time, about a third of the house were owner-occupied, about a third were rented, and about a third were abandoned or empty...And the block that we're on, there were only about three houses that were occupied. The rest of the houses were empty. Well, yeah, the rest of the houses were empty, boarded up, falling apart. And now, all but one have been changed. So that's, what's happened in the, in the neighborhood. (AP2)

Yeah, we've been pretty fortunate that the neighborhood really hasn't lost any cultural markers; it definitely gained a lot of important amenities for all the neighbors. And all the new things that are happening are mostly moving into abandoned spaces. So, like Lee and White, all those new bars and new breweries. And even today, when I went to the "Slutty Vegan" for my dinner, all that stuff

was empty and abandoned when I got here, and now it's being filled up. And so, there was no displacement for those things to happen. (AP1)

...everything on Lee and White, which has been the biggest development or even including “Lean Drafthouse”, all of that was vacant. When I moved here, you know, they were just abandoned buildings. So, having you know “Golda Kombucha” move in, having “Doux South Pickles” move in it, there was very little there. (AP6)

The residents of both Adair Park and West End felt that the neighborhood offers plenty of opportunities to be physically active, taking much pride in their community parks. Some respondents noticed recent improvements in parks and public spaces. On the other hand, others noted that the existing parks needed upkeep, and they would like to see dedicated bike lanes being installed instead of existing 'sharrows'.

There are two really nice parks in the neighborhood, and really just a little bit before we moved in, those were rehabilitated. They were very run down and just a lot of drug trafficking and violence and just a mess. But shortly before we moved in, they've been fixed up. So, they're really nice now. So, gentrification is taking place with good, bad, and ugly. (AP2)

The walkable layout of both neighborhoods and houses with front porches are supportive of social interactions, and foot traffic in the area has increased since the opening of the BeltLine. In the last couple of years, the neighborhoods felt safer for pedestrians due to the "presence of strangers":

And that's, of course, one of the reasons we moved into the neighborhood because we wanted that - there's big sidewalks, there's front porches on all the houses. And if you walk down the street, you can holler at people and stop and talk

to them on their front porch. And, so, there's just a lot of that. And this is before the BeltLine was paved. (AP2)

Back then, we did not have as many restaurants as now. And we develop this culture of house parties or "Porch parties." And if you look around the neighborhood, almost all the houses have front porches. So, we developed this culture of impromptu Porch nights, and it was like a potluck; people would come from all over. (WE5)

Maybe what made it feel safer because due to the BeltLine, there is this influx of new, younger people who are out on the street, who are more active in the community, who are walking, who are playing in the park; it just makes it feel safe. (AP3)

The arrival of new amenities and services was an element of neighborhood change that many respondents mentioned. Having restaurants, bars, and healthier food options within walking distance was welcomed by many. Although appreciative of the increased commercial activity, several residents were worried that the new retail lacks diversity and caters to the 'gentrifiers' and not the existing residents. This may lead to the cultural displacement of the existing community (Cole et al., 2017). One female resident who was born and raised in West End expressed 'this is not for us' sentiment:

I think there's just a lot of breweries. There's a lot more restaurants. But again, I don't think any of those that have come up because of the BeltLine are geared towards the community members that lived there before the BeltLine. So, they seem very much to bring in people as opposed to kind of culturally representing the people that have already lived there. (West End Resident 3, female, 35 years old, born and raised in West End)

The new amenities also helped change the area's image after a long period of decline and neglect. The respondents felt that the growing attention and investments put the Westside on the map and became recognized as a destination. As described by one female respondent:

Now everyone knows where Adair Park is. I've talked to a couple of relatives, and at networking, things and they are like: "Oh, you are staying in Adair Park - I'm so jealous. I love that little place", you know? So, yeah, a lot of people know about Adair Park now! (AP5)

3.7.3. Long-Term Residents' Perception of Changes in the Level or Type of Physical Activity (PA)

This interview segment's primary goal was to obtain information on whether perceived neighborhood changes and the addition of a community trail impacted neighborhood residents' lifestyles, with a specific focus on their physical activity. Two categories were identified: 1) Self-reported behavioral change, and 2) Observed behavioral change of other residents (Table 3.7, and Appendix I).

Several residents reported that new amenities, especially the BeltLine trail opening, motivated them to be more physically active. They commented that they adopted travel behavior changes such as biking to work or walking to a local store:

I use the BeltLine to get to work. If my bike doesn't have a flat tire, I just bike up the BeltLine and then pop off the BeltLine, and I'm at work. I work two miles away. If I don't have a bike, I walk a little bit up, and then I hop on the BeltLine cause I take a different route, and then I walk the BeltLine the rest of the

way to get to work. So, I use the BeltLine pretty much every single day. And if I'm off, I use the BeltLine to walk to the liquor store, and there's a little Philly cheesesteak place down the street. So, I am on the BeltLine, probably 360 days out of the year. (Adair Park Resident 6, male, 45, living in the neighborhood for 7 years)

I don't know. I do think that ever since the BeltLine came, it's been a good motivation; it has motivated me, should I say, to get out of the house. Making me wanna actually bike more, go to the park, even more, just be outdoors, you know? (AP5)

Table 3.7: List of identified categories and subcategories for long-term residents' perception of changes in the level or type of physical activity (PA)

Categories (2)	Subcategories (when applicable) (6)
1. Self-reported behavioral change (4)	1.1. Self-reported change in the type of PA
	1.2. Self-reported increase in the level of PA
	1.3. Self-reported change in travel behavior
	1.4. Self-reported change in the location where the PA takes place
2. Observed behavioral change of other residents (2)	2.1. Observed changes in where other residents walk or exercise
	2.2. Observed changes in the travel behaviors of other residents

The same female resident noted that her teenage daughter also now has the habit of walking or biking to the BeltLine, instead of driving there. The biking on the trail has become their regular mother-daughter bonding activity:

Oh yes, we, me, and my daughter, we ride our bikes there every other day, either we are just exercising or trying to get to the store. She loves this little ice cream shop on the way to and from the store. So, it has motivated her to want to get out and not always jump in the car, you know: "Hey, will you just go on the BeltLine?" And I just love that about her, instead of: "I need you to take me here, we gotta go here," and I just, sometimes you just don't want to get in the car. And especially with Atlanta traffic.

Those residents who were already taking regular exercise reported that the BeltLine facilitated the maintenance of a physically active lifestyle. It was interesting to learn that some of them changed the type of physical activity or where they chose to exercise:

So, I lived in Midtown Atlanta for a decade... I don't rollerblade as much, but now I bike. I mean I've been able to bike a hundred miles a week for the last, almost three years now, two and a half years. And so, when the Southside trail opened, it just gave me more access, more safely to the whole city. And the Westside trail also has given me more access, more safe access to the rest of the city. I bike on all the streets. I don't, I don't mind cars, but it's definitely good not to have to deal with the car...Yeah, so when I got here, I was biking quite a bit, now and biking more! I bike to everything except to work. So, I run errands on my bike. I get exercise with my bike; I drive to work. Last year I drove 12,000 miles, and I rode my bike 6,000 miles. (AP1)

I would say before it was completed, people walked on the streets because some areas don't have sidewalks, and people biked on the sidewalks and/or on the street. So, since BeltLine has opened, I would say that more people are able to walk. Those that are walking for recreation are walking on the BeltLine. [WE, Pilot, female, in her 40ties)

One female resident (58 years old), who has been living in the neighborhood for more than 9 years, said she is somewhat physically active, but she prefers to workout at home, and she has never been to the BeltLine.

WE Resident 13: I do the treadmill more so than walking outside. And I do like to work out in my yard.

Researcher: Have you ever been on the BeltLine?

WE Resident 13: I have seen many people getting on it to use it. I just haven't been on it yet.

Researcher: What is the reason you have never been on the trail?

WE Resident 13: Well, no particular reason. And I guess I was not in such a hurry to use it because, in my mind, they put this for the white people that are coming to the area. So, no hard reason. Because I said I want to go on it to see what is going on and what this hype is about.

3.7.4. Long-Term Residents' Perception and Use of the Beltline Trail

I. Perceived Benefits of the Beltline and Living Near a Multiuse Trail

The last segment of the interview guide aimed to elicit long-term residents' thoughts and perceptions related to the BeltLine trail use and design and the perceived benefits and concerns of living close to the trail. The questions were designed to identify those trail attributes that long-term residents perceived as barriers and facilitators to the use of the BeltLine. Six categories and 43 subcategories were identified (Table 3.8, and Appendix I).

West End neighborhood was home to the BeltLine's first segment to be built when the 2.4-mile West End Trail opened in 2008 (Atlanta BeltLine). Adair Park got direct access to the BeltLine when the Westside Trail opened in September 2017 (Atlanta BeltLine). The characteristics of analyzed trails are given in the Table 3.9.

Table 3.8: List of identified categories and subcategories for long-term residents' perception and use of the beltline trail

Categories (6)	Subcategories (when applicable) (38)
1. Perceived benefits of BeltLine trail and living in adjacent neighborhood (9)	1.1. The BeltLine is creating opportunities for recreation
	1.2. The BeltLine is creating safe non-motorized access to the rest of the city
	1.3. The BeltLine created a meeting place for the white residents
	1.4. The BeltLine is helping create social capital and build the community
	1.5. The BeltLine is helping to get to know the city
	1.6. The BeltLine is putting the neighborhood on the map
	1.7. The BeltLine connects the communities
	1.8. The BeltLine improved the quality of life of the residents
	1.9. The BeltLine benefits the senior residents
2. Perceived concerns of living in the BeltLine adjacent neighborhood (4)	2.1. The BeltLine created its own community
	2.2. The BeltLine trail failed to connect the neighborhoods
	2.3. The BeltLine is contributing to gentrification
	2.4. BeltLine has failed to fulfill the initial promise to bring the transit
3. Perceived frequency of use of the BeltLine trail (4)	3.1. Self-reported frequent use of the trail for PA
	3.2. Self-reported frequent use of the trail for commuting
	3.3. Self-reported rare use of the trail
	3.4. Perception that other residents are using the BeltLine for recreation and exercise

Table 3.8: Long-Term Residents' Perception and Use of the Beltline Trail (continued)

Categories (6)	Subcategories (when applicable) (38)
4. Perception of the others using the BeltLine trail (5)	4.1. Others are using the BeltLine for recreation and exercise
	4.2. The number of the BeltLine trail users growing
	4.3. The users of the BeltLine are a mix of immediate neighbors and visitors
	4.4. The locals do not use the BeltLine as much
	4.5. The older legacy residents are not using the BeltLine (lack of habit)
5. Self-Reported Facilitators to the Beltline trail Use (8) <ul style="list-style-type: none"> • E/D- Environmental/Design • P – Programmatic • S – Social 	5.1. An increased feeling of safety due to the presence of police, cameras, and good lighting along the trail (ED, P)
	5.2. The presence of other people makes the trail feel safe (“eyes upon the street”) (P, S)
	5.3. A safe space for pedestrian traffic, free of vehicle conflicts (ED)
	5.4. A smooth, paved trail surface (ED)
	5.5. Connectivity and access to other spur biking paths or trails (ED, P)
	5.6. Easy access to the trail (ED)
	5.7. The amenities along the trail (e.g., restaurants, shops) (ED, P, S)
	5.8. A space to socialize and enhance social well-being (ED, P, S)

Table 3.8: Long-Term Residents' Perception and Use of the Beltline Trail (continued)

Categories (6)	Subcategories (when applicable) (38)
6. Self-reported barriers to the Beltline trail use (8) <ul style="list-style-type: none">• E/D- Environmental/Design• P – Programmatic• S – Social	6.1. The trail surfacing is uncomfortable for running (ED)
	6.2. Residents prefer the more natural surfacing of the trail (such as bark mulch or natural earth, the way it was before the trail was paved) (ED, P)
	6.3. Residents prefer the beautiful natural environment along the trail (the way it was before it was paved) (ED, P)
	6.4. Lack of respite areas along the trail especially places to sit and gather (ED, P, S)
	6.5. Lack of vegetation and shade trees along the trail (ED, P)
	6.6. The condition of the trail (the trail is not fully finished and connected yet) (ED)
	6.7. Need for better informational signage on the trail (ED, P)
	6.8. Lack of diversity of activities and uses along the trail (ED, P, S)

Table 3.9: Characteristics of Analyzed BeltLine Trails

Trail name	Length	Surface	Completion
West End Trail	2.4 miles	Paved (cast-in-place concrete)	Phase 1: 2008 Phase 1: 2010
Westside Trail – north segment (from Washington Park to Gordon-White Park)	1.50 miles	Paved (cast-in-place concrete)	2017
Westside Trail - Interim Trail	0.58 miles	Not paved (dirt path)	N/A
Westside Trail – south segment (from Lawton Street to University Avenue)	1.07 miles	Paved (cast-in-place concrete)	2017

Overall, most residents recognized the numerous benefits of having the community trail in the neighborhood. Residents believed that the BeltLine created more recreation opportunities, especially for walking and biking, providing safe non-motorized access to places. The respondents felt that proximity to the BeltLine trail increased their level of physical activity.

Yeah, definitely for biking. I mean, you can walk through the neighborhood, but I think there are probably a lot of people that like walking on it [BeltLine] just because it's, it's neat and it's more visible, and it's probably safer. So, there are probably a lot of people that might not be as interested to walk through the neighborhood that walk on the BeltLine or ride the bikes...So, I think it's

definitely added a much more outdoor element, to our neighborhood, especially with the warmer weather. (AP2)

The respondents also discussed the social benefits of living near the BeltLine; the trail provided the space for meeting friends, bumping into your neighbors, and getting to know people who live in the community. This helps to build the community, creates social capital, and increases sense of trust. They believed that the BeltLine also increased the connectivity to surrounding neighborhoods and brought people from other parts of Atlanta into the area:

I bump into people all the time: "Yeah, we're heading over to the BeltLine to go biking." Or people take their kids down there to go biking or walking or whatever. I know people often talk about: "Oh yeah, I was on the BeltLine, and I saw so and so," so I feel like in a social sort of way, yes. Very rarely do I go ride my bike on the BeltLine that I don't see several people I know. I feel like it's helped socially, somewhat, just kind of almost like a gathering spot or several neighbors walking together, walking down to "Monday Night", or one of the restaurants together. (AP2)

And it also helps with getting to know who's kind of in your community; you may see that same person on the BeltLine and be like, "Oh, okay. I know him or her". So, you can also use it as a little meeting place sometimes. So that's all the positive - keeping the community a community, you know, instead of suburban communities, you know what I'm saying? (AP5, female)

I think that the BeltLine influenced the Adair's Park community in the sense that a lot of people moved here because of the BeltLine. That is what motivated them to move here. I bought my house partly because it was going to be on the BeltLine. (Adair Park Resident 6, male, 45, living in the neighborhood for 7 years)

One female resident noticed that walking the BeltLine trails helped her and her 16-year-old daughter, who is now learning how to drive, discover the city better:

Me and my daughter, we have been around and did most all of them. Not the trails per se, but just staying exactly on the BeltLine, we've been pretty much around. So, she loves it. She loves it. It helps her learn the surrounding areas. So, it's prepared her to drive, too. Cause now she is like: "Okay. this area is there, we walked there". So, it has actually helped her learn her surrounding areas. (AP5)

Contrary to the beliefs of other respondents, she witnessed how the BeltLine has motivated the seniors to walk and be more physically active:

It brought the most benefit for, well, of course, middle age, but definitely, I have seen more seniors out than I've seen in a long time, you know...I have not really seen teenagers taking the initiative to explore the BeltLine. But seniors have benefited the most, you know, and they walk there, and it's been surprising. Some of the neighbors that I grew up with, when I see them, I'm like: "Oh my God, you're out of the house, and you're walking." And it's great. (AP5)

Finally, many of the respondents mentioned that living near the trail was extremely beneficial during the COVID-19 lockdown when an increasing number of people have turned to walking and biking.

I think that if you have this beautiful stone path behind your house that's just put there in your neighborhood, you're going to get on it... Especially during these times [COVID-19], with everyone being in the house and this beautiful weather. It's something that's going to be here, and people are sort of understanding that. (WE1)

II. Perceived Concerns of Living in the Beltline Adjacent Neighborhood

The respondents also reported several shortcomings of living adjacent to the BeltLine. The most commonly articulated concern was that the BeltLine is accelerating and/or causing gentrification.

Researcher: Would you say that BeltLine changed your quality of life and how?

Adair Park Resident 2: I would say just 90% positive; I feel like the only negative side would be the negative parts of gentrification and some people leaving. That was really the impetus for starting to work with senior citizens because we felt like they were a vulnerable population to gentrification as property values went up. Therefore, property taxes go up.

Some interviewees believed that the BeltLine failed to deliver many of its promises, such as bringing transit or connecting the communities along the path. Some felt that the BeltLine behaves like a neighborhoods' divider rather than a connector and that it created its own community, its own neighborhood.

The interviews revealed that the BeltLine is still perceived as an amenity for the new, white residents for whom it has become “a rallying point” (AP1). One female West End resident who identifies as African American felt like she rarely sees their friends and neighbors being on the BeltLine:

But again, I don't really know many people in this neighborhood who utilize the BeltLine. Like we don't meet friends on the BeltLine. And I don't hear people talking about the BeltLine, to be honest. So, specifically with the older population, my mother's never been on it. None of our neighbors have ever been on it. (WE3)

Several residents believe there needs to be an initiative such as organized walking tours, to engage specific underrepresented groups, especially elderly African American residents, to use the trail:

And older residents, many older residents, are not physical. And so, it's not that they're not walking on it because they don't trust it or like it; they just don't get out much. They drive around, and they don't really walk much. And that's on my block specifically. Like I've never seen any of them, the legacy residents at the BeltLine...It would be great for the BeltLine to figure it out how to engage the legacy residents. And I know that in the past, they've tried to do the trips to get people from the Westside to go see what the Eastside look like so that they would know what was coming. (AP1)

III. Self-Reported Facilitators and Barriers to the BeltLine Trail Use

The in-depth interviews also provided insights into what long-term residents perceived as facilitators and barriers to (more) regular use of the BeltLine trail for recreation. The reported facilitators and barriers are categorized into three domains: environmental (or design-related), social, or related to the trail's programming. In most cases, they fall into more than one domain (Table 3.10).

The perceived safety of the trail was essential to the use of it. Residents reported that being on the BeltLine felt safer now than when it opened in 2017 due to increased police presence, cameras, and good lighting along the path. The growing foot traffic and the company of other people on the trail add a sense of security.

I think in a sense, just because there's more traffic, that's added an element of safety; we didn't use to have people walking behind her house, and now we do...

I think probably just in a general way, it's added to safety just because there are a lot more people walking around that part of the neighborhood. (AP2)

Easy access and the ability to walk and bike free of other street traffic motivated the residents to use the trail for the recreational or utilitarian PA. Sometimes, one person's facilitator was another person's barrier to trail use. That was the case with trail surfacing; a resident from the West End and a mother of the two-year-old finds the smooth, paved surface of the BeltLine very comfortable:

You don't have to worry about potholes or any of that stuff. So it's just an easy, safe path to go down; and I can take the stroller, which is the main thing because it's so annoying to take the stroller on the street because the sidewalks are terrible. (WE3)

On the other hand, those who run regularly avoid doing so on the BeltLine as it is a cast-in-place concrete trail, and concrete is one of the hardest surfaces to run on³². Many respondents preferred the more natural surfacing of the path, such as bark mulch or natural earth, the way it was before it was paved.

I actually don't like to run on the BeltLine that much, just cause it's cement, but I do some... When we moved in, the BeltLine was just an idea, and it was a dirt path. So I really liked it then because I ran on it with my dog all the time. (AP2)

Physically active residents enjoy the fact that the Beltline connects to many spur trails, as that helps them bike or walk longer distances and reach their fitness goals.

³² The Atlanta BeltLine Trail is designed as a single, 14-foot-wide multi-use, cast-in-place concrete trail, with 2ft shoulders on either side. The concrete for the trail is mixed with a charcoal color admixture and local granite (Atlanta BeltLine Inc, 2013)

Interviewees preferred the beautiful natural environment along the BeltLine before the concrete path was paved. There was a general notion that the trail lacked vegetation and shade-trees to provide relief from the Atlanta summer sun and heat:

When we moved in, the BeltLine was just an idea, and it was a dirt path. So, I really liked it then because I ran on it with my dog all the time. And it was, there was nobody on it. It just kinda went through the woods, and there were homeless people that lived back there. (AP2)

There used to be this older African American gentleman, there used to be a creek that ran where the BeltLine is right now, and he would actually go crawfish hunting there...And there was green heron that lived there...And when they built the BeltLine, they actually, for whatever reason, pumped the creek from one side to the other and shut it all off. And I don't think that the existing wildlife that was there survived. So, now it's kinda more just a creek. (AP6)

It's mostly the [lack of] trees. It's very hot in the summer. We don't go [to the BeltLine] a lot, you know, in the winter either, but in the summer when you want to go out and walk on it more, it's so hot, the sun beating off of the pavement. Then maybe, I'm thinking, in 15, 20 years when the trees get a lot bigger, it will be much nicer. (Adair Park Resident 4, male, 60, living in the neighborhood for 30 years)

One female resident discussed her difficulties navigating the BeltLine, even though she grew up in the area and lived in the West End since 2009. She would like to see better directional signage because "it is kind of easy to get lost on the BeltLine if you don't know where you are going...So, some directional signs that indicate the name of the street" (WE4).

The use of trail and PA can be encouraged by including amenities that make it a safe, comfortable, and convenient space to exercise. Respondents noted that the Westside

trail lacks amenities such as water fountains, informational signage, bathrooms, and seating areas. The trail's current design supports constant movement, and there are almost no respite areas with benches to sit on along the path. Having an area to rest is especially important for the elderly and children. The residents would like to see more diverse activities for users of all ages, such as playgrounds, mini-golf, picnic and barbeque areas, art and performance areas, outdoor gyms, and quiet nooks.

I would say more seating areas and more entertainment for kids, you know. Because I know my kids, when we walk so far, they want to stop and kind of play and fiddle with things. So, if they had little more areas off to the side, it doesn't necessarily have to be a playground, but just an activity, where they can just go and run a jump for a minute, and then we get back on the path, and conclude our walk. So that's what I would add, just more activities for all ages. That would be nice. Like you know, you go and run, and then you stop and, you play a little miniature golf; or you stop, and there's a little soccer field may be, so you can practice with your ball. You know, just whatever, just more activities need to be added on the BeltLine. And that'll keep a lot of people physically fit, and it helps hold the neighborhoods together. And I think people will appreciate the BeltLine more and respect it more... Well, like I said, I just want them to come up with more activities around the BeltLine. Just make it a little more interesting. (AP5, female)

Another Adair Park resident noted that the lack of supporting amenities makes the BeltLine feel and function as a transportation corridor:

I usually use the BeltLine purely for transportation. It's not interesting to me. If I personally want to go for a walk, I'd rather walk through the city; I'd rather walk through a cemetery. You know, the BeltLine is nice, but if I wanted nature, it's a weird thing. Like it's kind of nature-y, but it's not, it's not city, it's not nature. I love Ryan's vision. I'm not bashing the BeltLine, and I see why some people do it, but I would rather walk through an urban environment or do something else. I

rarely ever walked down the BeltLine for recreation. For me, it's purely transportation. Now the undeveloped portion of the BeltLine, I will walk on because there's wildlife, and I let my dog off-leash. But the developed part of the BeltLine is just to me, a way to skip traffic (AP6)

In our conversations, the residents often talked positively about the Eastside trail and wished that the Westside portion mimicked that vibrant and dynamic atmosphere. The respondents noted that the path lacks areas and opportunities to socialize that are not part of the bars and restaurants. One female resident who lived in Adair Park for more than 30 years summed it up nicely:

And when there's more development and amenities along the Beltline, I think that's going to make it more attractive. It has to be a living, breathing entity, like on the Eastside, in some areas, and not literally just a path. I think it'd be fun. (AP3, female, 60 years old)

She went on to explain what makes her find walking on the BeltLine "dreary":

I would like to see some more development. Like, when you walk around in the neighborhood, you can look at people's homes and what they're doing and look at their landscapes and things. And you go along the BeltLine, and so much of it now over here is still shuttered abandoned warehouses that nothing is happening with. And so, I would just love to see that become something more, ... more, I don't know, what's the word I'm looking for - more urban or where there are people, and there's life... And that is a lot about the BeltLine on this end; when you walk through a big section of it, you're just looking at the back. (AP3, female, 60 years old)

Currently, the focal point of all activities is a 23-acre adaptive reuse of warehouses known as Lee+White. One resident referred to it as an "entertainment district" and as "a nature trail posing as an entertainment district" (AP6). The interviewees noted that those

activities attract the younger and 'newer' crowd, and they would like to see more diversity in businesses and retail that meets the needs of the existing community.

Table 3.10: Self-Reported Facilitators and Barriers to the Beltline Trail Use.

The reported facilitators and barriers are categorized into three domains: environmental or design-related (ED), social (S), or related to the trail's programming (P). In most cases, they fall into more than one domain

	Domain
Self-Reported Facilitators	
An increased feeling of safety due to the presence of police, cameras, and good lighting along the trail	ED, P
The presence of other people makes the trail feel safe (“eyes upon the street”)	P, S
A safe space for pedestrian traffic, free of vehicle conflicts	ED
A smooth, paved trail surface	ED
Connectivity and access to other spur biking paths or trails	ED, P
Easy access to the trail	ED
The amenities along the trail (e.g., restaurants, shops)	ED, P, S
A space to socialize and enhance social well-being	ED, P, S

Table 3.10: Self-Reported Barriers to the Beltline Trail Use (continued)

	Domain
Self-Reported Barriers	
The trail surfacing is uncomfortable for running	ED
Residents prefer the more natural surfacing of the trail (such as bark mulch, or natural earth, the way it was before the trail was paved)	ED, P
Residents prefer the beautiful natural environment along the trail (the way it was before it was paved)	ED, P
Lack of respite areas along the trail, especially places to sit and gather	ED, P, S
Lack of vegetation and shade trees along the trail	ED, P
The condition of the trail (the trail is not fully finished and connected yet)	ED
Need for better informational signage on the trail	ED, P
Lack of diversity of activities and uses along the trail	ED, P, S

3.8. Discussion

This chapter examined green gentrification from long-term residents' vantage point and explored residents' perceptions of neighborhood opportunities for healthier lifestyles.

This chapter's main findings are discussed in detail below.

3.8.1. Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment: Testing the Gentrification Index

As discussed before, Adair Park and West End's proximity to Downtown, access to transit, and initially affordable housing made these neighborhoods susceptible to gentrification. The first goal of this Chapter was to develop a deeper understanding of the gentrification processes in the two neighborhoods and to test the validity of Gentrification index results. According to the Gentrification index, in 2017, Adair Park and West End were in the ripe or early stages of gentrification (Table 3.3).³³ Census Data showed the two neighborhoods experienced increases in the population of white, younger, college-educated, and higher-income residents. Housing costs, particularly rent, increased, too (e.g., the median gross rent in Adair Park more than doubled for the observed period, Table 3.2).

The first section of the interview was designed to elicit residents' perceptions of neighborhood changes in Adair Park and West End. The researcher deliberately avoided

³³ The portion of West End between Lawton Street and Lee Street (Census Tract 42) and Adair Park were in the early stages of gentrification. The part of the West End adjacent to the now developed Westside BeltLine was deemed 'ripe for gentrification.'

the word 'gentrification' while conducting the interviews, yet residents reported many changes occurring in the area, and it was apparent from their narratives that they were describing many aspects of gentrification without explicitly naming it. For the most part, residents' experiences of neighborhood changes were consistent with the secondary data. The residents commonly perceived the following changes: 1) Changes in demographics by age, income, family structure, and race (with the area becoming “whiter”); 2) Increase in rents and home values; and, 3) Displacement of renters and loss of affordable housing units.

However, the interviews also highlighted an influx of young, college-educated African Americans – that was not revealed by the secondary data. Upwardly mobile African Americans want to live in historically black neighborhoods like West End, and previous studies on gentrification reported this trend in Harlem, NY and Philadelphia, PA (Freeman, 2011; Gibbons & Barton, 2016; M. M. Taylor, 1992).

There was less agreement on changes in neighborhood safety and change in community social cohesion and interactions. Gentrification is often associated with a reduction in crime and increased safety; on the other hand, more affluent residents make for more attractive targets, so crime may increase (Cole et al., 2019; Freeman & Braconi, 2004; Newman & Wyly, 2006). Factors like age, gender, race, and years living in the neighborhood played a role in how those changes were perceived. It is not surprising that female respondents reported appreciable improvements in the area's safety, as it is well established that women experience a greater fear of crime than men (Stafford, Cummins, Macintyre, Ellaway, & Marmot, 2005). Women are also less likely to walk (either for recreation or transportation) in a neighborhood that is perceived to be unsafe (Baldock et

al., 2018; Oh et al., 2010). Several residents noticed that foot traffic has increased since the BeltLine trail opened and that the presence of people walking and having more "eyes upon the street" made the area feel safer (Jacobs, 1992).

Some of the residents perceived weakened social ties due to recent demographic shifts. One resident of Adair Park (male, 63), who was actively involved in many projects for senior community members, expressed concern that the feeling of social exclusion might be stronger among older long-term residents. These findings echo the results of previous studies (Burns, Lavoie, & Rose, 2012; Torres, 2020).³⁴

Gentrification may directly displace renters, who are nearly two times more likely to move than owners (Brummet & Reed, 2019; I. W. Martin & Beck, 2018; E. Wyly, Newman, Schafran, & Lee, 2010). The fear of displacement was present in conversations with residents, who reported that some of their friends and relatives had left the neighborhood due to rising rents. However, information that has emerged from the interviews is that the unavailability of rental properties in the area was the main reason for the renters' displacement, as opposed to rent increase. As one Adair Park resident stated: "So, it's not even that the rents went up. There was just nowhere left to rent..." (AP1). In a

³⁴ In 2014, a group of residents conducted a house-to-house Adair Park Community Survey, and Resident AP2 was kind enough to send me a copy of the final report. There were 185 completed questionnaires, representing approximately one-half of all inhabited homes in the neighborhood. The survey found that, in general, residents thought that Adair Park feels like a close-knit village where neighbors knew each other. However, areas identified that need attention are seniors' needs in Adair Park and increased inclusion of seniors in community activities.

gentrifying neighborhood, the number of (affordable) rentals continues to dwindle as they are converted to owner-occupied dwellings (Atkinson, 2002).³⁵

Residents were both optimistic and skeptical regarding the influx of investments and ongoing economic revitalization after decades of neglect. As one resident of West End noted, there was a notion that the neighborhood is upgrading "just because whites now want to live here, next to the 'big next thing', and they get better amenities" (WE7). Freeman previously reported these long-term residents' sentiment that the area is improving because of the gentry and not for the existing community in his research on the gentrification of Harlem and Clinton Hill, NY (Freeman, 2011).

3.8.2. Long-Term Residents' Perception of Changes in the Built Environment

As noted earlier, long-term residents in a gentrifying neighborhood may experience health benefits resulting from both an influx of investment and changes in the physical environment, such as housing stock, infrastructure, and amenities (Brummet & Reed, 2019; Chetty et al., 2016; Freeman, 2011; Gibbons et al., 2018; Gould & Lewis, 2016; Lindsey et al., 2006; Popkin et al., 2005; Vigdor et al., 2002). The improvements in neighborhood physical environment can support individuals' lifestyles and positively impact health (Freeman & Braconi, 2004; Newman & Wyly, 2006).

In the interviews, the residents of Adair Park and West End spoke with pride about their neighborhoods regarding layout, architecture, and local parks. The houses with front

³⁵ Freeman also found that from 1991 to 2005, market rents rose less slowly than median housing prices in the New York Metropolitan area (Freeman, 2011).

porches were commonly mentioned as one of the most distinct elements of their neighborhoods. The respondents loved the walkable layout, and as they stated, the "area offers plenty of opportunities to be physically active". The West End boasts numerous parks: the bigger ones are West End Park, Howell Park, and linear Rose Circle Park, and there are two smaller- Holderness-Lucile Park and Rose Circle Triangle. The new Gordon White Park opened in 2008 as the BeltLine's first official park. Adair Park, one third the size of the West End, has access to two large parks, Adair Park I and II, and a pocket 0.19-acre Bonnie Brae Park.

When it comes to perception and attitudes on changes in the built environment, many of this study's findings echo with previous research on gentrification (Doucet, 2009; Freeman, 2011). Interviewees had decidedly mixed views about the changes in their neighborhoods' built environment. In general, most interviewees had a positive response to the changes, citing that the area was changing for the better; they appreciated the housing stock's upgrade and felt "grateful" that the number of vacant properties decreased. One resident of Adair Park stated that "it has been a positive not having drug houses [in the neighborhood] anymore"; what used to be a boarded-up house in 2017, is now a 'redone 1920 bungalow' with a price tag of \$425,000 or more. This led to genuine concern about the costs of staying in the neighborhood, which was mentioned in the interviews. Some residents were skeptical about the real reasons behind the recent investments in their neighborhoods, as they felt these communities had been neglected and ignored for decades. They believe the improvements are associated with the arrival of gentrifiers, although they did not use that term.

Adair Park was predominantly residential, zoned for single-family housing, while the northern portion was primarily industrial. The neighborhood had very few commercial buildings, and the arrival of new restaurants and bars within walking distance was seen as a very positive thing. One Adair Park resident said that “Adair Park really is a bunch of houses without a lot of commercial properties” (AP1). Another resident, who is a chef, said that for 30 years, “the only thing that's ever been here in this neighborhood has been places where you can get wings or fried fish, that's it. Or fast food like in the West End, like *Church's Chicken* or *Popeyes*”. New businesses are a convenience for residents and may boost the local economy, as new amenities are bringing new people to visit and spend their money in the neighborhood. However, residents believed that the new businesses target a new clientele instead of long-term residents' needs. As one female West End resident stated:

I think the thing that feels non-connected to the community are the breweries and the kind of restaurants. I think people want it, options to eat in, just maybe not these. But, I mean, there's a lot of black-owned restaurants and restaurants that are healthy Afrocentric restaurants and places and juice bars that have come up. (West End Resident 3, living in the neighborhood for 24 years)

There is “excitement” among the residents about many dormant industrial spaces and unused buildings being rehabilitated and repurposed. The former Candler Warehouse district, nestled between Murphy Avenue and Metropolitan Parkway, is being converted to “a business and arts district,” known as “The MET.” The warehouses are being turned into lofts and studios for Atlanta artists, entrepreneurs, and digital content developers (MET

Atlanta).³⁶ The George W. Adair Elementary school has sat abandoned for more than 45 years. In 2017, adaptive reuse started, and the building will be transformed into “art-force housing” called “The Academy Lofts” (Green, 2018).³⁷ The Lee+White, once a transportation and logistics hub, is a 23-acre adaptive reuse that is nested in West End. It stretches along White Street, and now houses restaurants, shops, bars, and cafes that have their fronts on the Westside Trail (Peters, 2020).

Despite all the amenities added to the area, residents still believed that physical environment changes were not happening fast enough. One resident who lived on the Atlanta Eastside and witnessed the Old Fourth Ward transform dramatically in just a few short years before moving to Adair Park described it:

I'm very much in a place where everything north of RDA and Adair Park is kind of still vacant or underused. I'm in a huge fight with the BeltLine right now about “Murphy Crossing”, which is the southern boundary of Adair Park. So that's 20 acres of abandoned stuff; most of Murphy Ave is underused. And I think we have, between the Adair Park, Capitol View, and Sylvan Hills, I think we have 77 abandoned acres of industrial land that is eligible for an economic opportunities zone. So, like you hear about gentrification and the boom that's happening, and then if you walk around or bike around, you'll see this vast swath of completely abandoned former industrial sites. So, it's not like all of a sudden, Starbucks are popping up on every corner around here. Like a lot of stuff around here is still just abandoned, industrial stuff (AP6).

³⁶ The Candler Warehouses, at the time the largest single structure under one roof in the U.S., were built by Asa Candler, co-founder of the Coca-Cola Company (MET Atlanta)

³⁷ The Academy Lofts Adair Park will be a model where a for-profit group supports a nonprofit to create art-centric on-site programming while providing 35 affordable micro-housing units for the artists, a coffee shop (Green, 2018).

There are a few reasons why the Westside Trail doesn't feel and look like the Eastside portion. First, the Eastside trail opened earlier (in 2012), and it has been up and running longer. The Westside got access to the paved path in 2017. Secondly, the Eastside Trail's proximity to Midtown was a compelling reason for businesses to flock to the area between Piedmont Park and Inman Park. Shops and restaurants were targeting a younger, (often) whiter, or more affluent crowd.

The neighborhoods along the Westside trail are composed of different demographics with different socioeconomic status. The north portion of the path, between Gordon White Park (Ralph David Abernathy Boulevard) and Washington Park, runs through a predominately residential area. There is no commercial activity in this zone. Heading south, the paved part of the trail (along White Street) faces the industrial sites with promising redevelopment opportunities. The unpaved portion of the path runs behind abandoned industrial buildings.

Some of the residents mentioned a recent improvement of existing public parks, playgrounds, and some of the sidewalks. Those residents who regularly bike were concerned about the lack of adequate biking infrastructure, such as bike lanes on Metropolitan Avenue, while some roads have only 'sharrows'. Previous studies linked investments in cycling infrastructure to gentrification and increased presence of "privileged" residents, backing up the arguments that "bike lanes are white lanes" (Flanagan, Lachapelle, & El-Geneidy, 2016; Melody Lynn Hoffmann, 2013; Melody L Hoffmann, 2016). However, the League of American Bicyclists reported in 2013 that the

fastest growing racial groups among cyclists are Hispanic, African American, and Asian Americans (League of American Bicyclists & Sierra Club, 2013). Low-income individuals and minorities are often more reliant on cheaper modes of transportation, such as cycling (Zimmerman, Lieberman, Kramer, & Sadler, 2015). One Adair Park resident offered his observation:

So, Adair Park itself, I would say, there's been, you know, zero functional implementation of bike infrastructure. In the West View, where I work, there was a bike lane, and part of it got removed because the church was angry about it. Which is a shame because when I bike or walk around, 90% of the people I see cycling are lower-income people that are using bikes to get to and from a location. And it's usually children biking, actually using it to get around. So, the whole 'bike lanes are white lanes' is definitely not accurate in this area. I would like to see a lot more biking infrastructure. (AP6)

Enhancement of biking infrastructure would benefit the economically vulnerable residents the most, such as lower-income residents or children (Cahen, 2016; J. F. Sallis, Frank, Saelens, & Kraft, 2004). In addition to providing access to jobs, investments in active transportation infrastructure can help meet the recommended levels of physical activity and reduce health disparities in PA in lower-income neighborhoods (Noyes et al., 2014; J. F. Sallis et al., 2004). The need for quality cycling infrastructure was particularly evident during the COVID-19 pandemic, when many turned to walking and cycling instead of public transportation to minimize transmission risk (Nikiforiadis, Ayfantopoulou, & Stamelou, 2020; Teixeira & Lopes, 2020; Wang et al., 2020).

3.8.3. Long-Term Residents' Perception of Changes in the Physical Activity

A considerable amount of research has emphasized the role that place plays in individual health (C. Ross & Mirowsky, 2001; Sampson, 2003, 2012). The environment in which one lives may promote or pose barriers to physical activity (PA) and exercise (J. F. Sallis et al., 2006). The interviews with long-term residents demonstrated that the improvements in neighborhood physical environment and perceived area safety were followed by self-reported behavior changes.

As noted earlier, both Adair Park and West End's walkable layouts have always made it easy for residents to be physically active in the neighborhood. They reported that having several community parks and green spots within walking distance enabled them to maintain active lifestyles. These results are in accordance with previous literature looking at health-related behaviors and access to health-promoting resources (Corning, Mowatt, & Charles Chancellor, 2012; Huston, Evenson, Bors, & Gizlice, 2003; Sundquist et al., 2011).

However, the interviewees reported that access to new neighborhood amenities, increased foot traffic in the area, and, mostly, the newly opened BeltLine trail motivated them to use the health-promoting resources in their communities. Those health behavior changes can be classified into the following categories:

1. Change in the type of PA
2. Change in the location where the PA takes place
3. Increase in the level of recreational or leisure PA
4. Changes in travel behavior

Development of the BeltLine as a new recreational infrastructure was also the most notable physical change in the area, and many of the reported health behaviors were related to the construction of the trail.

For habitually active residents who used to walk in the neighborhood, the construction of the trail itself did not impact their PA level. They just now prefer to walk on the newly opened path. To quote one female resident, who had lived in the area for 30 years: “Yeah, we used to walk when the BeltLine didn't exist. We did walk around the neighborhood. Now we tend to walk usually the BeltLine solely as our walking.” (AP3)

Similarly, one female resident from West End said that she used to drive to the gym at the West End Mall, and she has not noticed an increase in her PA since the trail opened (WE3). However, ever since she became a mom, she chooses to walk on the BeltLine with a baby stroller, instead of going to the gym. Before, she used the local sidewalks, but she preferred the trail's smooth paved surface and not dealing with motorized traffic. This was consistent with other studies that found that introducing greenways to areas that lack sidewalks or traffic-calming design strategies can be an effective way to motivate residents to engage in walking and biking safely (Corning, Mowatt, & Charles Chancellor, 2012).

Another West End resident said her daily exercise habits have not changed; she continued to exercise at home or in her backyard. She does not walk in the community and she has never been on the BeltLine. She believes that the new trail is not for the community that already lived there but “they put this for the white people that are coming to the area” (WE13). She is not the only resident to feel this way; several respondents noted that older long-standing community members are mostly absent from the trail, and they can rarely be

seen walking in the neighborhood. Psychological factors such as a lack of knowledge about resources and lack of interest or motivation have been previously identified as barriers to PA (Gilbert, Duncan, Beck, Eyler, & Brownson, 2019). This requires an organized effort to engage specific underrepresented groups, especially older African American residents.

For the residents who reported changes in the type of physical activity, this change was almost always reported with a change in the location where the PA takes place. For example, one respondent used to rollerblade for years, but he has replaced the rollerblading with cycling since he moved to Adair Park. He rides his bike every day, and he did so even before the BeltLine was paved, while it was still a dirt path. In his particular case, physical activity even increased. One female resident said that the new trail's presence motivated her to be more active and walk and bike more. She described biking on the BeltLine as quality family-time with her daughter, an additional motivation to regularly use the trail. The use of PA as a family bonding activity was previously reported and found to improve family relationships (Corning, Mowatt, & Charles Chancellor, 2012; J. H. Lee et al., 2002).

Previous quantitative studies sought to evaluate the impact of building a multiuse trail on physical activity. These had inconclusive results, and findings varied. For example, Evenson et al. found that only 5% to 6% of the total 366 adults living within 2 miles of the newly constructed greenway reported that they used the trail, and their PA increased (Evenson et al., 2005). Another study that looked at a much larger sample of six Indiana trails (N=2000) found that 70% to 87% of regular users reported increased participation in trail activities (Wolter & Lindsey, 2001). This study, however, did not survey all the proximate residents. On the other hand, a survey of two new trails that bisect a rural

community found that 23% percent of the trail users were new users, and for 31% of them, the trails were the only venue for getting some exercise (Gordon et al., 2004). Similarly, a study done in Missouri found that residents who are not habitually active were more likely to report increases in physical activity than those who already exercise (Brownson et al., 2000).

This qualitative study's results are in line with previous quantitative findings. Previous studies have suggested that introducing health-promoting resources, such as walking and biking trails, can help promote increased physical activity, particularly among previously inactive individuals. Creating a space to safely engage in PA (free of motorized traffic) or family leisure activity can motivate more frequent use. People who used trails on a weekly basis were twice as likely to meet the recommended amounts of physical activity (Young et al., 2020). However, there is little evidence that building new infrastructure will increase the level of PA for residents who already meet the PA requirements. This suggests that there is a "ceiling" effect among people with already active lifestyles (Brownson et al., 2000).

Furthermore, low PA participation among new users can be explained by other factors, such as social environment factors, particularly perceived safety (McNeill, Kreuter, & Subramanian, 2006). How individuals perceive their environment may be more important than the built environment in motivating a physically active lifestyle, particularly among women or the elderly (Ball, Bauman, Leslie, & Owen, 2001; Kirtland et al., 2003; Wilson, Kirtland, Ainsworth, & Addy, 2004).

3.8.4. Long-Term Residents' Perception and Use of the Beltline Trail

Many of the benefits of living near the greenway reported by West End and Adair Park residents have already been documented in the literature. The key benefits that residents perceived were proximity to an outdoor recreation and gathering space, physical connectivity to other neighborhoods, and the convenience of safely commuting by active modes of transportation (especially biking). However, it should be kept in mind that these benefits have been observed by residents who are using the BeltLine. Two previous studies on the BeltLine by Palardy et al. found that the frequency of use resulted in positive attitudes towards the trails (Palardy et al., 2018a, 2018b). The proximity to the greenway plays an important role both in use and support for the trail, as studies found that between 67% and 84% of regular users live within 10 minutes walking distance from a trail (Coutts, 2008). The COVID-19 crisis has heightened the sense of the importance of living next to a greenway as many other recreational facilities were closed (such as gyms or tennis courts). The World Health Organization's recommendation was to stay physically active during self-quarantine as essential to physical health and mental well-being, and having a walking trail so close to home helped residents meet those requirements (World Health Organization, 2020a).

The respondents also stressed the importance of social benefits; they used the BeltLine as a venue to gather and walk with friends or spend quality time with family. Bumping into neighbors helps build a sense of community, enhances social capital, and increases a sense of trust, findings also previously reported (Corning, Mowatt, & Charles Chancellor, 2012; Palardy et al., 2018a, 2018b; S. Weber et al., 2017).

The neighborhoods of Adair Park, West End, Pittsburg, and Capitol View were always separated by a network of freight and commuter rail lines, reducing their connectivity. As some of the study participants noted, with the construction of the BeltLine, that has improved. Having physical connectivity to the surrounding neighborhoods and ease of safely commuting by active modes of transportation (especially biking) were major benefits reported by the long-term residents. These results parallel those reported by previous studies on urban greenways (Corning, Mowatt, & Charles Chancellor, 2012; Shafer et al., 2000).

Interestingly, respondents did not mention the personal financial benefits of living close to the new trail, which was found in previous literature (Corning, Mowatt, & Charles Chancellor, 2012; S. Weber et al., 2017). When we talked about the neighborhood changes, they were aware that the BeltLine might have increased their property values, and they could reap a windfall if they decided to sell. Even though they thought it was a positive thing, they were aware that some of their neighbors were negatively affected by it, as 'one man's fortune is another man's misery'. However, residents did note the new trail's potential to make an economic impact, as new businesses are flocking to the area, and the Westside's image is changing for the better. This was in line with previous research on residents' perceptions of greenway development (Palardy et al., 2018a, 2018b; Shafer et al., 2000; S. Weber et al., 2017).

The notion that the BeltLine contributes to the area's gentrification was a concern for the residents living in the two Beltline adjacent neighborhoods. Residents' concerns are founded, as the Gentrification index identified growing gentrification pressures in BeltLine

adjacent census tracts (Table 2.5.). Previous studies also demonstrated the effect of the BeltLine on property values, housing affordability, and sales prices within one-half mile of the trail (Byahut et al., 2020; Immergluck & Balan, 2018).³⁸ These findings correspond with other studies that found that greenway development can catalyze area gentrification and lead to the cultural displacement of legacy residents (Cole et al., 2017; Lindsey et al., 2006; Lindsey et al., 2010). Concerns regarding cultural displacement and loss of sense of belonging can instigate negative feelings towards greenway development, bring resentment, and discourage residents from using it (Hyra, 2015; Shmool et al., 2015). The example of the West End Resident who has never been on the BeltLine because she believes it does not serve the existing community, instead "they put this for the white people that are coming to the area", illustrates this resentment (WE13).

Cultural displacement can lead to creating a space that is not inclusive, accessible, or appealing to all residents and caters to only certain groups of users. Some of the interviewees already voiced their concerns that the BeltLine trail with all supporting amenities created its own community and failed to connect to the neighborhoods. This is more likely linked to the types of businesses that are surrounding the Beltline than the design of the trail itself. For long-term residents to support the BeltLine and buy into the idea, further enhancement of the trail should provide more links to the existing communities. This can be achieved through art, promoting and linking to local businesses, or creating social or educational opportunities (on the area's history and culture).

³⁸ Immergluck and Balan report that from 2011 to 2015, housing values rose between 17.9 percent and 26.6 percent more for homes within a half-mile of the Beltline than elsewhere in the city of Atlanta (Immergluck & Balan, 2018)

The trail's physical attributes may promote or hinder trail use and physical activity of the residents. The open-ended questions allowed long-term residents to identify in their own words those attributes that they perceived as barriers and facilitators to using the BeltLine (Table 3.6).

The trail's proximity and accessibility were previously identified as strong predictors of frequency of trail use and profile of the users (Coutts, 2008; Furuseth & Altman, 1991; Moore & Graefe, 1994; Ottensmann & Lindsey, 2008; Wolter & Lindsey, 2001). Most regular trail users reported living within 10 minutes walking distance from the nearest BeltLine access point, with some living in a house that backs up to (or fronts) the Westside Trail. For the interview respondents, the Westside trail felt like a local feature, making it more likely to be used frequently for recreational purposes and daily commutes (Gobster, 1995).

Connectivity to other spur biking paths and trails was recognized as another vital element of BeltLine design. Initially, the plan was to connect the 22-mile loop to an additional 11 miles of spur trails. In September 2019, it was announced that the BeltLine and the PATH Foundation would connect to the Silver Comet Trail. With a total length of about 300 miles of paved surface, it will be the longest trail system in the U.S. (The James M. Cox Foundation, 2019). Building a regional system of uninterrupted biking and walking trails can attract users with different motivations and fitness goals and provide a safer route for non-motorized commuting than regular streets (Gobster, 1995; Shafer et al., 2000).

Many respondents liked the smooth paved surface of the BeltLine, but this feeling was not shared by those residents who use the trail for jogging. Interviewees' mixed

responses to the surfacing suggested that trail material choice should include the range of users' diverse needs and preferences.

Greenways can be a way to reintroduce nature into the city and enable contact with nature for urban dwellers (Gobster, 1995; Searns, 1995; Shafer et al., 2000). Several participants noted that they prefer the beautiful natural environment along the trail and how it looked before it was paved. As one West End resident described:

It [the BeltLine] was just a project, and that was it. I started walking on the BeltLine around that time before it was developed. It was just a path. And the grass was up to your shoulders in the summertime. I enjoyed it because it was sort of being in the countryside in the middle of the city. (WE5)

Achieving a more natural environment is a challenging task when converting rails to trails, as segments of the trail traverse the vast swath of former industrial sites, often with a limited amount of vegetation. Lack of shade along the BeltLine deterred some users from using the path, especially in the summer months with the scorching Atlanta sun. The presence of nature can be enhanced by planting diverse vegetative types, such as broadleaf evergreen trees, shrubs, and annual herbs. It is important that vegetation is planted without compromising the feeling of safety and viewing distance (Gobster, 1995).

The residents reported that adding amenities such as drinking fountains, restrooms, diversity of activities (e.g., exercise stations or minigolf), respite areas, and benches would encourage them to use the trail more frequently. The rest benches are currently located only at access points, discouraging elderly or limited mobility users from being on the path. As of now, there are no drinking fountains or public restrooms along the Westside Trail.

Previous studies found that amenities were associated with 35 percent to 73 percent higher levels of trail use (Gilbert et al., 2019; Gobster, 1995; Reynolds et al., 2007). An increase in trailside facilities along the path, rather than concentrating the activities at just one point, would make the trail more exciting and less "dreary" (AP3). This is consistent with previous quantitative studies on environmental predictors of trail use and physical activity (Humpel, Owen, & Leslie, 2002; Krizek & Johnson, 2006; J. F. Sallis, Hovell, & Hofstetter, 1992). For example, Reynolds et al. analyzed users' patterns at 102 trail segments in Chicago, Dallas, and Los Angeles and found that the presence of cafés on the trail was positively associated with its use (Reynolds et al., 2007).

Finally, social conditions on the trail and perception of safety (personal security and fear), can act as a facilitator or a barrier to the trail usage (Andereck, Vogtisan, Larkin, & Freye, 2001; Gobster, 1995; Gordon et al., 2004; Luymes & Tamminga, 1995; Moore, Scott, & Graefe, 1998; Troped et al., 2001). While not itself a physical environment attribute, safety is related to trail design elements, such as lighting, vegetation, cameras, emergency phones, and call boxes. Lighting throughout the trail may be optional; however, it should be provided at trailheads, tunnels, overpasses, bridge entrances, and trail exits. Vegetation planning should consider avoiding the creation of hiding places along the path and maintaining long sightlines (O'Donnell, Knab, & Athey, 2007; Zegeer, 2002). Previous studies found that heavily used trails experience less crime and providing many 'eyes upon the trail' can reduce the likelihood of criminal activity (O'Donnell et al., 2007). This was evident from the interviews- the residents noted that they did not like to be on the Westside trail after dark, as the path roams between abandoned industrial buildings and "nobody can see you if something happens to you". The Eastside trail felt entirely different for them;

because of the trailside facilities (restaurants, bars) along the path, many people were present, and it felt safe being on the trail late at night.



Figure 3.7: Atlanta BeltLine Westside Trail. People using Westside BeltLine trail for different types of physical activity: 1a, 1c - biking; 1b - jogging; 1d – walking. Images 2a, 2b, 2c – Variety of art installations along the Westside trail.



Figure 3.8: Atlanta BeltLine Westside Trail (amenities). Image 3 - trail access point with informational signage; 4 - Former industrial buildings along the trail; 5 - Informational (directional) signage; 6, 6a - Seating areas are located only at the trail access points.

3.9. Conclusion

This chapter sought to expand the urban greenways literature and provide a perspective of the long-term residents living adjacent to newly developed multiuse trails. The study utilized a descriptive qualitative approach to examine long-term residents' perceptions and use of the Atlanta BeltLine Westside trail and, in turn, their subjective experiences of living through the process of gentrification.

Trails and greenways can be used for improving residents' health and well-being by promoting active recreation and active commuting. This study's qualitative results align with previous quantitative research, demonstrating that greenway attributes such as aesthetics, connectivity, accessibility, adjacent amenities, maintenance, and feelings of personal safety affect trail use. Design elements of the trail, such as surfacing, lighting, shade, and presence of nature, can act as both a facilitator and a barrier to trail usage and regular physical activity.

Furthermore, green gentrification, often associated with neighborhood greening initiatives, may mediate the relationship between access to green space and health. Feelings of cultural displacement and loss of sense of belonging can instigate negative feelings towards greenway development, bring resentment, and discourage long-term residents from using it. The findings suggest that perceptions of neighborhood social environment entwine inextricably with perceptions of the physical environment and residents' use of health-promoting resources. Qualitative research should be used in combination with quantitative studies to provide more useful information about patterns of use and attitudes toward newly developed green infrastructure. This is primarily important when greening

interventions are geared towards improving the incumbent residents' quality of life and well-being.

Particular attention should be given to promoting the use of new green amenities among vulnerable populations, particularly among minorities, women, or the elderly, who tend to be less physically active. For example, women are less likely to walk and use public space that is perceived to be unsafe, and safety can be improved with design, such as lighting, cameras, vegetation planting without compromising the feeling of safety and viewing distance, and the presence of trailside amenities that attract higher volumes of foot traffic. Good trail conditions, the presence of shade trees, and respite areas may encourage use among the elderly or people with impaired mobility.

3.9.1. Limitations and Future Research

When conducting in-depth interviews, establishing a rapport with the interviewees is very important. In terms of racial composition, both Adair Park and West End are predominantly African American neighborhoods. As a white person researching gentrification, I was aware of the unique challenge of building trust with the study participants. Recruiting long-term residents through my network of personal contacts and trusted community members greatly facilitated participant recruitment. I am also fully aware that some of the responses would probably differ if I were (seen as) a part of the community and a person who can relate to experiences of living through gentrification. Being cognizant of these circumstances is essential to understanding the findings of this study.

There are several limitations to this study that are inherent to qualitative studies. Qualitative research is usually exploratory, and the results of this study cannot be generalized to any broader population or other communities. While this is a specific study of two Atlanta neighborhoods, it has broader potential relevance. Findings from neighborhoods such as Adair Park and West End can have relevance for other disenfranchised communities undergoing regreening initiatives and green gentrification, rails-to-trails developments, or riverside locations experiencing the conversions of former industrial sites and brownfield locations into greenspaces and spaces for recreation.

As noted previously, the data saturation point was reached well before the fourteenth interview, most likely due to how the participants were sampled and recruited for the study. Most of the respondents were college graduates, having at least basic computer skills (many have used Zoom before) and access to the Internet. Many of them were active community advocates. Given this, this sample is probably not representative of the area population. By including a more diverse group of participants, we would gain additional perspectives or information.

Another limitation may be potential bias in how the author interpreted the answers in the content analysis. Two researchers independently performed the data analysis to minimize bias and discussed the findings to increase comprehensivity and provide a sound interpretation.

This study relied on self-reported PA, and there are several well-known limitations of self-report, such as recall bias, cultural differences, misinterpretation of questions, and over-reporting physical activity (Steene-Johannessen et al., 2016). Future research would

benefit from a mixed-method approach and combination of observation, behavioral mapping, self-report, in-depth interviews with intercept surveys, and objective measurement of physical activity using activity tracking devices (such as wearable devices, phone applications, or step pedometers). Longitudinal studies and comparing health data on the amount of physical activity before and after greenway development could provide insight into the efficacy of different environmental interventions and inform future policies to promote legacy residents' health.

Finally, there is still much more to learn about the impacts of gentrification on long-term residents' health, especially in disenfranchised communities. A growing body of research recognizes gentrification as a public health concern because rapid changes in neighborhood socioeconomic conditions can widen existing health disparities that characterize the US's cities. Future research should focus on both health-related experiences and objectively measured health outcomes for residents in gentrifying neighborhoods.

CHAPTER 4. Conclusions

4.1. Summary of Findings

This chapter summarizes the main findings and significance of the two studies presented in the previous chapters. The main findings are organized according to primary objectives and specific research questions.

Chapter 2

4.1.1. Identifying and Measuring Neighborhood Change

1. How do different quantitative methodological approaches for identifying and measuring neighborhood change vary?

A scan of relevant literature revealed considerable variation in the methodologies and criteria used to measure gentrification. There is a lack of consensus on how to precisely define gentrification, identifying the neighborhoods undergoing this type of transformation, and measuring its magnitude. Previous studies used a wide range of variables and benchmarks to identify potentially gentrifying areas. This chapter compared two different methodological approaches for identifying gentrification: composite gentrification index and threshold-based methodology. Specifically, the main findings were:

- Principal Component Analysis (PCA) is a suitable data compression method useful for summarizing a substantial number of correlated variables and offers a reproducible approach for developing neighborhood socioeconomic status indices.
- The threshold-based methodology underestimated the gentrification in Atlanta compared to the composite Gentrification index (Gi) developed in this study.

The composite index was recognized as a useful tool that can portray multiple dimensions of neighborhood conditions in a simple and easy to comprehend manner. The proposed approach capitalizes on free and readily available U.S. census data and can have broad geographic generalizability. The resulting index enables simple visualization of the results using geographic information systems (GIS) based software (in this dissertation, data analysis and visualization were performed using ArcGIS Desktop 10.7, (ESRI, 2019)).

The analysis showed that the share of white residents, population with a college degree, and the share of residents working in managerial and administrative occupations were highly correlated variables. In addition to area median income, these variables also had the highest loadings on the first principal component as the most significant markers of the neighborhood SES. Past literature on gentrification found that changes across these four variables (changes in racial composition, especially drop in the share of the residents who were people of color, increase in the share of college-educated residents, and increase in median income) are the leading indicators that an area is gentrifying. Given this, the proposed index is expected to quickly and rather accurately detect gentrification and the area's susceptibility to gentrification.

When using the threshold-based methodology, we monitor how a limited number of critical indicators of gentrification change over time, using citywide median values as thresholds. The share of the census tracts deemed 'gentrifying' was higher based on the composite index (44%) versus the threshold-based methodology (31%) since it measures absolute rather than relative shifts in neighborhood status, regardless of citywide change. While small discrepancies in results may not matter much when we seek to identify an apparent presence or absence of gentrification, monitoring how a small number of indicators changed relative to the city might overlook areas in early gentrification stages. In such cases, the utilization of the composite index based on multiple indicators contributes to a richer understanding of the extent of gentrification. One of the index's biggest strengths is that it enables us to identify "at-risk" neighborhoods before the actual changes occur. Additionally, the use of a larger number of SES variables paints a richer picture of how the neighborhood is changing and enables tracking changes in each individual indicator. A composite index is also less affected by changes in a single variable.

On the other hand, researchers and practitioners may not always have the time to pursue this method. The choice of methodological approach will depend on the time and resources available and the type of information needed.

2. How did the SES status of gentrifying census tracts in Atlanta change from 2000 to 2017 across major indicators of gentrification: (1) Increase in the share of the residents who are white; (2) Increase in the share of college-educated residents; (3) Increase in median income and (4) Increase in median gross rent?

- The share of the white and college-educated population grew faster in the Census tracts that were eligible to gentrify than the rest of the city, but median gross rent and median income were rising at a slower pace for the observed period.

From 2000 to 2017, the Census tracts eligible to gentrify gained a white and college-educated population faster than the rest of the city for the observed period (Table 2.6.). Those demographic trends correspond with trends in the city and the Atlanta metropolitan area. Both the city and metro Atlanta saw strong population growth, and the city's racial and ethnic profile is changing. While the city gained Hispanic, white, and Asian residents, the share of the Afro-American population is decreasing. The share of the white population increased in roughly two-thirds (66%) and the share of the college-educated population in almost a third of the Atlanta census tracts (31%).

However, in gentrifiable tracts, median gross rent was rising at a slower pace compared to the city, and there was no significant increase in median income or share of owner-occupied units. The results echo the previous findings that neighborhoods in the early stages of gentrification usually attract young professionals as they look for more affordable areas to move to (Chum, 2015; Freeman, 2005). They may have relatively lower income compared to the city median, but still higher than incumbent residents of the up-and-coming neighborhoods. Finally, nearly one-third of the eligible census tracts showed an increase across all major indicators of gentrification since 2000.³⁹

³⁹ (1) Increase in the share of the residents who are white; (2) Increase in the share of college-educated residents; (3) Increase in median income and (4) Increase in median gross rent?

4.1.2. The Geography of Gentrification of Atlanta Based on the Newly-Developed Gentrification Index (Gi)

3. How does the recent geography of gentrification in Atlanta look based on the newly-developed gentrification index?

Looking at the geography of SES change based on the newly developed Gentrification index (Gi), it is possible to see some patterns in the location, stages, and timing of gentrification of Atlanta neighborhoods:

- In 2000, 63% of the census tracts in Atlanta were eligible to gentrify, and by 2017 almost half of them (44%) were in the process of gentrification.
- The census tracts not eligible to gentrify are concentrated in the north and northeast portion of Atlanta.
- The census tracts in the early stages of gentrification or ripe for gentrification are adjacent to already gentrifying areas and/or well-established affluent areas. This pattern of gentrification has almost a concentric form.

Out of census tracts eligible to gentrify, 44% were showing signs of gentrification, while 56% of tracts failed to gentrify as of yet. If we include census tracts classified as 'ripe for gentrification', it is expected that 61% of Atlanta census tracts will soon be in various stages of gentrification.

The middle and upper-income neighborhoods ineligible to gentrify are concentrated in Atlanta's north and northeast. This north-south dividing line corresponds to the city's long-standing residential racial segregation patterns (The Brookings Institution Center on Urban and Metropolitan Policy, 2000). The second cluster of ineligible census tracts stretches north of the MARTA East-West rail. These neighborhoods were affected by the first gentrification waves in the 80s and 90s, and in 2000, they were already considered relatively affluent neighborhoods (Laura Jeanne Dedenbach, 2016).

As neighborhood change processes often cross administrative boundaries, the spillovers into adjacent neighborhoods are evident. The census tracts experiencing early gentrification are usually adjacent to already gentrified census tracts, while the 'ripe for gentrification' are contiguous to those tracts showing the first signs of gentrification.

4. Are the census tracts adjacent to the proposed BeltLine multi-use trail more likely to experience gentrification?

The analysis found the following:

- Proximity to the BeltLine was associated with accelerated gentrification in the BeltLine Planning Area.
- The census tracts within the BeltLine Planning Area experienced an increase in white and college-educated residents and an increase in housing vacancy from 2000 to 2017.

Of those census tracts within one-half mile of the BeltLine trail path, roughly two-thirds were eligible to gentrify, and the percentage of those that are actually gentrifying is

slightly higher than the average for the City of Atlanta (52%). The index identified early gentrification in the areas along the proposed Southside BeltLine trail closed for construction in February 2020. With an additional 21% of census tracts that are 'ripe to gentrify', nearly three quarters (73%) of the census tracts within one-half mile of the BeltLine are expected to experience changes in SES and upward economic swings. They all experienced an increase in median gross rent, median household income, and the share of residents working in managerial and administrative occupations. In all but one tract (Chosewood Park), there was a significant influx of white residents since 2000. Another noticeable trend was an increase in the share of college graduates. It should be noted that the period of analysis was 2000-2017 and that using the most recent census data (2020) would most likely show accelerated gentrification along the entire BeltLine corridor. These results support previous findings on the effect of the BeltLine on property values, housing affordability, and sales prices within one-half mile and growing gentrification pressures in the Beltline Planning Area (Byahut et al., 2020; Immergluck & Balan, 2018).

Despite the initial assumption that the number of vacant units is declining as the area gentrifies, it was interesting to see that the vacant units' share increased as the long-disinvested neighborhoods were transitioning from 'ripe for gentrification' to 'early gentrification' stage. Some of the tracts directly adjacent to segments of proposed or already completed BeltLine trails had vacancy rates increase by almost 30% in 2017. However, the vacancy was increasing at a slower pace in the latter stages of gentrification. This can indicate that many previously-occupied buildings in deteriorating and unhealthy physical conditions are being purchased from the original owners and that many dilapidated properties are being renovated into viable units (M. Cohen & Pettit, 2019; Helms, 2003).

Another explanation for the increase in the number of vacant units is the possibility of real estate speculation when investors buy properties that remain empty until they can be sold at a higher price. Speculation often targets areas at risk of gentrification, leading to a swift growth in the number of vacant dwellings (Levy, Comey, & Padilla, 2006).

4.1.3. Relationship Between Neighborhood Gentrification and Self-Rated Health

5. What is the relationship between gentrification and self-rated physical and mental health and level of physical activity?

- Residents of gentrifying neighborhoods reported overall better physical and mental health outcomes and more physical activity than those living in neighborhoods that had not experienced gentrification.
- The census tracts with the highest values of the Gi had the lowest percentage of people reporting poor mental and physical health and low physical activity

The analysis found a consistent pattern of decreasing rates of poor self-rated health (both mental and physical) and a decreasing rate of residents who report low physical activity with increasing levels of gentrification. These findings suggest that, as the gentrification process improves the conditions and resources available in neighborhoods, these can translate into higher rates of residents who report good overall health.

However, these findings do not tell us how different groups of residents were affected by the gentrification of their neighborhood. As this chapter's study does not control for any of the socioeconomic factors (such as age, income level, race, or years living in the neighborhood), it is impossible to determine how different groups of residents

are affected by neighborhood changes. More importantly, looking at health outcomes at the census tract level, as opposed to individuals' health, we are not able to distinguish between new residents (gentrifiers) and longstanding residents. It remains unclear whether the residents of gentrifying census tracts report better health as a result of neighborhood improvements, or better health is reported by the newer (and often younger and healthier) residents. These findings echo previous studies' concluding that we lack the evidence of actual health improvements resulting from the BeltLine development (Dai et al., 2017). To better understand the impact that gentrification has on the health of the original residents, longitudinal studies of individuals' health outcomes are needed. However, in the short term it is still possible to survey, interview, and conduct other qualitative methods to better understand the mental and physical health impacts on long-term residents, as explored in Chapter 3.

Chapter 3

This chapter examined green gentrification from long-term residents' vantage points and explored residents' perceptions of neighborhood opportunities for physical activity.

This chapter's main findings are discussed below.

4.1.4. Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment: Testing the Gentrification Index

Even though using the census-based secondary data revealed patterns in location, stages, and types of neighborhood change of Atlanta, relying solely on secondary data often

misses the more subtle changes happening on the ground. Chapter 3's first objective was to verify the census-based findings and complement the secondary data analysis with qualitative data on long-term residents' perceptions and attitudes towards changes in their neighborhood social and economic conditions.

- 1. What types of transformations in the neighborhood social and economic environment do the long-term residents perceive?**
- 2. How are long-term residents experiencing changes in their neighborhoods?**

The main findings of this section were:

- Residents described many aspects of gentrification and reported the following changes in their neighborhoods: 1) Changes in demographics by age, income, family structure, and race (with the area becoming “whiter”); 2) Increase in rents and home values; and, 3) Displacement of renters and loss of affordable housing units.
- One participant reported that the first waves of area gentrifiers were black-gentry and that influx of young, college-educated, middle and upper-middle-class African Americans continues. This finding suggests that such gentrification may go undetected by conventional gentrification measures of whiteness.⁴⁰

⁴⁰ However, the term "black gentrification" should be used with caution. One resident noted that the whites and blacks choose to move into historically black neighborhoods for entirely different reasons; upwardly mobile African Americans started moving into neighborhoods like the West End since the 1990s, even before this area started gentrifying, and they were not the main drivers of the recent SES changes.

- Perceptions of neighborhood safety and changes in safety varied depending on factors such as age, gender, race, and years living in the neighborhood. The growing foot traffic in the area since the Westside BeltLine trail opened added to a sense of security.
- Interviews revealed that many renters (especially people of color) were displaced due to rent increase and decline in the number of available rental properties in the area.
- Some residents expressed fear of losing a sense of community and perceived weakened social ties due to recent demographic shifts. This implies a potential reduction in social capital and the associated mental health benefits for long-term residents.

While conducting the interviews, I deliberately avoided using the word 'gentrification', yet it was apparent from the residents' narratives that they were describing many aspects of gentrification without explicitly naming it. For the most part, residents' experiences of neighborhood changes were consistent with the secondary data. The residents commonly perceived the following changes: 1) Changes in demographics by age, income, family structure, and race (area is becoming “whiter”); 2) Increase in rents and home values; and, 3) Displacement of renters and loss of affordable housing units.

The interviews highlighted the presence of what has sometimes in the literature been called "black gentrification" - an influx of young, college-educated, middle and upper-middle-class African Americans – a finding not revealed by the secondary data. Previous studies on gentrification reported this trend in Harlem, NY and Philadelphia, PA (Freeman,

2011; Gibbons & Barton, 2016; M. M. Taylor, 1992). However, the term "black gentrification" should be used with caution. One resident noted that the whites and blacks choose to move into historically black neighborhoods for entirely different reasons. Also, upwardly mobile African Americans started moving into neighborhoods like the West End since the 1990s, even before this area started gentrifying, and they were not the main drivers of the recent SES changes. There was also much less friction between the legacy residents and newcomers.

There was less agreement on changes in neighborhood safety and change in community social cohesion and interactions. Gentrification is often associated with a reduction in crime and increased safety; on the other hand, more affluent residents make for more attractive targets, so crime may increase (Cole et al., 2019; Freeman & Braconi, 2004; Newman & Wyly, 2006). Factors like age, gender, race, and years living in the neighborhood played a role in how those changes were perceived. It is not surprising that female respondents reported appreciable improvements in the area's safety, as it is well established that women experience a greater fear of crime than men (Stafford et al., 2005). Women are also less likely to walk (either for recreation or transportation) in a neighborhood that is perceived to be unsafe (Baldock et al., 2018; Oh et al., 2010). Several residents noticed that foot traffic had increased since the BeltLine trail opened and that the presence of people walking and having more "eyes upon the street" made the area feel safer (Jacobs, 1992).

The displacement of renters, especially people of color, was a frequently reported theme in the conversations. Gentrification may directly displace renters, who are nearly

two times more likely to move than owners (Brummet & Reed, 2019; I. W. Martin & Beck, 2018; E. Wyly et al., 2010). Residents said that some of their friends and relatives had left the neighborhood, mostly because of the unavailability of rental properties in the area and, to a lesser extent, due to rent increases. This is often the case for changing neighborhoods, especially as they transition to advanced stages of gentrification - the number of (affordable) rentals continues to dwindle as they are being converted to owner-occupied dwellings (Atkinson, 2002).

The displacement of renters and recent demographic shifts was associated with the perception of weakened social ties and rising fears of the demise of the community. This was especially important for senior long-term residents, people who have been “rooted” to the place for generations, as these residents can often have a stronger feeling of social exclusion in neighborhoods undergoing rapid socio-demographic change (Burns et al., 2012; Torres, 2020). However, the community was often described as close-knit and trustworthy.

Residents' narratives described many aspects of gentrification. Some were optimistic regarding the influx of investments and ongoing economic revitalization after decades of neglect, but there were also skeptical ones. As one resident of West End noted, there was a notion that the neighborhood is upgrading "just because whites now want to live here, next to the ‘big next thing’, and they get better amenities" (WE7). Freeman previously reported these long-term residents' sentiments that the area is improving because of the gentry and not for the existing community in his research on the gentrification of Harlem and Clinton Hill, NY (Freeman, 2011).

4.1.5. Long-Term Residents' Perception of Changes in the Neighborhood Physical Environment

The composite gentrification index developed in the previous chapter measured changes in the socioeconomic status using only census data. However, the index does not capture built environment changes, which are important markers of the gentrification process. Therefore, the secondary data findings were complemented with interviews with long-term residents who are likely the first to notice the physical signs of reinvestment in the neighborhood. The participants were asked to describe their neighborhoods and perceived changes in the built environment, especially in terms of physical activity opportunities: infrastructure and amenities. The main research questions were:

- 3. What types of transformations in the neighborhood physical environment do the long-term residents perceive?**
- 4. What are the residents' attitudes toward existing and emerging health-promoting amenities in the neighborhood?**

The main findings in relation to changes in the neighborhood physical environment were:

- The walkable layout of both neighborhoods and access to several parks offer plenty of opportunities for residents to be physically active.
- In general, the interviewees positively responded to the neighborhood physical environment's improvements and the arrival of new amenities and services.

However, they expressed concern about the rising costs of living in the neighborhood and fear of being physically and culturally displaced.

- Despite all the changes and amenities added to the area, residents still believed that physical environment changes were not happening fast enough.
- The interviews highlighted the need for better biking infrastructure in the area, as it would benefit everyone, especially lower-income residents.

The residents of both Adair Park and West End talked with pride about their community parks and houses with front porches, which are supportive of social interactions. Abandoned buildings and former industrial sites have long plagued the area, and the interviewees had positive attitudes towards upgrading the housing stock and rehabilitation of vacant and derelict properties. The arrival of new amenities and services was an element of neighborhood change that many respondents mentioned, stating that the area was changing for the better; the new amenities also helped change the area's image after a long period of decline and neglect. Although appreciative of the increased retail activity, several residents were worried that the new retail lacks diversity and caters to the 'gentrifiers' and not the existing residents. In line with previous studies, this may lead to a 'this is not for us' sentiment and cultural displacement of the existing community (Cole et al., 2017).

Despite all the amenities added to the area, residents still believed that physical environment changes were happening relatively slowly compared to demographic and economic shifts. Some respondents noticed recent improvements in parks and public spaces. On the other hand, others noted that the existing parks needed upkeep, and they

would like to see dedicated bike lanes being installed instead of existing 'sharrows'. Better biking infrastructure would especially benefit lower-income individuals and minorities, as they are often more reliant on cheaper modes of transportation, such as cycling (Zimmerman et al., 2015).

4.1.6. Long-Term Residents' Perception of Changes in the Level or Type of Physical Activity (PA)

In Chapter 2, this dissertation also explored the relationship between gentrification and residents' self-rated health. It was found that gentrifying neighborhoods in Atlanta, especially those in the more advanced gentrification stages, have lower rates of poor self-rated physical and mental health and lower rates of residents who report no leisure-time physical activity. However, it remains unclear whether better health outcomes and more physical activity are reported by newer, healthier residents moving to up-and-coming neighborhoods or original residents as they have improved access to health-promoting resources.

This interview segment's primary goal was to obtain information on whether perceived neighborhood changes and the addition of a community trail led to adopting healthier lifestyles among long-term residents, with a specific focus on their physical activity.

The specific research questions were:

- 5. Do long-term residents report any changes in their PA level or activity type since the Westside Trail opened?**

6. What factors are associated with changes in their PA level based on their assessment?

The main findings were:

- Several residents reported that new amenities, especially the BeltLine trail opening, motivated them to be more physically active and change travel behaviors.
- Some of the habitually active residents who exercise outdoors reported that the construction of the trail itself did not impact their PA level, but in some cases, they changed their exercise habits (the type of PA or where they exercise)
- The participants reported that the older long-standing community members are mostly absent from the trail, and they can rarely be seen walking in the neighborhood.

The environment in which one lives may promote or pose barriers to physical activity and exercise (J. F. Sallis et al., 2006). As noted earlier, both Adair Park and West End's walkable layouts have made it easy for residents to be physically active in the neighborhood. However, the perception of area safety often played an essential role in how physically active the individuals (mostly women) were. The interviews with long-term residents revealed that, in some cases, improvements in the neighborhood physical environment and perceived area safety were followed by self-reported changes in physical activity. Several residents reported that new neighborhood amenities, increased foot traffic in the area, and, mostly, the newly opened BeltLine trail motivated them to be more physically active and change travel behavior. Those residents who were already taking

regular exercise reported that the BeltLine facilitated the maintenance of a physically active lifestyle.

The reported health behavior changes can be classified into the following categories:

- Increase in the level of recreational or leisure PA: e.g., residents reported regular walking on the BeltLine trail, or biking longer distance than before due to the connectivity of the Westside trail to other bike paths.
- Change in the type of PA: Some residents have noticed that they exercise less indoors (at home or in the gym) and they walk or bike on the Beltline much more often.
- Change in the location where the PA takes place: Residents who regularly walked in the neighborhood reported they now do so on the Beltline; on the other hand, some residents who used to run on the trail when it was just a dirt path avoid doing so since it was paved.
- Changes in travel behavior: Some residents are now biking to work or walking to a local store.
- No change in health behavior: Some of the residents reported that the Westside trail's opening and recent changes in the neighborhood did not prompt them to change their exercise habits.

The construction of the BeltLine as a new recreational infrastructure was also the most notable physical change in the area, so it is no surprise that many of the reported health behaviors are related to the trail. Many of the respondents mentioned that living near

the trail was extremely beneficial during the COVID-19 lockdown, when an increasing number of people turned to walking and biking and when many of the usual exercise venues were closed.

4.1.7. Long-Term Residents' Perception and Use of the Beltline Trail

The last segment of the interview aimed to elicit long-term residents' perceptions of the BeltLine trail use and design and explore the perceived benefits and concerns of living close to the trail. The interview questions were designed to identify those trail attributes that long-term residents perceived as barriers and facilitators to the use of the BeltLine.

The specific research questions were:

7. How do long-term residents describe the use of the newly developed BeltLine trail?

8. What potential impacts of the BeltLine trail do the long-term residents perceive?

9. What are the perceived barriers and facilitators to the BeltLine trail use?

The main findings were:

- Residents believed that the BeltLine trail created more recreation opportunities, especially for walking and biking, provided safe non-motorized access to places, and created spaces for socializing with friends and family.

- Many respondents voiced their concern that the BeltLine is accelerating and/or causing gentrification (contributing to the displacement of renters, rising property taxes and rents, etc.)
- Some interviewees believed that the BeltLine failed to connect the existing communities along the path and was still perceived as an amenity for the new, white residents, for whom it has become “a rallying point”.
- The reported facilitators and barriers to the regular use of the trail can be grouped into three domains: environmental (or design-related), social, or related to the trail's programming.
- Among main facilitators of trail use, residents reported: an increased feeling of safety, the presence of other people, a smooth, paved trail surface, connectivity and access to other trails, easy access to the trail, the amenities along the trail (e.g., restaurants, shops)
- The commonly reported barriers by interviewees were: lack of respite areas along the trail (especially places to sit and gather), lack of vegetation and shade trees along the trail, wayfinding and need for better informational signage, trail surfacing that is uncomfortable for running, lack of diversity of activities and uses, and the fact that the trail is not fully finished.

Many of the benefits of living near the greenway reported by West End and Adair Park residents have already been documented in the literature. However, it should be kept in mind that these benefits have been observed by residents who are using the BeltLine. The COVID-19 crisis has heightened the sense of the importance of living next to a greenway as many other recreational facilities were closed (such as gyms or tennis courts).

The respondents also stressed the importance of social benefits; they used the BeltLine as a venue to gather and walk with friends or spend quality time with family.

The neighborhoods of Adair Park, West End, Pittsburg, and Capitol View were always separated by a network of freight and commuter rail lines, reducing their connectivity. As some of the study participants noted, with the construction of the BeltLine, that has improved. Having physical connectivity to surrounding neighborhoods and ease of safely commuting by active modes of transportation (especially biking) were major benefits reported by the long-term residents.

Interestingly, respondents did not mention the personal financial benefits of rising housing values, which was previously reported in the literature (Corning, Mowatt, & Charles Chancellor, 2012; S. Weber et al., 2017). Even though they thought it was a positive thing, they were aware that some of their neighbors were negatively affected by rising rents and property taxes. Residents expressed their concern that the BeltLine contributes to the area's gentrification and cultural displacement of the existing community. Literature found that these concerns can instigate negative feelings towards greenway development and discourage longterm residents from using it (Hyra, 2015; Shmool et al., 2015).

The reported facilitators and barriers can be grouped into three domains: environmental (or design-related), social, or related to the trail's programming. In most of the cases, they fall into more than one domain (Table 3.10). Many of the reported facilitators have been previously identified in the greenway literature as strong predictors of trail use frequency: trail's proximity and accessibility, sense of personal safety, and

presence of other people on the trail. The interviewed residents noted the BeltLine's connectivity to the spur biking paths' network, and the fact it enabled non-motorized access to other parts of the city encouraged them to start using it.

It was interesting to learn that many respondents preferred the beautiful natural environment along the trail before it was paved. There was also little agreement on the trail surface; while those residents who use the trail for walking said they liked the smooth paved surface, this opinion was not shared by those residents who use it for jogging and prefer the dirt path, as it was before. Similarly, achieving a more natural environment by planting diverse vegetative types can be a challenging task; while lack of shade trees along the BeltLine deterred some residents from using the path in summer months, lush vegetation should not compromise the feeling of safety and viewing distance.

While some residents preferred a more natural character of the trail, others wanted to see more trailside amenities being added. The amenities that would encourage them to use the Westside Trail more frequently ranged from adding drinking fountains and benches to building more trailside facilities that would accommodate more retail (restaurants, bars, galleries, etc.). The hope is that more retail activity would further add the foot traffic (similar to Eastside trail) and eventually make the users feel safe being on the trail, even after dark.

4.2. Contribution

This dissertation expands the existing literature on gentrification and urban greenways and contributes to ongoing efforts to highlight the possible impacts of green gentrification on residents' health. This study:

- Proposes a new tool effective in capturing changes in census-tract socioeconomic status. This tool builds on previous studies and methods combining their strengths. The proposed methodology capitalizes on free and readily available U.S. census data and allows for measuring gentrification nationally. This method also allows for the longitudinal study of neighborhood change by including datasets from different census years. Although this tool has been developed specifically to identify and measure gentrification, it also proved useful in identifying the process of reverse neighborhood change.
- Provides a deeper understanding of how the process of gentrification affects cities by examining the multiple dimensions of neighborhood socioeconomic change. The newly developed tool uses 15 census-tract level variables indicative of gentrification instead of monitoring a limited number of critical indicators. This approach allows for measuring the degree of SES change and identifying and describing different stages of gentrification, as opposed to describing the neighborhood change as a binary condition (not gentrifying/gentrifying). The proposed tool enables us to identify "at-risk" neighborhoods before the actual changes occur. Finally, the tool allows for a simple visualization of the results using geographic information systems (GIS) based software.

- Provides an opportunity to study the broader impacts of gentrification. The resulting index facilitates linking SES data to other datasets and data on the census tract level. For instance, by connecting it to public health cohort studies, we can start building a body of evidence on the effects of gentrification on health and well-being.
- Expands the limited knowledge on the relationship between neighborhood gentrification and residents' self-reported health. This study's results are in line with previous studies which used census-tract level data to study the impact of gentrification on health. Despite the many significant limitations to the 500 Cities dataset, several studies found that gentrification is associated with better self-reported health. These findings underscore the need to continue research in this direction and conduct longitudinal studies using the individual-level data on health outcomes.
- More specifically, this research applies the newly developed gentrification index to illustrate and describe the geography of gentrification in the city of Atlanta. The gentrification index is used to determine the gentrification status of Atlanta neighborhoods, define neighborhood change typologies, and identify the areas susceptible to gentrification in the near future.
- Contributes to green gentrification literature by exploring the relationship between the newly created BeltLine trail and neighborhood sociodemographic changes generally indicative of gentrification. The index demonstrated that the BeltLine Trail proximity affected the accelerated gentrification in the trail-adjacent census tracts.

- Proposes a mixed-methods approach to study gentrification that combines the secondary, quantitative data with primary qualitative data. Relying solely on secondary data often misses the more subtle changes happening on the ground. The secondary data findings were complemented with interviews with long-term residents who are likely the first to notice the signs of neighborhood change.
- Demonstrates the value of qualitative research for capturing information about the lived experience of people residing in neighborhoods undergoing gentrification. In-depth interviews with legacy residents allowed for tapping into feelings, opinions, and perceptions about ongoing neighborhood changes which were not represented in quantitative findings. The interviews revealed much more nuanced responses to gentrification, and these findings need to be understood in context. For instance, Adair Park, unlike West End, has always lacked retail activity, amenities, and some basic services. Adair Park residents were more likely to mention incoming amenities in a positive light. In general, they appreciated that the dormant industrial buildings and abandoned spaces are being rehabilitated and repurposed into neighborhood assets.
- Expands the literature on urban greenways by exploring residents' experience and use of the newly developed BeltLine Trail, specifically focusing on environmental barriers and facilitators to PA. While most previous research adopted a quantitative approach to assess the use of green infrastructure, this study uses in-depth interviews to capture the information about experience, meaning, and motivations from the standpoint of trail-adjacent residents. This information is essential for designing effective greening interventions that will increase trail usage, especially

among long-term residents who are not habitually active. The interviews revealed decidedly mixed responses to the trail development. In general, most interviewees perceived and used the trail as a health-promoting resource. However, concerns regarding gentrification and feelings that new resources, including BeltLine, cater to 'gentrifiers' and not the existing community act as barriers to trail usage and regular physical activity.

4.2.1. Implications for Policy Makers, Urban Planning and Urban Design

As the consequences of gentrification occur in actual physical space, architects, planners, and urban designers should use these research findings to inform their professional practice of place and city-making.

This study's findings indicate several recommendations for urban design, policy, and planning:

- **Use of data-driven decision-making:** Architects, urban designers, planners, and decision-makers should use research and data to monitor development activity in neighborhoods across the city and anticipate neighborhood changes. The proposed Gentrification index is just one example, and different neighborhood socioeconomic indices can be used for the longitudinal audit of neighborhood changes.
- **Collection of qualitative data:** In addition to gathering and monitoring the quantitative data on neighborhood SES, policymakers should collect qualitative data, using interviews and focus groups to connect with the residents who are likely

the first to notice physical signs of reinvestment and more subtle changes happening on the ground.

- **Use impact assessment tools early in the process:** Large-scale green infrastructure development projects should implement Social Impact Assessment methodology (SIA) in the early phases of project planning (Glasson & Wood, 2009; Peltonen & Sairinen, 2010). SIA is the process of identifying, monitoring, and managing the social impacts of infrastructure projects and other development interventions. It also offers the opportunity to involve community stakeholders in the assessment of social effects at the outset.
- **Co-design with communities in neighborhoods:** The increasing use of collaborative decision-making processes and community participation at the outset is another way to maximize the benefits for diverse groups of community members and prevent physical and cultural displacement. Developing a relationship with community stakeholders, learning about the neighborhood's needs, and integrating community input into green infrastructure planning and design is essential for the success of green infrastructure projects. Types of community engagement range from consultation ("being informed", "being asked", and "commenting on decisions") to engagement and partnership (developing and designing solutions together). One recent trend is co-designing with communities in neighborhoods. For example, co-design with long-term residents can be used to develop the assets and amenities that fit the existing community's needs, culture, and character. This can lessen the "this is not for us" sentiment and reduce the feeling of cultural displacement.

- **Providing links to the existing community:** Cultural displacement can lead to the creation of a space that is not inclusive, accessible, or appealing to all residents and caters to only certain groups of users. Links to the existing community can be achieved by promoting local businesses that have their front door on the trail, celebrating local culture through food and local art, and creating social or educational opportunities on the area's history and culture.
- **Increased attention to activities and places designed to foster interaction between legacy residents and newcomers:** Several residents stated that the Westside trail lacks outdoor gathering spaces and that, currently, the focal point of all activities is the Lee+White commercial district. However, current business and activities mostly attract the younger and 'newer' crowd. Green infrastructure design should support community gatherings in both indoor and outdoor public spaces that will foster interaction between diverse groups of residents.
- **Identifying design element attributes that encourage and discourage trail use in a particular setting:** Trails and greenways can be used for improving residents' health and well-being by promoting active recreation and active commuting. Greenway attributes such as aesthetics, connectivity, accessibility, adjacent amenities, maintenance, and feelings of personal safety affect trail use. Design elements of the trail, such as surfacing, lighting, shade, and the presence of nature, can act as both a facilitator and a barrier to trail usage and regular physical activity. By involving residents as end-users early in the planning and designing process, practitioners receive community buy-in and produce a design that is a better fit for

the neighborhood so that the community will be more likely to use and be involved in the project.

- **Designing the trail to promote PA among socially disadvantaged groups and populations who tend to be less physically active:** Particular attention should be given to promoting the use of new green amenities among vulnerable populations, particularly among minorities, women, and the elderly, who tend to be less physically active. For example, women are less likely to walk and use public space that is perceived to be unsafe. Safety can be improved with design, such as lighting, cameras, and vegetation planting, without compromising the feeling of security and viewing distance. The presence of trailside amenities can attract higher foot traffic volumes and increase safety. Good trail conditions, smooth trail surfacing, the presence of shade trees, and respite areas may encourage use among the elderly or people with impaired mobility.

4.3. Directions for Future Research

This dissertation has several limitations both with data and methods that should be addressed in future research.

In the quantitative study of gentrification introduced in Chapter 2, the decision to use the census-tract level data was dictated by the availability of data on socioeconomic characteristics. Using census tract-level data for longitudinal analysis is a challenge, as census tracts change boundaries over time, even between successive censuses. Even though this study developed a data crosswalk strategy to overcome these issues, this can affect the accuracy of the results in a large data sample.

Although census tracts are commonly used as an approximation of neighborhoods, tracts' boundaries do not necessarily align with neighborhood boundaries or what residents perceive as "neighborhoods" themselves. The data reported in the Census and American Community Survey do not capture some small changes and actual conditions on the ground, as gentrification often crosses those administrative boundaries (Hammel & Wyly, 1996). Finally, assigning socioeconomic changes in the neighborhood to a single process, such as gentrification, or this case to the development of the BeltLine, can be misleading and lead to wrong conclusions.

The 500 Cities Project Data should be used with great caution (Seaberry & Abraham, 2017). The 500 Cities dataset are small-area estimates calculated using statistical data modeling, and they are not direct survey measures of health and well-being. As such, these estimates have the potential for large margins of error. Additionally, estimates are

not age-adjusted, and should not be used to compare the health status of census tracts in different cities.

While gentrification was proxied by the change in the SES between 2000 and 2017, census tract-level data on health was not available for the years prior to 2014. It was not possible to monitor the changes in health status using 2000 as a baseline, so it was decided to use only the 2017 health data. In this way, we were only able to observe whether the residents of areas that experienced bigger SES changes reported lower rates of poor health in 2017 compared to residents of census tracts that remained stable or experienced SES decline.

As noted earlier, by looking at health outcomes at the census tract level, as opposed to individuals' health, we are not able to distinguish between new residents (gentrifiers) and longstanding residents. It remains unclear whether the residents of gentrifying census tracts report better health as a result of neighborhood improvements, or better health is reported by the newer (and often younger and healthier) residents. To better understand the impact that gentrification has on the health of the original residents, longitudinal studies of individuals' health outcomes are needed.

There are also several limitations that are inherent to qualitative studies. Qualitative research is usually exploratory, and the results of this study cannot be generalized to any broader population or other communities. As qualitative studies focus on the "why" rather than the "what", these data are generally not amenable to counting or measuring (University of Texas Arlington Libraries). While this is a specific study of two Atlanta neighborhoods, it has broader potential relevance. Findings from neighborhoods such as Adair Park and

West End can have relevance for other disenfranchised communities undergoing greening initiatives and green gentrification, rails-to-trails developments, or riverside locations experiencing the conversions of former industrial sites and brownfield locations into greenspaces and spaces for recreation.

Another limitation was participant sampling. The initial plan to recruit participants in the community and conduct in-person interviews was upended by the Coronavirus disease 2019 (COVID-19) pandemic. The subjects were then recruited from a referral from individuals in the researcher's network and interviewed via phone or video and conference technologies. As a result, most of the respondents were college graduates, having at least basic computer skills (many have used Zoom before) and access to the Internet. Many of them were active community advocates. Given this, this sample is probably not representative of the area population, and future studies must ensure that they include hard-to-reach populations.

In qualitative studies, there is a risk of potential bias in how the author interpreted the interview answers. Two researchers independently performed the data analysis to minimize bias and discussed the findings to increase the comprehensivity and provide a sound interpretation.

This study relied on self-reported PA, and there are several well-known limitations of self-report, such as recall bias, cultural differences, misinterpretation of questions, and over-reporting physical activity (Steene-Johannessen et al., 2016). Future research would benefit from a mixed-method approach and combination of observation, behavioral mapping, self-report, in-depth interviews with intercept surveys, and objective

measurement of physical activity using activity tracking devices (such as wearable devices, phone applications, or step pedometers). Longitudinal studies and comparing health data on the amount of physical activity before and after greenway development could provide insight into the efficacy of different environmental interventions and inform future policies to promote legacy residents' health.

Finally, there is still much more to learn about the impacts of gentrification on long-term residents' health, especially in disenfranchised communities. A growing body of research recognizes gentrification as a public health concern because rapid changes in neighborhood socioeconomic conditions can widen existing health disparities that characterize US cities. Future research should focus on both health-related experiences and objectively measured health outcomes for residents in gentrifying neighborhoods.

4.3.1. Additional Suggestions for Future Work:

Refinement of the Gentrification index:

- Review the variables and exclude the redundant variables. Test the index without the variable "percentage of White Householders", because including the nearly-redundant variables can cause the PCA to overemphasize their contribution.
- Repeat the Principal Component Analysis with different variables to increase the Principal Component explanation power.
- Include socioeconomic data for earlier years, as early as 1970. Including data prior to 2000 could help better understanding of the dynamics of Atlanta neighborhoods change over the decades.

- While this study drew on previous literature, this index is by no means a gold standard for measuring gentrification. Future work should explore using additional measures from local and national datasets for capturing multiple dimensions of neighborhood improvements, built environment and cultural changes, safety, retail activity, evictions and foreclosures, public and subsidized housing, building and demolition permits, etc. The potential data sources include police records, County Tax Assessor's office data on housing sales, or other commercial real estate firms' data. For instance, Zillow provides data on home sales, home values, and sale prices.

Increasing the sample size and geographic generalizability of the Gentrification index:

- Test the Gentrification index's broader geographic applicability to conceptualize and measure gentrification nationally and longitudinally. We can capitalize on free and readily available U.S. census data to compare the magnitude and pace of gentrification in many U.S. cities.

Use of individuals' health outcomes rather than census-tract level measures:

- To better understand the impact that gentrification has on health, we need longitudinal studies of individuals' health outcomes that differentiate between gentrifiers and longstanding residents. Additionally, the individual-level datasets will enable to control for other factors such as age, gender, income level, race, or years living in the neighborhood. By doing so, we can start understanding how gentrification affects the health of different groups of residents.

Using methodological triangulation to deepen the understanding of health behavior changes:

- Future research would benefit from a mixed-method approach and combination of observation, behavioral mapping, self-report, in-depth interviews with intercept surveys, and objective measurement of physical activity using activity tracking devices (such as wearable devices, phone applications, or step pedometers).

Increasing the sample size of the qualitative study:

- Future research must ensure that the sample is representative of the area population and use different strategies for sampling, recruitment, and participation of hard-to-reach or hidden populations (often groups of lower socioeconomic status). Underrepresenting people from socially disadvantaged groups can pose threats to the study's external validity and the ability to generalize the findings. In this study, participants with a college degree or higher were over-represented; By including participants with a lower level of education, we would gain additional perspectives or information.

APPENDIX A. THE INDICATORS OF GENTRIFICATION

Table A.1: The indicators of gentrification; 1986–2020 literature review.

Domain	Indicator	Description	Study (Authors and year)
I) Demographic Characteristics			
Age ⁴¹	Change in Age Cohort 25-44. * (+)	The change in the percentage of the population in this age range	(Abel & White, 2011; Anguelovski et al., 2018; Bilal et al., 2019; Bostic & Martin, 2003; Cole et al., 2019; Ley, 1986; Morenoff et al., 2007; Skaburskis, 2012)
Racial Composition	Change in white population share. (+)	The change in the percentage of the white population	(Abel & White, 2011; Bostic & Martin, 2003; Breyer & Voss-Andreae, 2013; Cole et al., 2019; Ellen & Ding, 2016; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons & Barton, 2016; Helms, 2003; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Racial Composition of Householders	Change in the share of white householders. (+)	The change in the percentage of the white householders	/
Family Structure	Change in average household size. (-)	The percentage change in average household size	(Ley, 1986; Skaburskis, 2012)
II) Housing Characteristics			
Housing Occupancy	Change in vacancy/occupancy of housing units (+)	The change in the percentage of housing units that are occupied by either renters or their owners	(Helms, 2003; Ley, 1986)
Housing Ownership	Change in ownership rate (+)	The change in the percentage of housing units occupied by their owners	(Abel & White, 2011; Bostic & Martin, 2003; Chapple, 2009; G. Galster & Peacock, 1986; Helms, 2003; Ley, 1986; Nathalie P. Voorhees Center for Neighborhood

⁴¹ Different authors define the change in different age cohorts as indicators of ongoing gentrification. Ley looked at the change in population aged 20-35, while Bostic and Martin looked at the change in share of tract population ages 30-44 (Bostic & Martin, 2003; Ley, 1986).

and Community Improvement, 2014; Skaburskis, 2012; E. K. Wyly & Hammel, 1999)

III) Economic Characteristics of the area (income/poverty)			
Area Median Household Income	Increase in area median household income (AMI) (+)	The percentage change in AMI	(Abel & White, 2011; Anguelovski et al., 2018; Bostic & Martin, 2003; Chapple, 2009; Cole et al., 2019; Dragan et al., 2019; Ellen & Ding, 2016; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Gould Ellen & O'Regan, 2008; Helms, 2003; Huynh & Maroko, 2014; Izenberg et al., 2018a, 2018b; Ley, 1986, 1992; Lim et al., 2017; Linton et al., 2017; McKinnish et al., 2010; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Schnake-Mahl et al., 2020; R. J. Smith et al., 2018; Steinmetz-Wood et al., 2017; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Households in Poverty	Change in the number of families living below the federal poverty level (-)	The change in the percentage of families living below the federal poverty level	(Abel & White, 2011; Bostic & Martin, 2003; Huynh & Maroko, 2014; Ley, 1992; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Tran et al., 2020; E. K. Wyly & Hammel, 1999)
Housing Units Value	Change in Median owner-occupied unit value (+)	The percentage change in the value of owner-occupied single-family residential units	(Abel & White, 2011; Anguelovski et al., 2018; Bilal et al., 2019; Freeman, 2005; G. Galster & Peacock, 1986; Gibbons, 2019; Helms, 2003; Ley, 1986, 1992; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; R. J. Smith et al., 2018; Tran et al., 2020)
Housing Costs (owner-occupied units)	Change in Median monthly costs for owner-occupied units (+)	The percentage change in Median monthly costs for Owner-Occupied Units	(Helms, 2003)

Housing Costs (renter-occupied units)	Change in Median gross rent for renter-occupied units (+)	(Chapple, 2009; Ellen & Ding, 2016; Freeman & Braconi, 2004)
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IV) Employment Characteristics			
Labor Force	Change in labor force participation rate (population>16) (+)	The change in the percentage of the population that is in the labor force	(Ley, 1986; Skaburskis, 2012)
Employment	Change in employment rate (population>16) (+)	The change in the percentage of the population that is employed	(Bilal et al., 2019; Lester & Hartley, 2014; Meltzer & Ghorbani, 2017)
Occupation	Change in population working in management occupations (+)	The change in the percentage of population working jobs requiring post-secondary education (AA, AS, BA, BS, MA, MS, Ph. D., technical certificate): management, business, science, and arts occupations	(Abel & White, 2011; Bostic & Martin, 2003; Cole et al., 2019; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; E. K. Wyly & Hammel, 1999)

V) Educational Attainment			
Education level	Change in the population that has a bachelor's degree (college degree) or higher (+)	The change in the percentage of the population that is college-educated	(Abel & White, 2011; Anguelovski et al., 2018; Bilal et al., 2019; Bostic & Martin, 2003; Cole et al., 2019; Dragan et al., 2019; Ellen & Ding, 2016; Freeman, 2005; Freeman & Braconi, 2004; G. Galster & Peacock, 1986; Gibbons, 2019; Gibbons et al., 2018; Gibbons & Barton, 2016; Gullón et al., 2017; Helms, 2003; Huynh & Maroko, 2014; Izenberg et al., 2018a, 2018b; Ley, 1986, 1988; Lim et al., 2017; Linton et al., 2017; Nathalie P. Voorhees Center for Neighborhood and Community Improvement, 2014; Skaburskis, 2012; R. J. Smith et al., 2018; Steinmetz-Wood et al., 2017; Tran et al., 2020; E. K. Wyly & Hammel, 1999)

APPENDIX B. IRB APPROVAL



Protocol Number: H19180

Funding Agency: N/A

Review Type: Exempt, Category 2

Title: Health Opportunities in Changing Neighborhoods along Atlanta's BeltLine: Understanding Residents' Perspective

Number of Subjects: 400

May 20, 2019
Craig Zimring
Arch
craig.zimring@design.gatech.edu

Dear Dr. Zimring:

The Institutional Review Board (IRB) has carefully considered the referenced protocol. Your approval is effective as of **05/20/2019**. The proposed procedures and affiliated documents are exempt from further review by the Georgia Tech Institutional Review Board.

- *Minimal risk research qualified for exemption status under 45 CFR 46 104d.2.*
- *Per 45CFR46.117(c) (1) this study qualifies for a waiver of documentation of consent.*

Thank you for allowing us the opportunity to review your plans. If any complaints or other evidence of risk should occur, or if there is a significant change in the plans, the IRB must be notified.

For your reference, detailed PI responsibilities are included following this letter. If you have any questions concerning this approval or regulations governing human subject activities, please contact me at 404.385.5208.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Katz". The signature is fluid and cursive, with the first name "Scott" and last name "Katz" clearly distinguishable.

Scott Katz, MS, CIP
Research Associate
Compliance and Regulatory Affairs
Office of Research Integrity Assurance
Georgia Institute of Technology

cc: Barbara Henry, IRB Chair

APPENDIX C. CONSENT FORM

1

CONSENT TO PARTICIPATE IN THE INTERVIEW

Georgia Institute of Technology

Study Title: Health Opportunities in Changing Neighborhoods along Atlanta's BeltLine: Understanding Residents' Perspective

I am Zorana Matic from the School of Architecture at Georgia Tech. We are conducting a research study on how original (long-term) residents perceive changes in their neighborhoods that are adjacent to Atlanta BeltLine.

The research will help inform the practice: planners, policymakers but also community organizers, on how the development of Atlanta BeltLine impacts the everyday life of long-term residents.

What Am I Being Asked to Do?

You are being asked to be a volunteer in a research study. This page will give you key information to help you decide if you would like to participate. Your participation is voluntary. As you read, please feel free to ask any questions you may have about the research.

What Is This Study About and What Procedures Will You be Asked to Follow?

The purpose of this study is to see if the development of Atlanta BeltLine trails impacted the everyday life of long-term residents and if yes, how. You will be asked to answer questions about your neighborhood conditions and characteristics before and after Atlanta BeltLine was built, best to your knowledge. Your participation in this study is expected to last no more than 1 hour.

Are There Any Risks or Discomforts you Might Experience by Being in this Study?

The risks involved in participating in this study are no greater than those involved in daily activities such as writing and having a conversation. Participating in this study will not increase those risks. Although unlikely, there are risks of breach of confidentiality. We will protect your information to the extent required by law. To ensure that risks are minimized, we will: not store identifying information, not ask



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

questions that could cause emotional distress, remind you that you may withdraw from the interview without penalty at any time.

What Are the Reasons You Might Want to Volunteer for This Study?

You are not likely to directly benefit in any way from joining this study. However, your participation in this study may assist researchers in understanding how developments like Atlanta BeltLine may affect the everyday life of the long-term residents. We will have the opportunity to learn about changes in your neighborhood and how that is perceived through the eyes of original residents. The research will help inform the practice: planners, policymakers but also community organizers.

Do You Have to Take Part in the This Study?

It is fully your decision if you wish to be in this study or not. If you choose not to participate or choose to participate and later determine you no longer wish to, you will not lose any rights, services, or benefits as a result of your withdrawal. The study is completely voluntary.



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

**CONSENT DOCUMENT FOR ENROLLING ADULT PARTICIPANTS IN A
RESEARCH STUDY
Georgia Institute of Technology**

**Project Title: Health Opportunities in Changing Neighborhoods
along Atlanta's BeltLine: Understanding Residents' Perspective**

Investigators:

Principal Investigator: Craig Zimring

Co-Investigator: Zorana Matic

You are being asked to be a volunteer in a research study.

Purpose:

The purpose of this study is to develop a better understanding of how original (long-term) residents perceive changes in their neighborhoods that are adjacent to Atlanta BeltLine.

We plan to recruit between 20-40 participants for this study.

Inclusion/Exclusion Criteria:

Participants in this study must be at least 18 years of age and be fluent in written and spoken English. Study participants will be long-term residents of selected four neighborhood within the BeltLine planning area, or people who lived in the neighborhood before BeltLine was built. Anyone who is currently in an EU country at the time of their participation will be excluded from the study.

Procedures:

If you decide to be in this study, you will participate in a 1-hour interview about your experience of living in your neighborhood before and after Beltline was built. With your permission, we will audio record the interview to aid in the analysis of the data collected.

Risks or Discomforts:

The risks involved for participating in this study are no greater than those involved in daily activities such as writing and having a conversation. Participating in this study will not increase those risks. Although unlikely, there are risks of breach of confidentiality. We will protect your information to the extent required by law. Refer to the confidentiality section for more details.

Benefits:



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

You are not likely to directly benefit in any way from joining this study. We hope that what we learn will help us develop a far better understanding of what was happening in your neighborhood since Atlanta BeltLine was built, and how life in the neighborhood next to BeltLine is perceived through the eyes of original residents. The overall goal is not to only expand the research, but also inform community organizers, planners, and policymakers on how the development of Atlanta BeltLine impacts the everyday life of long-term residents.

Compensation:

You will receive a \$10 gift card for participating in this study. You will be asked to sign the Participant Receipt Form and provide an e-mail address where a digital gift card will be sent. If you prefer, you will receive a physical gift card. Please, indicate do you prefer a digital or a physical gift card.

U.S. Tax Law requires that a 1099-misc be issued if U.S. tax residents receive \$600 or more per calendar year. If non-U.S. tax residents receive more than \$75, mandatory 30% withholding is required. Your address and Tax I.D. may be collected for compensation purposes only. This information will be shared only with the Georgia Tech department that issues compensation, if any, for your participation.

Storing and Sharing your Information:

Your participation in this study is gratefully acknowledged. It is possible that your information/data will be enormously valuable for other research purposes. By signing below, you consent for your de-identified information/data to be stored by the researcher and to be shared with other researchers in future studies. If you agree to allow such future sharing and use, your identity will be completely separated from your information/data. Future researchers will not have a way to identify you. Any future research must be approved by an ethics committee before being undertaken.

Use of Photographs, Audio and Video Recording:

Your audio recordings will only be used and shared in their transcribed form and will be de-identified so that they cannot be tied back to you. We will not use any audio recordings, or other identifiable information about you in any future presentation or publication without your consent. Only the investigators will have access to the recordings of you and your de-identified data will only be shared in presentations and other researchers with your prior consent. The recordings will be kept for archival purposes.

Confidentiality:



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

The following procedures will be followed to keep your personal information confidential in this study: Your privacy will be protected to the extent required by law. To protect your privacy, your records will be kept under a code number rather than by name, and the key code will be kept secure and separate from all other records. Your records will be kept in password-protected files and unless you give specific consent otherwise, only study staff will be allowed to look at them. Your name and any other fact that might point to you will not appear when results of this study are presented or published.

The Georgia Institute of Technology IRB and/or the Office of Human Research Protections may look over study records during required reviews. Records with your personal information will be handed off to the PI, kept in a locked cabinet or password-protected folder and destroyed 3 years after the study is concluded (only this consent form will have your name). Audio recordings will be kept for archival purposes in a secure server, only the research team will have access to these files.

Costs to You:

There are no costs to you, other than your time, for being in this study.

Questions about the Study:

If you have any questions about the study, you may contact Investigator Zorana Matic at telephone (404) 510-3416 or zorana.matic@gatech.edu or Craig Zimring at craig.zimring@design.gatech.edu.

In Case of Injury/Harm:

If you are injured as a result of being in this study, please contact

- Investigator: Zorana Matic, M.Arch at telephone (404) 510-3416 or zorana.matic@gatech.edu

Or

- Principal Investigator: Craig Zimring at craig.zimring@design.gatech.edu

Neither the Investigator nor Georgia Institute of Technology has made provision for payment of costs associated with any injury resulting from participation in this study.

Questions about Your Rights as a Research Participant:

- Your participation in this study is voluntary. You do not have to be in this study if you don't want to be.
- You have the right to change your mind and leave the study at any time without giving any reason and without penalty.



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

- Any new information that may make you change your mind about being in this study will be given to you.
- You will be given a copy of this consent form to keep.
- You do not waive any of your legal rights by signing this consent form.

If you have any questions about your rights as a research participant, you may contact Ms. Melanie Clark, Georgia Institute of Technology Office of Research Integrity Assurance, at (404) 894-6942, or melanie.clark@gtrc.gatech.edu.



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

If you sign below, it means that you have read (or have had read to you) the information given in this consent form, and you would like to be a volunteer in this study.

Participant Name (printed)

Participant Signature
Date

Consent to Store and Share your Information:

I agree that my de-identified information/data may be stored and shared for future, unspecified research.

Participant Name (printed)

Participant Signature
Date

I **do not allow** my de-identified information/data to be stored and shared for future, unspecified research. These may only be used for this specific study.

Participant Name (printed)

Participant Signature
Date

Please, indicate do you prefer a digital or a physical \$10 gift card:



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

☐ \$10 digital gift card sent to my e-mail address

(Please provide an e-mail address)

☐ \$10 physical gift card



Consent Form Approved by Georgia Tech IRB: May 20, 2019 - Indefinite

APPENDIX D. INTERVIEW SCRIPT

Georgia Institute of Technology

Study Title: Health Opportunities in Changing Neighborhoods along Atlanta's BeltLine: Understanding Residents' Perspective

Investigator: Zorana Matić

Hello, my name is Zorana Matić, I am a student at Georgia Tech, and I'll be interviewing you today as part of my doctoral research. Thank you for taking the time out of your busy schedule to participate in this study. This session is scheduled for one hour, but there is a chance we will wrap up early. You may also stop this session at any time you would like.

Before we start, I want to let you know

- I will be audio recording this session for data collection purposes. These recordings will be transcribed and de-identified, viewable only by the research team and shared only with your prior consent.
- I will be taking notes.
- You can stop this session at any time.

If it is okay, I will now ask you to read and sign the consent form. Let me know if you have any questions.

[hand consent form, wait for them to read and sign, answer any questions they may have]

Just to give you some context, we are seeking to understand how original (long-term) residents perceive changes in their neighborhoods that are adjacent to Atlanta BeltLine. We are also looking at behaviors related to health among long-term residents.

We hope this research will help inform the practice: planners, policymakers but also community organizers, on how the development of Atlanta BeltLine impacts the everyday life of long-term residents.

[Interview begins]

I will now ask some questions about your experience.

[Follow up questions are marked with *. Ask follow-up questions as needed]

INTRODUCTION

- Tell me a little about yourself.
- Which area/neighborhood do you live in?
- How long have you lived in your current neighborhood?
- How do you identify yourself in terms of race or ethnicity?
- Do you rent or own your home?
- Are you currently employed?
- What is your highest level of education completed?

- If you feel comfortable, can you tell me the total household income for all people living with you (I am not asking the exact number, but a range)
- Age?

GENERAL QUESTIONS ABOUT NEIGHBORHOOD

- Tell me about your neighborhood.
- Can you show me your neighborhood on the map and tell me what the boundaries are?
 - [provide the map so they can show it on the map]
- Think about your neighborhood 10 years ago, or when you first moved in. Who used to live here in 2000s? Why the neighborhood used to be a good fit to this kind of resident?
 - Students, Working Adults, Families, Seniors, Renters, Other
(Please indicate) *
- Would you say that people in your neighborhood generally know each other?
 - Do you know the names of your neighbors? *
 - Do you and your neighbors ask each other for advice or do favors for one another?
- Tell me how safe your neighborhood felt during the day (different hours of the day)?
- Did you feel that your neighborhood was well physically connected with other neighborhoods or the city – by public transport or in other ways?

GENERAL QUESTIONS ABOUT THE BELTLINE

- Have you ever been on the BeltLine?
 - If yes, how often do you go? (Every day, A few times a week, once a week, once a month, rarely)
 - If no, what is the biggest reason you have never been on the trail?
 - How did you find out about the BeltLine?
- Have you ever attended a meeting about the BeltLine planning and development?
 - Why yes / why no?

QUESTIONS ABOUT CHANGES IN THE NEIGHBORHOOD

- Can you tell me more about your neighborhood now?
 - after the BeltLine opened?
- Who lives here now? Do you believe there was a change?
 - Did you notice any change?
 - Students, Working Adults, Families, Seniors, Renters, Other (Please indicate) *
- Do you [still] know the names of all your neighbors?
 - Do you and your neighbors ask each other for advice or do favors for one another? *
- How safe your neighborhood feels now during the day and after dark, since BeltLine has opened?
 - Are there any changes?
- Do you feel that your neighborhood is well connected with other neighborhoods or the city now since BeltLine has opened?

- Can you think of any amenity that was added to your neighborhood since the BeltLine development started?
 - What kind of amenities? (a local park, a restaurant, a gathering place, fitness studios etc.) *
 - Do local residents use them? Why?
- Are any of the amenities in your neighborhood removed, demolished, or closed since Beltline has opened?
 - What kind of amenities? (a local park, a restaurant, a gathering place, fitness studios etc.) *
 - Were they used by local residents?
 - Have these changes impacted the residents or the community in any way?

QUESTIONS ABOUT OPPORTUNITIES FOR PHYSICAL ACTIVITY

- Do you exercise or do any sports – walk, or run?
 - or
 - How physically active are you?
 - What kind of exercise/ physical activity you usually do? Where do you do these activities? Can you show me on the map? Why there?
- Is it easy to walk, or be physically active in your neighborhood?
 - What makes it easy?
 - What makes it hard?

- Do you think that since BeltLine has opened you have an opportunity to walk more or to ride your bike? Do you think there is more places for recreation now than before?
 - Places to jog/run/bike? *
 - Do you use them? *
 - Which ones?
- How far is the Beltline from your home? Can you walk to it?
 - Do you walk? If NO – why not? *
- Is it easy to access the BeltLine from your neighborhood or from your home?

[If answer to the Question II-a was YES]: You said earlier that you go to Beltline (*once a week/every day*). What parts or elements of the BeltLine do you use the most? (trail, parks, classes, events...)

- What do you usually do, how do you use the BeltLine?
 - Recreation (go for a walk, walk a dog, ...)
 - Health and Exercise (walk, run, bike)
 - Play formal or informal sports (pick-up soccer, frisbee, skate, yoga, aerobics, FitWit, or other classes)
 - Travel to work
 - Go to restaurants or groceries (yes/no)
 - Gather with friends (yes/no)
 - Go to park/s (yes/no)
 - Attend concerts & festivals (Lantern Parade, Taste of Atlanta,

- Attend the farmers market (at Ponce City Market)?
 - Take children to the playground?
 - People watching
 - Can you think other activities?
- How much time do you generally spend on the trail each visit?
- Generally, when do you use the trail?
 - Times of day, days of week
- **[If answer to the Question II-a was NO]:** Do you think you will go on the trail at some point?
- Does it feel safe to be on the Beltline during the day, after dark or early morning?
- Do you see many people using the BeltLine?
 - How are they using it?
 - Are those people from the area?
- Are there any groups or programs in your neighborhood that promote health and physical activity?
- Do you participate more in local events such as yoga classes, outdoor concerts, etc. now since BeltLine has opened?
 - Which ones? *
- How did you MOST OFTEN travel to work before the BeltLine opened? Did you walk or bike?
 - And how about now, are you able to walk or bike to work?
 - Did your work location change? *

- What were your most common transportation means for getting to and from work before/ after the BeltLine opened (e.g., walk, bike, scooter) *
- Could you run your errands on foot or bike before the BeltLine opened? And now?
- Where did you usually get your groceries from before the BeltLine has opened? Could you bike to the store or walk? Did you? How often did you walk or bike to the store?
 - And how about now?
 - Are there any new places? *
 - Can you walk or bike to the nearest store? *
- What is the nearest park to your home? How far is it?
 - Which park you use the most? Why? *
 - Are parks now more accessible because of the BeltLine?
- What is the nearest public transit stop to your home? How far is it?
 - Do you use transit? If not - why? *
- Would you say that BeltLine changed your quality of life and how?
- Do you think the BeltLine is affecting the health of the residents?
 - If yes, in a positive or negative way? *
 - Can you provide some examples? *
- If you had the power – what would you change or add to the Beltline that would make the use of it more enjoyable? (lighting, drinking fountains, restroom facilities, cleanliness, safety, and parking lot) *
 - What would you keep as it?

QUESTIONS ABOUT COMMUNITY

- Do you think that the BeltLine has an influence on the sense of community and community ties? How?
 - Would you say that the BeltLine makes you feel more connected to your neighborhood?
 - Does the Beltline feel like a part of your neighborhood? Or does it feel like you leave your neighborhood when you go onto the BeltLine?
- Is your neighborhood a close-knit neighborhood?
 - Do individuals seem to know each other and interact with each other? *
- Have you noticed any changes in your neighborhood that you can attribute to the BeltLine?
 - If yes, what kind of changes?
- Have your monthly rent or property taxes increased since 2010/ or since BeltLine has opened?
 - If yes, by how much (in %, annually) approximately?
 - Do you feel like your current (household) income is enough to cover all your expenses housing, transportation, food, etc.?
- Have some of your friends or neighbors moved away from the neighborhood? Why?
 - Due to the cost of living?
- Are you worried that people from the neighborhood, including you, will move out due to the cost of living in the future?
- Do you plan to remain in the neighborhood? Why?

- Will you move out of the neighborhood if housing costs continue increasing in the next two years?
- Is there anything that I have not asked you and you would like to share with me?
- Thank you so much for your time Mr/Ms (name). Please, do not hesitate to contact me if you have any questions about this study.

[Interview ends]

APPENDIX E. 2000-2017 DATA CROSSWALK

Table E.1. Census Tract Transformation from 2000 to 2017

Census Tract ID (2000)	Census Tract ID (2017)	2000-2017 Transformation	“Dummy” Census Tract ID
13121001000	13121001001 13121001002	Split into two new Census Tracts	A
13121000800 13121002200	13121011800	Two census tracts merged in one	B*
13121001200	13121001201 13121001202	Split into two new Census Tracts	C
13121002700 13121003300	13121011900	Two census tracts merged in one	D*
13121004600 13121005600	13121012000	Two census tracts merged in one	E*
13121007601	13121007603 13121007604	Split into two new Census Tracts	F
13121007702	13121007705 13121007706	Split into two new Census Tracts	G
13121007701	13121007703 13121007704	Split into two new Census Tracts	H
13121008701 13121008702	13121008700	Two census tracts merged in one	I*
13121008901	13121008903 13121008904	Split into two new Census Tracts	J
13121009100	13121009101 13121009102	Split into two new Census Tracts	K
13121009401	13121009403 13121009404	Split into two new Census Tracts	L
13121009500	13121009501 13121009502	Split into two new Census Tracts	M
13121009600	13121009601 13121009602 13121009603	Split into three new Census Tracts	N
13121009800	13121009801 13121009802	Split into two new Census Tracts	O
13121010000	13121010001 13121010002	Split into two new Census Tracts	P

* Census tracts that had less than 1,200 people in 2010, got merged with a neighboring tract and given a new numeric code.

APPENDIX F. THE GENTRIFICATION STATUS OF THE ATLANTA NEIGHBORHOODS

Table F.1: Gentrification status of neighborhoods based on the Gentrification index

Census Tract	Neighborhood	Stage	Gi
13121003600	Atlanta University Center/Castleberry Hill	Advanced	0.63
13121003200	Cabbagetown/Reynoldstown	Advanced	0.70
13121004800	Capitol Gateway	Advanced	0.73
13121006400	Chosewood Park	Advanced	0.68
13089020900	East Atlanta	Advanced	0.73
13089020600	Edgewood	Advanced	1.19
13089020500	Edgewood/Kirkwood	Advanced	0.74
13089020700	Kirkwood	Advanced	0.81
13121002900	Old Fourth Ward	Advanced	1.13
13121001700	Old Fourth Ward	Advanced	1.35
13121003100	Reynoldstown	Advanced	0.78
13121008800	Riverside/Bolton/Hills Park/Whittier Village	Advanced	1.12
13121008602	Watts Road/Bowen Apartments/Carey Park	Advanced	1.01
13121011900	Downtown/Grady/Antoine Graves/Old Fourth Ward	Early	0.41
13089020802	East Lake	Early	0.40
13121001001	Midtown/Home Park	Early	0.09
13121006900	Custer/McDonough/Guice/Woodland Hills/Benteen/Boulevard Heights	Early	0.40
13121002800	Downtown/Butler Street	Early	0.28
13121004400	McDaniel Glenn/Mechanicsville/Castleberry Hill	Early	0.59
13121005501	Summerhill/Peoplestown	Early	0.36
13121005502	South Atlanta/The Villages at Carver/Chosewood Park	Early	0.08
13121005700	Pittsburgh	Early	0.22
13121005800	Adair Park	Early	0.11
13121001002	Bellwood/Georgia Tech	Early	0.09
13121008700	Bolton Hills/Lincoln Homes/Scotts Crossing/West Highlands/Rockdale/Carver Hills	Early	0.59
13121001900	Centennial Place/Downtown	Early	0.58
13121002500	Magnolia Park/Vine City	Early	0.32
13121007100	Thomasville Heights/Leila Manor/Custer/McDonough/Guice Valley/Norwood	Early	0.22
13121004200	West End/Harris Chiles	Early	0.06
13121012000	Summerhill/Peoplestown/Mechanicsville	Early	0.21
13121000600	Home Park	Early	0.35
13121011800	English Avenue/Herndon Apartments	Early	0.52

APPENDIX G. THE HISTORY OF THE CASE STUDY

NEIGHBORHOODS: ADAIR PARK AND WEST END

I. Adair Park

Adair Park is a neighborhood located southwest of downtown Atlanta, developed between the 1890s and 1940s when Atlanta started transforming from a "railroad town to a true city" (National Park Service - U.S. Department of the Interior). It was initially called Bonnie Brae and Shady Side Grove, but in 1910, it was formally named Adair Park.⁴²

Today the neighborhood is bordered by Metropolitan Parkway on the east, Murphy Avenue and MARTA north-south rail line on the north and west, and the Atlanta BeltLine trail on the south. The two segments of the former Railroads of the Atlanta Belt Line – the Atlanta and West Point Railroad, which used to run along the southeast side, and the Louisville and Nashville Railroad, that was operating on the city's westside, were meeting at the southern border of Adair Park (Gravel, 2016). The recently opened Atlanta Beltline Westside trail follows the path of now abandoned railroad. The trail is paved up to University Avenue and Southside trail, currently under development, which is planned to open soon as an interim trail (Atlanta BeltLine Inc.). Historically the area east of Metropolitan Parkway, to McDaniel Street, was also part of Adair Park, but today this area belongs to the Pittsburgh neighborhood (Kruse, 2013).

⁴² Adair Park neighborhood got its name in 1910 after George Washington Adair, who, together with John Thrasher and Thomas Alexander, purchased land in this area, predicting future growth. Later, he founded the Atlanta Real Estate Company, the largest property developer in Atlanta at that time (National Park Service - U.S. Department of the Interior).

Adair Park is a small, thin, long neighborhood, only three blocks wide and originally six blocks long. It has a layout of a typical early 20th-century residential suburb, with long, narrow lots and houses; usually mid-sized bungalows placed close to the street (Kruse, 2013; National Park Service - U.S. Department of the Interior). The southern portion of Adair Park was predominantly residential, zoned for single-family housing, while the northern portion was primarily industrial. The former Candler Warehouse district, nestled between Murphy Avenue and Metropolitan Parkway, was built in 1914 to serve Georgia farmers and cotton storage. Now, the area is being converted to “a business and arts district,” known as “The MET,” and warehouses are being turned into lofts and studios for Atlanta artists, entrepreneurs, and digital content developers (MET Atlanta).⁴³

The neighborhood has very few historic commercial buildings. The only school, George W. Adair Elementary, opened in 1912 but has sat abandoned for more than 45 years now. In 2017 the adaptive reuse started, and the building will be transformed into “art-force housing” called “The Academy Lofts” (Green, 2018).⁴⁴ The neighborhood has access to two large parks, Adair Park I and II, constructed in 1922 out of 20 unsold lots, and a smaller 0.19-acre Bonnie Brae Park.

In 2001, the National Trust for Historic Preservation added Adair Park to the National Register of Historic Places (Adair Park Today).

⁴³ The Candler Warehouses, at the time the largest single structure under one roof in the U.S., were built by Asa Candler, co-founder of the Coca-Cola Company (MET Atlanta)

⁴⁴ The Academy Lofts Adair Park will be a model where a for-profit group supports a nonprofit to create art-centric on-site programming while providing 35 affordable micro-housing units for the artists, a coffee shop (Green, 2018).

II. West End

Development of the West End, a relatively small neighborhood in Southwest Atlanta, began in 1835 when it was founded as White Hall, originally a neighborhood catering to the white upper class. By 1870, it was one of the first Atlanta suburbs served by a streetcar.⁴⁵ West End became a desirable community and became home to many notable residents.⁴⁶ The commercial district, a cluster of more than 50 businesses, moved south from Whitehall to Gordon (now Ralph David Abernathy Boulevard), and Lee street, and the neighborhood population rapidly grew (National Park Service - U.S. Department of the Interior).

During the late 1950s and early 1960s, the West End started experiencing transition; the demographics began to change, as more and more white families fled to suburbs, and the West End became home to many African-American families, especially along the northern edge of the neighborhood, where many African-Americans associated with the Atlanta University Center (AUC) lived.⁴⁷ The construction of Interstate 20, which began in the late 1950s to provide better access to the West End business district, actually served

⁴⁵ George Washington Adair, together with Richard Peters, built the first streetcar line in Atlanta.

⁴⁶ Some notable residents included E.P. Howell, former Mayor of Atlanta, Joseph E. Brown, Governor of Georgia, as well as several authors such as Frank L. Stanton, Madge Bigham, and Joel Chandler Harris (National Park Service - U.S. Department of the Interior)

⁴⁷ The Atlanta University Center (AUC) opened in April 1929. The center consists of four historically black colleges and universities: Clark Atlanta University, Spelman College, Morehouse College, and the Morehouse School of Medicine.

as “the boundary between the white and Negro communities” on the Atlanta Westside, and deepened racial segregation (Kevin M. Kruse, 2019).⁴⁸

Administratively, the West End is roughly bounded by I-20 (or Ralph David Abernathy Freeway) and Westview Drive to the north, White Street to the south, Lee Street, railroad tracks and MARTA rail on the east, West Whitehall Street to the northeast, and Langhorn Street to the west. The portion between Cascade Avenue and Beecher Street on the other side of White Street also belongs to the West End. Just one block west of Langhorn Street is where Atlanta's southwestern portion of the railway used to be; a segment called the Louisville & Nashville Railroad Belt Line (Gravel, 2016). That was the last segment to be developed back in 1902 and was mostly dormant for 40 years until it was purchased in 2009 for the development of the BeltLine Westside Trail. Today, the Westside and West End Trail form the West End neighborhood's west and southern boundary.

The West End boasts numerous parks: the bigger ones are West End Park, Howell Park, and linear Rose Circle Park; two smaller parks are Holderness-Lucile Park and Rose Circle Triangle. The new Gordon White Park opened in 2008 as the BeltLine's first official park in Atlanta. West End includes a diverse housing stock, and a number of historic homes have been preserved as museums or landmarks. In 1999, the West End was listed on the National Register of Historic Places (National Park Service - National Register of Historic Places).

⁴⁸ In the words of Atlanta mayor William B. Hartsfield, Interstate 20 served as “the boundary between the white and Negro communities” on the west part of Atlanta (Kevin M. Kruse, 2019)

APPENDIX H. CHARACTERISTICS OF THE STUDY PARTICIPANTS

Table H.1. Characteristics of the study participants.

Interview No.	Code	Tenure	Gender	Age	Education	Race/ Ethnicity	Years in neighbor hood	Duration of the interview
1	AP 1	Homeowner	M	48	High School	Hispanic	7 y	56 min
2	AP 2	Homeowner	M	63	PhD.	Caucasian white	9 y	80 min
3	AP 3	Homeowner	F	60	Bachelor's degree	Caucasian white	30 y	56 min
4	AP 4	Homeowner	M	60	Bachelor's degree	Caucasian white	30 y	56 min
5	AP 5	Homeowner	F	38	High School	African American	25 y	52 min
6	AP 6	Homeowner	M	45	Master's degree,	Caucasian white	7 y	95 min
7	WE 1	Renter	M	44	Bachelor's degree	African American	7 y	45 min
8	WE 2	Homeowner	F	40s	Master's degree	Caucasian white	5 y	36 min
9	WE 3	Renter	F	35	Master's degree	African American	24 y	56 min

Table H.1. Characteristics of the study participants (continued)

Interview No.	Code	Tenure	Gender	Age	Education	Race/ Ethnicity	Years in neighbor hood	Duration of the interview
8	WE 2	Homeowner	F	40s	Master's degree	Caucasian white	5 y	36 min
9	WE 3	Renter	F	35	Master's degree	African American	24 y	56 min
10	WE 4	Homeowner	F	40-50	Bachelor's degree	African American	11 y	65 min
11	WE 5	Renter	M	71	Bachelor's degree	African American	20 y	119 min
12	WE 6	Homeowner	M	46	Master's degree	African American	7 y	97 min
13	WE 7	Renter	F	58	Bachelor's degree	African American	9 y	93 min
14	Pilot*	Renter	F	40s	Bachelor's degree	African American	3 y	33 min

* The pilot interview was conducted in June 2019; the participant lived in the neighborhood since 2016 and before the Westside Trail was officially open

APPENDIX I. RESULTS OF THE CONTENT ANALYSIS OF THE INTERVIEWS WITH THE INCUMBENT RESIDENTS

Table I.1. List of categories and subcategories identified from qualitative content analysis of residents' responses

I. Main Topic A: Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment

Categories	Subcategories (when applicable)	Data extract
Main Topic A: Long-Term Residents' Perceptions and Attitudes Towards Changes in the Neighborhood Social and Economic Environment		
1. Changes in the demographic structure	1.1. Drop in the share of residents who are African American/black	<p>“Also, when we moved in, it was about 80% African American and I'm guessing it's probably still majority African American. I'm guessing it's probably more like 60 to 70%, but that's just a guess.” [AP2]</p> <p>“When I got here in the neighborhood in 1995, there were a lot of families. Demographics, race-wise, was 90-10; 10% Caucasian, but older, and 90% black. And then, no, we did have like a 2% Asian. No Hispanics at all. There were a lot of black families with their parents in home. Or it was a case like us, where there was 3 generations - grandmother, daughter and the granddaughter. It was a lot of that, a lot of people lived with their grandparents.” [AP5]</p> <p>“...I would say as far as ethnicity, it was around 80% African American and 20% white and others. it might have been even higher when we first moved in, it might have been 90-10% when we first moved in. And now it could be 50/50, I would say. And that is indicative of gentrification, like many other neighborhoods. So many of the previous</p>

		<p>residents have either died or could not afford to live here anymore.” [AP3]</p> <p>“And I guess the biggest change is in the racial composition. When I moved here, 20 years ago, it was probably 99.9% African American. Now I would say it's still predominately African American, but there has been a huge increase in the white population. From the anecdotal point of view, I would say maybe it is 75% of African Americans, which is till predominantly African Americans, but there was a huge increase in the non-African American population.” [WE5]</p>
	1.2. Increase in share of residents who are white, Hispanics and Asian	<p>“And like I said, you have a lot of gentrification where the Caucasian population has increased alone. But I wouldn't just say Caucasian, it's diversity... I would say now is at maybe 40% black residents. The Hispanic population has kind of grown a little bit. I would say it's just a big diversity... We did get a high percentage of Asians. I think it went from 2% up to like 10% over the years. And they were staying in the area of Capital View -Adair Park borderline.” [AP5]</p>
	1.3. Presence of "Black Gentrification" (Freeman, 2011; Gibbons & Barton, 2016; M. M. Taylor, 1992) or an influx of young, college-educated, middle and upper-middle-class African Americans	<p>„The interesting thing about West End is that the first gentrifiers were African Americans. And that started in the late 70ies, 1979 or so. This neighborhood just turned from being a predominately white neighborhood to being a predominantly black neighborhood in a span of 10 years. After the civil rights movement, they couldn't legally stop people from moving wherever they wanted, so people started moving here, and African American professionals started moving in in the late 70s. A lot of them were Atlanta University Center faculty or recent graduates. And then in 2008, when the housing market crashed, and you could buy a house over here for \$100,000, \$120,000, you had a huge influx of young African American professionals, families. I would say from 2008 to 2014, most of what we would call 'gentrifiers' were young African American couples. And you did not have so much friction.“ [WE5]</p>

	1.4. Increase in the number of younger residents	<p>“Most of those, but not all, who have moved in are young white singles or couples or whatever, but there have been young African Americans and, and middle-aged. Not too many older people, our age, have moved in.” [AP2]</p> <p>“Well, it [the neighborhood] was majority black, with a lot of the homeowners being seniors, or longtime residents, like somebody was living in a home that their family originally lived in or they grew up in, so they moved back into it.” [WE4]</p>
	1.5. Increase in the number of young families who have kids	<p>“But a lot of families have moved in. A lot of couples have moved in. Now they’re starting to have kids. When we first moved in, there were a lot of kids, especially elementary, maybe middle school aged kids from Section 8 homes.” [AP2]</p>
	1.6. Decline in number of children	<p>“So the renters had all of the kids, now that we’ve displaced all the renters, ... so the best number I can give you is that the local elementary school enrollment dropped from 370 to 340 this school year because there’s just less renters and less kids in the neighborhood...But losing the kids in the neighborhood has probably been the biggest noticeable change on this block and it’s not just this block.” [AP1]</p> <p>“And a lot of those are gone because they’ve converted a lot of the section 8, the owners have probably realized they could make more money by either selling it or by just fixing it up and renting it on the market. There are not nearly as many kids in the neighborhood, but now there are young kids, like age six and down of newer people that have moved in. And they’ll be grown older and repopulate the neighborhood, I guess.” [AP1]</p> <p>So, you’ve got some families, you’ve got some older families that no longer have the whole family cause the children left or in her case are dead. But then you do have basically a lot of childless couples, and it’ll be very interesting to see as the newcomers that are</p>

		childless when they have children if they remain in the community or if they move. [AP6]
	1.7. 'Displacement' of renters	"Um, and so what we've done in the last seven years here specifically is we've displaced all of our renters. Um, there's no more black renters left. We have white renters, but we have displaced all of our black renters." [AP1]
	1.8. Loss of affordable housing units	"... I understand development, I understand negotiations and I understand prices- that seemingly has nothing to do with anything, but they're all connected. And we dropped the ball on things and places that matter. That's the only thing on the Eastside trail- the displacement, because you have so much growth. There's no one making sure that these builders are adhering to what was promised, like: "Hey, we said, we're going to have subsidized homes here". [WE1]
	1.9. The legacy residents are still here, and they are not being displaced	<p>And the, um, what I call our legacy residents - they've been here for over 30 years. They're still here, there's 12 of them left. You know, they are here, they stand until they're basically dying. Their families are usually Southern folks, and they are homeowners. [AP1]</p> <p>It's definitely odd, you know, because the area is definitely gentrifying in the sense that who's moving in...I would say that the legacy African American families that have children here we still have a lot of them. And that's wonderful. How do we make sure they stay? Definitely legacy elderly people who had families here are remaining. So, like next door, my neighbor, she has been here forever [AP1]</p> <p>"So, about a year ago I did a deep dive into the neighborhood. And I looked everyone's property taxes and of our 12 legacy residents, nobody's paying more than \$2000 a year in taxes, yet. And so, our legacy residents are not being displaced by taxes, which is great." [AP1]</p>
	1.10. Resentment regarding displacement and	"The city's lack of focus on housing has been crushing it. Our renters have all been displaced because nothing new has been built

	<p>fear of displacement of some of the residents (especially renters)</p>	<p>here. And so people that want to live near the BeltLine and want to live near the core of the city, they're coming in with income and they're displacing people that don't have income." [AP1]</p> <p>"It's just frustrating. That housing piece of it is very close to me because the displacement of the renters did not have to happen this way, but the city did not focus on building any new housing. So, like Murphy's crossing site, the BeltLine is arguing with the city for the last three or four years, nothing has been done. And if we add a thousand new apartment building units there, the people that have been displaced actively could have moved there. And that's frustrating." [AP1]</p> <p>Zorana: Would you say that BeltLine changed your quality of life and how?</p> <p>"I would say just 90% positive, I feel like the only negative side would be the negative parts of gentrification and some people leaving. That was really the impetus for starting to work with senior citizens because we fought felt like they were a vulnerable population to gentrification as property values and therefore property taxes go up. That is why we are helping elderly neighbors age in place for as long as they wanted to stay. We have seen neighbors who were friends that were maybe Section 8 residents, we have seen them leave, we lost people that way." [AP2]</p>
	<p>1.11. Concerns that demographic changes are happening too rapidly</p>	<p>"And, so, the changes were almost instant." [AP1]</p> <p>"The change has been somewhat rapid, if you've lived with 30 and 40 years, and never saw a white resident, I mean in the short span of five years, the neighborhood, or the block that you're on switched from, black to white, um, that's got to be jarring, I am sure." [AP1]</p>
<p>2. Changes in the crime and safety in the neighborhood</p>	<p>2.1. The neighborhood felt safe during the day</p>	<p>And (it was) a safe neighborhood. But you know, one with active drug dealing, a lot of prostitution. Like the whole time I was rehabbing this house for 20 months, I think I</p>

		<p>had one 10-foot hose stolen from the yard while rehab was going on. So virtually no crime and I've had no crime issues in almost nine years I've been here in the neighborhood [AP1]</p> <p>“Because I got here very early in this phase of people moving in, it was almost like there was this perceived sense of safety. Like there was no value here, so that was no reason to come here to try to commit a crime. But now that the neighborhood has, the block 30 white residents on it. Like people's homes are getting broken into, which is something that I don't remember happening when I first got here. I didn't hear about it happening when I first got here that people's homes are getting broken into.” [AP1]</p>
	2.2. The neighborhood did not feel safe at night	<p>“It's really weird because when I moved here, strangely, regardless of all the bad things that were going around, it was okay to be out in the daytime as a child. I used to take my bike and ride around the neighborhood for hours. And my mom, and everybody felt comfortable, that was just the thing. As long as you were back home before it got dark, because that's when the neighborhood really changed. That's when the shootings would start that's when you would hear all the noise from the cars, with the loud music, or you would hear people fighting, arguing with the prostitutes or the drug dealers. So, when I was here younger, at night it was not a place to be outside at all. But in the daytime, it was actually a safe place. Nobody was coming to bother you or try to abduct your child because most of your neighbors were sitting out on the porch and they would report anything: “Hey, it's a red car in the neighborhood. We don't know that red car”. They would get on the phone and call each other, and it was really policed by the neighbors.” [AP5]</p> <p>“I don't think I ever had a problem going out walking. I mean, I wouldn't go out and walk in the middle of the night. I wouldn't have let my wife by herself. She wouldn't have gone</p>

		out at night. She walks in the neighborhood by the daytime now and has for several years.” [AP2]
	2.3. No perceived a significant reduction in the level of crime	“A lot of crime, I would say it decreased some, but it's still a significant amount of petty crime. There've been some violent crime over the years, but not nearly as much as just break ins or car break ins or, you know, we've had things stolen from our house and stuff.” [AP2]
	2.4. Unchanged feeling of personal safety	<p>“I don't think I ever had a problem going out walking. I mean, I wouldn't go out and walk in the middle of the night. I wouldn't have let my wife by herself. She wouldn't have gone out at night. She walks in the neighborhood by the daytime now and has for several years...She didn't do that when we first moved in. So probably about four or five years ago, she started walking and feels comfortable with that even though there have been some muggings even since then, but they're rare.” [AP2]</p> <p>“In a city, things go on. But I see police, I see activity, I see movement. But nothing to the point of where I feel unsafe at any point.” [WE1]</p>
	2.5. Somewhat improved safety of the neighborhood	
	2.6. The safety of the neighborhood is greatly improved	<p>“But overall, we are getting close to 180. Because when I moved in here as a young child, there was a lot of boundaries. This was not the neighborhood you would dare to raise a child at all. There was a lot of drugs, prostitution, infested, it was, argh, you could not walk down the street without running into a prostitute or someone trying to sell you drugs, so a lot of boundaries. And there were certain streets that you were not allowed to walk down when I was growing up.” [AP5]</p> <p>It's really weird because when I moved here, strangely, regardless of all the bad things that were going around, it was okay to be out in the daytime as a child. I used to take my bike and ride around the neighborhood for hours. And my mom, and everybody felt</p>

		comfortable, that was just the thing. As long as you were back home before it got dark, because that's when the neighborhood really changed. That's when the shootings would start that's when you would hear all the noise from the cars, with the loud music, or you would hear people fighting, arguing with the prostitutes or the drug dealers. So, when I was here younger, at night it was not a place to be outside at all. But in the daytime, it was actually a safe place. Nobody was coming to bother you or try to abduct your child because most of your neighbors were sitting out on the porch and they would report anything: "Hey, it's a red car in the neighborhood. We don't know that red car". They would get on the phone and call each other, and it was really policed by the neighbors.
	2.7. The increase in foot traffic added to the feeling of safety	
	2.8. Increased presence of police added to the feeling of safety	
3. Changes in the cost of living in the neighborhood	3.1. Increases in property values	<p>"And of course, the property values have gone up a lot. Prices of houses are a lot more now than they used to be." [AP2]</p> <p>"And of course, the real estate prices have gone through the roof." [WE5]</p> <p>"Certainly, it's helped us financially by increasing the value of our property, whenever we would sell. And I think largely because of the BeltLine, all of those empty houses have people in them now. And that's obviously a positive thing. A lot of the houses that were falling apart are nice houses now. That's a good thing for a neighborhood." [AP2]</p>
	3.2. Increases in property taxes	<p>Zorana: Have your property taxes increased since you moved in/ or since BeltLine has opened?</p> <p>AP Resident 2: Yeah. A very significant rise. We, we spent about nine months in China last year. And when we came back, they were way higher. They're not 10 times as much, but</p>

		<p>they're probably are five times as much. Yeah. I'd have to look at the actual numbers. I mean, they were so low. It was ridiculous. We were just paying so little, of course, part of the reason is the value of our property was low.</p> <p>“The property taxes, of course, went up and I would say just in the last five years, that's when the rent has increased. Yes. A lot. But yes, of course, property taxes went up since I've been here. And that's one of the driving factors of moving more people out. Either they can't afford the rent, or they cannot afford the property taxes that come along with the houses nowadays.” [AP5]</p> <p>“I think it's an interesting thing because, for a long-time people were divesting from the West End and then when the housing crisis happened, there were a lot of foreclosures. So, everything went down. Taxes were very low because nobody wanted to be here. And then, economy comes back. Gentrification is happening. And so, I'm not sure the BeltLine has anything to do with how much that is increased necessarily.” [WE3]</p>
	3.3. Increases in rents	
4. Changes in social ties in the community	4.1. Feeling of a tight-knit neighborhood that is still racially and class divided	<p>“So, this neighborhood was a tight-knit neighborhood, and changes that have been pretty dramatic. But right now, even with all the COVID-19 stuff happening, one of our older white residents has set up a network where we can interact with all of our older residents and check on them to make sure they don't have any needs. And it's mostly like new white residents checking on the older black residents. And so, it's still a tight-knit neighborhood. But there's definitely a class divide and a race divide.” [AP1]</p>
	4.2. The neighborhood does not feel as close-knit as it felt before	<p>“Yes. When I moved in everyone pretty much knew everyone and their kids, so yes, that was a great thing. And we didn't even have many meetings like now. I can't even recall going to many. So, everybody was pretty much close cause we spoke. But now if you're not a part of the neighborhood committees you don't know your neighbor, so it's not as neighborly</p>

		as when I was a little girl riding my bike, going down, I was waving my hand: “Hey, how are you doing?” because just knew them by name. Yeah, it is not like that. Now you have to be on a committee, or I guess maybe in a group or something.” [AP5]
	4.3. The neighborhood feels like a close-knit community	<p>“I mentioned to you that we did a survey, ...So we organized a lot of neighbors, we went door to door, and we were able to survey about 50%. So, it's already quite old for some of the things we discovered as far as what we were trying to find out was just how much people felt plugged in. But people felt very plugged in, people felt cared for by their neighbors and that they had neighbors, I could go to if I have a need or whatever.” [AP2]</p> <p>“We haven't had it during coronavirus, but we have monthly porch parties where somebody will just open up their house and like an open house for hours on a Sunday afternoon or something like that. There's been a lot of activities along those lines. It's been a really good neighborhood for people wanting to help each other out and doing neighborhood cleanups, people walk along the street on a Saturday and picking up trash.” [AP2]</p> <p>“We have a friend who's a realtor and he consistently tells us that we live in the most social neighborhood in all of Atlanta. Before the pandemic, we do our porch parties every month and meet-and-greets all the time. And so, you get to know a lot of people.” [AP4]</p>
	4.4. The elder members of the community now feel left out	<p>“And one of the big things was they (seniors) felt left out. They felt “when we were younger, we were really plugged into the neighborhood, but now all these new people have moved in and we don't know them.” [AP2]</p>
	4.5. Sense of a high level of neighbors' support	<p>“And then I got involved in some work with seniors in the neighborhood. This neighborhood has about 90 seniors in it. So that's people above the age of 65. Most of those have lived here for a long time. We started doing some projects with them. We surveyed them to see if they had registered for a homestead exemption. We did a couple of</p>

		<p>luncheons with them just to sort of let them get to know each other. We did two homeowner workshops - so that was helping people who are homeowners know how to take care of their home. And by that time, gentrification was really starting. They were getting all these little notes in the mail of people who wanted to buy their homes. And there was a lot of scams. And so it was to help them with that.” [AP2]</p> <p>“The volunteers are contacting them, either just dropping by and saying hi, they're not going in their home. They're trying to keep distance. Or calling them or sending them postcards and things like that. We created some little postcards that we sent them. And just hopefully help a little bit with loneliness, particularly those who are more alone, we have quite a few widows, quite a few ladies who live alone. But I really hope that we'll continue after coronavirus and become kind of maybe once a month have an outing or an activity with them and find ways to, even that they could make contributions into the neighborhood as well.” [AP2]</p>
	4.6. Concerns over the demise of the community	<p>“I love it here, but I'm not sure. I love the West End. It's my home. I feel very comfortable here. My aunt lives here, my mother lives here. I have friends here. I went to school in this neighborhood; there used to be a school called St. Anthony's that I went to when I was in elementary school. My church is here. I'm very rooted in the community and so of course I'm definitely very sad to have to depart the community because this will always be my community. However, as it rapidly changes, I'm not sure that I would even like to live here in five years, because the things that I love about it might be gone.” [WE3]</p> <p>Zorana: Have some of your friends or neighbors moved away from the neighborhood? Why?</p>

		AP Resident 5: Oh, yes. I have two neighbors that about three years ago, they were like: "I can't afford the taxes here", you know? So that was a pretty bummer for them.
5. Perception that the neighborhood is gentrifying	---	<p>"Of course, Adair Park 1 is more gentrified. So, that part of Adair is a little more classy. And Adair Park 2 is slowly gentrifying now. So, it still has a long way to go. Adair Park 1 is at 85% gentrified, and Adair Park 2 is more like at 40-45%." [AP5]</p> <p>"I mean, again, I think in any situation where there's building activity, and the market's changing, there's a lot of other factors. It's typical of any large city that's undergoing a lot of growth at a fast rate. Those properties that were at bargains are being scooped up by lighter skinned people. That's generally what happens. We call it gentrification, some call it "putting finances back" into areas that had money taken out of them for whatever reasons, I don't know. So that is evident." [WE1]</p>
6. The neighborhood is experiencing an influx of wealth and investments	6.1. Perception that the neighborhood is undergoing the economic revitalization	<p>"There's one I talk to regularly; I have never met her... She was sharing with me that this was a really nice neighborhood. And then it went and declined to really poor, and she was happy to see here turning around." [AP1]</p> <p>"And so, changes are good. Again, I mentioned innovation and adaptation - learning to adapt to the changes you're able to take or receive benefits from that. Some of these businesses that have been here for years should be able to benefit from it - in an economic way because of the influx of more people and dollars. People are going to spend in their neighborhood if they have what they need, if not, you're going to shop at Publix, or on Ponce and come home to the West End. Those things are evident; there's food deserts here. There are no places to eat after a certain time. Options -that's more or less what I think the people are concentrated on." [WE1]</p>
	6.2. Concerns regarding the growing	"There's been a lot of money thrown at these areas and sometimes that's good and

	<p>attention and investments in the area</p>	<p>sometimes it's not, sometimes it's just money and it's not necessarily targeted in a way that's all that healthy. I would say because of all that, there has been gentrification and general lifting in this area. Adair Park has been affected the most because of the BeltLine and just a couple years ago, it was called the hottest neighborhood in the city.</p> <p>But also, being affected is West End and all the other neighborhoods all the way to the Washington park; Ashview Heights, Oakland city - they're all feeling it to a little bit lesser degree, the gentrification and getting more attention. And it looks bad when you have white people and all of a sudden you have money come in, and people have very mixed feelings about it.” [AP2]</p>
	<p>6.3. Concerns regarding lack of transparency</p>	<p>“I don't know if they did a bad job or a good job. I think time will tell that...Any implementation that the city does or developers for the community, I would like to see specifics. Not just like: “This is a PowerPoint and we are telling you this to get grants” type situation, but how is this going to figure into what's already going on [in the community]. Are we changing the route of the tracks or we laying new tracks or, what's really going on? I'd like to see more of those things clearer. I would like to see more of that,</p> <p>There's a lot of community engagement, there's a lot of information. Everything is BeltLine, BeltLine, BeltLine., There can be studies on how this works and how it didn't work.” [WE1]</p>

II. Main Topic B: Long-Term Residents' Perception of Changes in the Built Environment

Categories	Subcategories (when applicable)	Data extract
Main Topic B: Long-Term Residents' Perception of Changes in the Built Environment		
1. Changes in housing stock	1.1. Houses are renovated and fixed up	<p>“There are probably only three or four houses that are now still boarded up. And so, all those houses have been bought and fixed up. A lot of older houses have been bought and fixed up and renovated. And even a few, there are a lot of empty lots in Adair Park because houses burned, and the neighborhood just wasn't of value. We have one lot right next to our house that's empty... And slowly those are being purchased and people are building houses. So, there's been an extreme change.” [AP2]</p> <p>“So now, we walk our dog around the neighborhood, and it is much more renovated and kept up than it used to be.” [AP3]</p> <p>“Really what was going on is the rundown houses, the houses that didn't have too much movement on them. The overgrown yards. But they're getting, they got flipped, they got purchased by groups and that whole wave come through.” [WE1]</p>
	1.2. Decrease in housing vacancy rate	<p>“The other number I want to mention is - in 2010, there were 1800 vacant houses along the Westside Trail. The city did a survey, 2011 or 2012...So there was like 500 vacant houses in Pittsburgh, maybe there are only 300 vacants now there.” [AP1]</p> <p>“When we moved in, so there were about 200 houses, I believe, I may have that wrong...And at that time about a third of the house were owner occupied, about a third were rented and about a third were abandoned or empty. And the rented third were lived in by a lot of section eight residents. And the block that we're on there were only about three houses that were occupied. The rest of the houses were empty. Well, yeah, the rest of the houses were empty, boarded up, falling</p>

		<p>apart. And now all but one have been changed. So that's, what's happened in the, in the neighborhood.” [AP2]</p> <p>“Today I'm really grateful to have this house not be abandoned anymore.” [AP1]</p> <p>“The drug house down the street, have been raid many times and it finally got shut down and then it turned into a \$400,000 sale, about 2 years ago after it got rehabbed...But as far as you know, that has been a positive not having drug houses anymore.” [AP1]</p>
	1.3. The decrease in the number of rental properties	“So, it's, it's not even in the rents went up. There was just nowhere left to rent.” [AP1]
2. Buildings are being rehabilitated	2.1. Neighborhood spaces are being rehabilitated	“Cause we really do not have a meeting space in Adair Park. Adair Park really is a bunch of houses without a lot of commercial properties. But even the apartment buildings that are getting rehabbed here, they are going to have a community space and we'll be able to have meetings there. There's excitement around those apartment buildings getting rehabbed...And the school is being rehabbed now. The elementary school in the middle of the neighborhood is going to have a meeting space. It's going to be like artists' studios and a coffee shop. It's going to be rehab by the end of the year. It's been abandoned probably for 20, 30 years now. So, there's a lot of changes happening, and they are really positive changes.” [AP1]
	2.2. The neighborhood hasn't lost any cultural markers	“Yeah, we've been pretty fortunate that the neighborhood really hasn't lost any cultural markers, is definitely gained a lot of important amenities for all the neighbors. And all the new things that are happening are mostly moving into abandoned spaces. So, like Lee and White, all those new bars and new breweries. And even today when I went to the “Slutty Vegan” for my dinner, all that stuff was empty and abandoned when I got here and now it's being filled up. And so, there was no displacement for those things to happen.” [AP1]
3. Changes in public spaces	3.1. Improved quality of the local parks	“There are two really nice parks in the neighborhood and really just a little bit before we moved in, those were rehabilitated. They were very run down and just a lot of drug trafficking

		and violence and just a mess. But shortly before we moved in, they've been fixed up. So they're really nice now. So, gentrification is taking place with good, bad and ugly.” [AP2]
	3.2. Improved quality of sidewalks	
4. Changes in the connectivity to the rest of the city	4.1. The neighborhood felt isolated from the rest of the city	<p>“Back in 2010, these neighborhoods, this zip code was dealing with her 40% poverty rate and a 20% unemployment rate. So, in a lot of ways this neighborhood, these neighborhoods were truly isolated from the rest of the city.” [AP1]</p> <p>Zorana: Did you feel that your neighborhood was well physically connected with other neighborhoods or the city – by public transport or in other ways?</p> <p>AP Resident 2: Yeah, that's a good question. This southwest sector of the city has traditionally been the most neglected and it was cut off from the rest of the city by I-20 largely, especially West End. And that could have been fairly racially motivated when that happened. I know there's probably a lot of debate on that...So, it's traditionally been a very neglected area. And when you live here, you see that even now, when we have issues, say with damages in the street, you know, big potholes or things like that, it takes a lot longer to get those things repaired here, than if you were living in East Cobb or something. The zip code we live in is 30310, and I don't know about the last few years, but for many years it was the zip-code with the highest crime level in the city. Partially, this is connected to our next-door neighbor- the Pittsburgh neighborhood, which has been much slower to gentrify. We have a lot of police presence. I think it's also because of more recently we've gotten more attention.</p> <p>AP Resident 5: Oh, when I moved here, the neighborhood was connected to the other nearby surrounding neighborhoods. But outside of that, no, it was a disconnected with Atlanta. A lot of people don't understand the history over here and didn't know anything about the history over here. And I think they didn't understand the value of the houses at the time and the location.</p>

	4.2. The neighborhood feels more connected to the rest of the city	<p>“Yeah, so definitely in 2011 it was a well-connected community with renters and others, but it wasn't connected to the rest of the city. And now it's definitely connected to the rest of the city, but there's way less renters, only homeowners, way less kids, less crime.” [AP1]</p> <p>“And now everyone knows where Adair Park is, now. I've talked to a couple of relatives and at networking things and they are like: “Oh, you are staying in Adair Park I'm so jealous. I love that little place”, you know? So, yeah, a lot of people know about Adair Park now. [AP5]</p> <p>“So, the BeltLine has brought a lot of that traffic. And I'm sure Gravel and all those architects of the BeltLine, when they looked at it, they said: “yes, this is going to connect all those communities”. And it literally does it, it does connect you with the rest, but it's the other effects that it causes no one's sketch those up. You can't sketch those problems. Those are social problems, education problems, information problems and things like that.” [WE1]</p> <p>“The proximity to the city. You know, you've got literally two and a half miles from the Downtown. And so, a lot of people like to bike to Downtown or take transit to Downtown.” [AP1]</p>
5. Neighborhood physical activity opportunities	5.1. The neighborhood offers opportunities to be physically active	<p>Zorana: Is it easy to walk, or be physically active in your neighborhood?</p> <p>“Yeah, I'm looking out my window now and there's people walking along the park, walking on the sidewalk. So yes, very much so. We have sidewalks. Like there's plenty of neighborhoods that don't even have sidewalks. We have sidewalks on every street, they are not always in the best of conditions. And it's actually a regular thing now, to see people walking.” [AP1]</p> <p>AP Resident 5: My neighborhood is very activity-friendly; I would say. The parks are very close in proximity. Like I said, I feel safe. So, it's just within, I don't have to leave the community and that's a great thing.</p>

		<p>“I mean, it's absolutely easy to be physically active in this neighborhood. So, our sidewalks could use a lot of improvements, but it's definitely easy to bike on the BeltLine and get to a lot of places. It's definitely easy to walk here and get to a lot of places. You could easily exist without a car and get all your needs met through walking. You know, there's everything, everything that I need is within a half mile of me and I could walk to it. That's a choice, the mindset around here still is driving.” [AP6]</p> <p>“I'm more of an introverted person, so I choose community parks that we have in the community. There's a lot, and it's beautiful. And they're, well-maintained, the Parks department does a great job out here.” [WE1]</p>
	5.2. The neighborhood has a lot of community parks	<p>“I'm more of an introverted person, so I choose community parks that we have in the community. There's a lot, and it's beautiful. And they're, well-maintained, the Parks department does a great job out here.” [WE1]</p>
	5.3. The existing neighborhood parks need upkeep	<p>“I wish they would add or maintain the playgrounds, but I don't know. That's been an uphill battle...It's just the upkeep of the actual parks itself is an uphill battle. The tennis court, sometimes the net is tangled or, you know, the court is not clean. The playground is not maintained, you know; like right now we have broken slides, broken his swings and it's just pretty dangerous, you know? Secondly, they took away in the parks, a lot of the, what do you call it? It's like, you can say gazebos, but you know, seating areas. They don't have enough seating areas, nor seats protected from the sun or rain. So, a constant thing that you always see is someone urinating in the park, which just bothers me, but they don't have any restrooms.” [AP5]</p>
	5.4. Neighborhood lacks (better) biking infrastructure	<p>“They did paint some sharrows on some of the roads. Technically, does that count as him adding bike lanes? But they were just 'sharrows.' So, it didn't change anything a lot. The main thing was that they put a 'sharrow' and new striping on the shoulders of Murphy Ave, but it's really just the shoulder of the road with a 'sharrow' now. And it's</p>

		<p>pretty crappy to bike on, cause it's where all the side dirt comes off of the roads. So, Adair Park itself, I would say, there's been, you know, zero functional implementation of bike infrastructure. In the West View, where I work, there was a bike lane part of it got removed because the church was angry about it. But most of the biking infrastructure that's been added around here are 'sharrows,' let's say RDA that's just a 'sharrow' and the shoulder. So, it's not really anything other than what it was. Which is a shame because when I bike or walk around, 90% of the people I see cycling are lower-income people that are using bikes to get to and from a location. And around here, especially because of children you know, it's usually children biking, and the streets around here are lower-income actually using it to get around. So, the whole 'bike lanes are white lanes' is definitely not accurate in this area. I would like to see a lot more biking infrastructure." [AP6]</p>
	5.5. Concerns that new developments will not improve walkability of the area	<p>"I don't think there are a lot of people that would want that kind of thing- to have huge parking lots and just create traffic of people coming from the outside and coming in and going out. There is a value for walkability and that's definitely improved some with the BeltLine. But without the population density it is hard to have the same kind of walkability they have on the East side or Atlantic station or something like that." [AP2]</p>
6. Opportunities for social interactions	6.1. The neighborhood layout is supportive of social and communal life	<p>"And that's, that's of course, one of the reasons we moved into the neighborhood, because we wanted that - there's big sidewalks, there's front porches and all the houses. And if you walk down the street, you can holler at people and stop and talk to them on their front porch. And so there's just a lot of that. And this is before the BeltLine was paved." [AP2]</p>
7. Changes in the neighborhood amenities	7.1. The new amenities are meeting the needs of the community	<p>"So, there are two major nonprofits in the neighborhood. One is a bike shop. It's called "Bearings bike shop" ...And it has a very big presence in the neighborhood and what it is, it's a nonprofit where they help kids earn bikes. And as they earn bikes, they learn skills such as how to repair bikes, how to work in a team, how to submit to authority, how to fail, how to succeed. ... I think they usually have one to 200 kids that are usually working there and they're mostly younger kids. And then there's another nonprofit on the</p>

		North side called Blueprint 58 and they work more with middle-school, high school kids. And it's a mentoring program where they partner an adult up with the kid." [AP2]
	7.2. A lot of things are being added to the neighborhood	<p>"So, lots of things have been added. We've got the brand-new library there, which is nice. We've got a brand-new middle school and an elementary school. We've got brand new restaurants. I'm trying to think of anything that's been removed besides the auto repair shop. A lot of people used it, it's gone now. And there is Bearings bike repair shop now. They bought the space and they're turning it into a space to help with the kids in the neighborhood." [AP1]</p> <p>"The farm we know well, and we've used it a lot. And we really enjoy it. It's just really right around the corner. And we knew them from when they first moved in, we know the people who run that...They did a bunch of art stuff and exhibits, and they were right behind our house. So, we would always go to those. Oh, they haven't done any of the active art that I know of. That was before they actually paved it. But they put a lot of static art out there and we always enjoy checking that out." [AP2]</p>
	7.3. There is an increased diversity of places (venues and restaurants)	"Oh, restaurants - there's a whole strip right near the BeltLine of, um, places like, have you ever heard of Slutty Vegan? - It's um, it's a very popular vegan restaurant. They used to be a food truck, but now they have a brick and mortar. So, like that whole area now has a whole bunch of different restaurants that did not exist prior to that." [KBS]
	7.4. Residents do not have to leave the neighborhood to get to a restaurant or a bar	I mean, the only amenity that has been added is bars and the restaurants and that's unfortunate. But yeah, definitely when I moved here in 2013, if I wanted to go out, you know, to have a drink with somebody or to take someone out to dinner, you know, a nicer dinner, I definitely had to leave the neighborhood and you certainly couldn't walk to a bar. And now we can walk to the breweries and everything. That is going to be the big question at Murphy crossing, but yeah, I mean, it's nice. It's definitely nice to be able to walk to a bar. They are paying people decent wages. So that light industrial, that has gone up along the BeltLine since 2015-16 that's probably an amenity for a lot of people. I mean the jobs are amenity." [AP6]

	<p>7.5. Neighborhood has more healthier food options</p>	<p>“So yeah, there is a little farmers market in the neighborhood. So, I go to that Thursdays. And then we attend new breweries that opened up. Hop City is a craft beer store that I go to about once a week to get beer to share with friends. And then today I went to Honeysuckle Gelato to buy ice cream to eat later tonight. I am going to Slutty Vegan, which is the neighborhood next to us. The new things that have opened up are really nice to have. When I first got here, there was still food, there was a place called Jamrock with Jamaican Food. I used to go there once a week, for two or three years. So, it is nice to have new options.” [AP1]</p> <p>“I am just so happy that we have restaurants that you can sit down and have a meal. Ah! We have never had restaurants over here where you can actually sit down, ah, relax and have a beer. So, that's been a plus. We have an ice cream place and coffee. Oh, my goodness. We've been suffering over here without a coffee stand. So, now we finally have coffee! So that's been some plus!” [AP5]</p> <p>“And then, there is this area, I think it's called Murphy crossing. Just, I think this is where they plan to open a farmer's market. Because it used to be a farmer's market long, long time ago. So, they want to do it again probably differently like a new farmer's market. Oh God, that'd be great.” [AP5]</p> <p>“I think we've been to two breweries. And a couple of restaurants in that Lee and White Area, but I don't know the other places. But I do know that there are definitely more restaurants in this area now than there were.” [WE3]</p> <p>The farm. For the last two and a half years, I have been using the produce from the farm. It was been great for health - getting local, healthy, fresh food in the neighborhood. And that's something that wasn't available when I got here, but now that's available.</p>
	<p>7.6. Creation of the amenities that cater the ‘gentrifiers’ and</p>	<p>“Visually, it's the new white residents moving in and they're typically the ones that have a disposable income. If you think about my block</p>

	<p>not the existing community ('this is not for us' sentiment)</p>	<p>again, you know, the legacy residents have all been here 30 plus years, probably retired and probably wouldn't be going out to breweries, regardless. I've never seen my neighbors, Darwin and Stephanie going to Lee and White for a beer, but I don't know if they're craft beer drinkers necessarily or even if they're drinkers." [AP1]</p> <p>"...And maybe a piece of that would be more amenities that would serve everyone, not just like pubs and restaurants that just serve a certain young, white, well, not just white, plenty of black people, but young, fairly affluent clientele." [AP2]</p> <p>Zorana: Can you think of any amenity that was added to your neighborhood over the last couple of years? Are any of the amenities in your neighborhood removed, demolished or closed?</p> <p>The main amenities would be the restaurants and pubs and things along the BeltLine, Monday night garage. That's just all been in the last two, two and a half years, really recent. The different warehouses being converted to restaurants, and of course that attracts a certain clientele, brew pubs and kombucha bars and things like that, definitely cater to the newer residents. We use some as well, we enjoy them." [AP2]</p> <p>"I think there's just a lot of breweries. There's a lot more restaurants. But again, I don't think any of those that have come up because of the BeltLine are geared towards the community members that lived there before the BeltLine. So they seem very much to bring in people as opposed to kind of culturally representing the people that have already lived there." [WE3]</p> <p>"I think the thing that feels non-connected to the community are the breweries and the kind of restaurants. I think people want it, options to eat in, just maybe not these...I think the one thing that community has asked for for a very long time that we have not received is again more grocery stores. Like a real place to have a farmer's market. cause there's a lot of urban growers here. So, if we had like more designated space for that; I would say like access to good food and fresh foods would be</p>
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		<p>more useful than you know, the six breweries we have now or whatever it is.” [WE3]</p> <p>“So, there was an eight-year-old asking about the farm in my backyard. And when I told him what it was, he asked are they building for the white people or the black people.” [AP1]</p>
	7.7. New amenities lack diversity	<p>Zorana: Can you think of any amenity that was added to your neighborhood over the last couple of years?</p> <p>I mean, the only amenity that has been added is bars and the restaurants and that's unfortunate.” [AP6]</p> <p>The BeltLine, but that's not our neighborhood. And other than the BeltLine, very little in my opinion. When I think about it, in the sense of retail, or shopping, no... And in the sense of restaurants, well, there's barely. In 30 years, the only thing that's ever been here in this neighborhood has been places where you can get wings or fried fish, that's it. But we don't have anything that resembles nice restaurants. I say it is sort of halfheartedly, but I wouldn't mind seeing something like Trader Joe's in my neighborhood, but there's nothing like that. There's just convenience stores, wings.” [AP4]</p>
	7.8. Lack of awareness of the existing amenities	<p>“When I moved here in 2013, I think the biggest thing in this neighborhood still is that people don't realize the amenities that are here and unfortunately drive to places like Glenwood Kroger or Edgewood retail. So, the strip mall or strip gas station down the street from me is pretty much unchanged in the last seven years. Jamrock restaurant is still there. [AP6]</p>
	7.9. Sense of nostalgia for some of the amenities being removed	<p>“Well, we had this place- it sits on Metropolitan and it used to be called Jazzy’s. And that was a place where the community did meetings, sometimes. And it was like your neighborhood kind of bar. So, in the daytime it was more of a restaurant. And then at night it was like a bar club type ordeal. That something we miss right here in the neighborhood... We no longer have the family kind of daytime-ish restaurant. And then at the five, six pm, it's grownups. And we miss that. We miss that.” [AP5]</p>

	7.10. Concern that the residents will lose some of the new amenities they use	“For the last two and a half years, I have been using the produce from the farm. It was been great for health - getting local, healthy, fresh food in the neighborhood. And that's something that wasn't available when I got here, but now that's available. I am concerned because their lease expires soon and we don't know if the BeltLine is going to renew the lease.” [AP1]
8. The changes in the built environment are happening too slow	--	“I'm very much in a place where everything north of RDA and Adair park is kind of still vacant or underused. I'm in a huge fight with the BeltLine right now about Murphy crossing, which is the southern boundary of Adair park. So that's 20 acres of abandoned stuff, most of Murphy Ave is underused. And I think we have between the Adair Park, Capitol view and Sylvan Hills I think we have 77 abandoned acres of industrial land that is eligible for an economic opportunities zone. So, like you hear about gentrification and the boom that's happening. And then if you walk around or bike around, you'll see this vast swath of completely abandoned former industrial sites. So, it's not like all of a sudden Starbucks are popping up on every corner around here. Like a lot of stuff around here is still just abandoned, industrial stuff.” [AP6]

III. Main Topic C: Long-Term Residents' Perception of Changes in the Level or Type of Physical Activity (PA)

Categories	Subcategories (when applicable)	Data extract
Main Topic C: Long-Term Residents' Perception of Changes in the Level or Type of Physical Activity (PA)		
1. Self-reported behavioral change	1.1. Self-reported change in the type of physical activity	<p>"So, I lived in Midtown Atlanta for a decade. I had an apartment, and I traveled a lot and I would rollerblade, mostly up and down the Peachtree. But now I live on this side of town. I don't rollerblade as much, but now I bike. I mean I've been able to bike a hundred miles a week for the last, almost three years now, two and a half years. And so, when the Southside trail opened, it just gave me more access, more safely to the whole city. And the Westside trail also has given me more access, more safe access to the rest of the city. I bike on all the streets. I don't, I don't mind cars, but it's definitely good not to have to deal with the cars." [AP1]</p>
	1.2. Self-reported increase in the level of physical activity	<p>"Yeah, so when I got here, I was biking quite a bit, now and biking more!" [AP1]</p> <p>"I bike to everything except to work. So, I run errands with my bike. I get exercise with my bike; I drive to work. Last year I drove 12,000 miles and I rode my bike 6,000 miles." [AP1]</p> <p>"I don't know. I don't know. I do think that ever since the BeltLine came, it's been a good motivation, it has motivated me, should I say to get out the house. Making me wanna actually bike more, go to the park, even more, just be outdoors, you know?" [AP5]</p>
	1.3. Self-reported change in travel behavior	<p>"Oh yes, we, me and my daughter, we ride our bikes there every other day, either we just exercising or trying to get to the store. She loves this little ice cream shop on the way to and from the store. So, it has motivated her to want to get out and not always jump in the car, you know: "Hey, will you just go on the BeltLine?" And I just love that about her, instead of: "I need you to take me here, we gotta go here" and I just, sometimes</p>

		you just don't want to get in the car. And especially with Atlanta traffic.” [AP5]
	1.4. Self-reported change in locations of where physical activity occurs	“Yeah, we used to walk when the BeltLine didn't exist. We did walk around the neighborhood. Uh, definitely walked towards where the MARTA station is. We'd go to the mall and stuff. Now we tend to walk usually the BeltLine solely as our walking. But we frequent, I mean lots of other things within the neighborhood, but we don't necessarily walk there.” [AP3]
2. Observed behavioral change of other residents	2.1. Observed changes in where other residents do their physical activity	<p>“I would say before it was completed, people walked on the streets, because some areas don't have sidewalks, and people biked on the sidewalks and/or on the street. So, since BeltLine has opened, I would say that more people are able to walk. Those that are walking for recreation are walking on the BeltLine.” [KBS]</p> <p>“I run and bike. I actually don't like to run on the BeltLine that much, just cause it's cement, but I do some. But I bike on the BeltLine and then BeltLine, if you go down to Washington Park joins another path called the PATH. And so, I ride out there and get on that and can get about 10 or 12 or 15 miles. I use the BeltLine a couple times a week for biking and I usually run through the neighborhood.” [AP2]</p>
	2.2. Observed changes in the travel behaviors of other residents	“[BeltLine] also connects the neighborhoods to Washington Park as well as Tennis park, so people are able to go through the BeltLine to get to there, versus having to get into their car and drive.” [Pilot]

IV. Main Topic D: Long-Term Residents' Perception and Use of the Beltline Trail

Categories	Subcategories (when applicable)	Data extract
Main Topic D: Long-Term Residents' Perception and Use of the Beltline Trail		
1. Perceived benefits of BeltLine trail and living in the BeltLine adjacent neighborhood	1.1. The BeltLine is creating opportunities for recreation	<p>Zorana: Do you think that since BeltLine has opened, you have an opportunity to walk more or to ride your bike?</p> <p>“The BeltLine definitely created more opportunities for you to walk and bike.” [AP1]</p> <p>“Yeah, definitely for biking. I mean you can walk through the neighborhood, but I think there are probably a lot of people that like walking on it [BeltLine] just because it's, it's neat and it's more visible and it's probably safer. So, there are probably a lot of people that might not be as interested to walk through the neighborhood that walk on the BeltLine or ride the bikes...So, I think, it's definitely added a much more outdoor element, to our neighborhood, especially with the warmer weather.” [AP2]</p> <p>“I do think it definitely exposed people to start enjoying walking again; for those that can. And I do when I walk or bike to work. It's about a two mile stretch of the BeltLine depending on biking or walking. I do see a lot of diverse groups you know, age wise, ethnicity wise, using the BeltLine for active stuff. So, biking or walking, clearly for exercise you know, people walking together for recreation and hanging out. And I think that, again, it has provided a place for people to do that and to rediscover the joys of walking or to bike in a, what to them is a safe environment. But it's still, to me demonstrates the flaws of the rest of the city where people don't feel safe, biking, they don't enjoy walking. So, it's, to the extent that has improved anything, it has exposed to me that people want these things. Now, how do we translate that into showing people to have these things in the</p>

		rest of the city and not just on the BeltLine? You should be able to enjoy walking and biking for recreation or for utility, not just here.” [AP6]
	1.2. The BeltLine is creating safe non-motorized access to the rest of the city	<p>“I mean I’ve been able to bike a hundred miles a week for the last, almost three years now, two and a half years. And so, when the Southside trail opened, it just gave me more access, more safely to the whole city. And the Westside trail also has given me more access, more safe access to the rest of the city. I bike on all the streets. I don’t, I don’t mind cars, but it’s definitely good not to have to deal with the cars.” [AP1]</p> <p>“Yeah, definitely for biking. I mean you can walk through the neighborhood, but I think there are probably a lot of people that like walking on it [BeltLine] just because it’s, it’s neat and it’s more visible and it’s probably safer.” [AP2]</p> <p>“As much as I explore cities and walk around, I probably would not have been aware of this abandoned railroad track if it weren’t for the BeltLine. And so, once I found out about it, I’ve been using it since 2010 to get around. I’ll use it to go visit friends in Chosewood park, I’ll bike up that even though it’s not paved I’ve been using it even before it got paved. I used to use it to get up to Kroger. It definitely improved the quality of life and I think most people think it has improved their quality of life. Again, for people that don’t walk the way we walk.” [AP6]</p>
	1.3. The BeltLine created a meeting place for the white residents	<p>“It definitely brings the white neighborhood closer together. The new, anybody that has gotten here in the last 10 years, which has been basically all the white residents, the BeltLine is definitely a rallying point. When there’s a community meeting about BeltLine, lots of neighbors show up, some of the older neighbors, mostly new neighbors.” [AP1]</p>

	<p>1.4. The BeltLine is helping create social capital and build the community</p>	<p>“I bump into people all the time: “Yeah, we're heading over to the BeltLine to go biking”. Or people take their kids down there to go biking or walking or whatever. So, I think, it's definitely added a much more outdoor element, to our neighborhood, especially with the warmer weather.” [AP2]</p> <p>“I know people often talk about: “Oh yeah, I was on the BeltLine and I saw so and so”, so I feel like in a social sort of way, yes. Very rarely do I go ride my bike on the BeltLine that I don't see several people I know. I feel like it's helped socially, somewhat; just kind of almost like a gathering spot or several neighbors walking together, walking down to Monday night or one of the restaurants together.” [AP2]</p> <p>“And it also helps with getting to know who's kind of in your community; you may see that same person on the BeltLine and be like “Oh, okay. I know him or her”. So, you can also use it as a little meeting place sometimes. So that's all the positive - keeping the community a community, you know, instead of suburban communities, you know what I'm saying? So, it keeps that feel there because I lived in an suburban area and yeah, it's pretty much you are out there by yourself. When I lived in Louisiana, that's where I kind of stayed. So, it was nothing except me and the horses and the cows.” [AP5]</p> <p>“I see people posting on the neighborhood Facebook page pretty frequently about it: “Oh, going down to the BeltLine” or “we're walking over to a, to the brewery who wants to come”. And so, I think maybe yes.” [AP3]</p>
	<p>1.5. The BeltLine is helping to get to know the city</p>	<p>“Me and my daughter, we have been around, and did mostly all of them. Not the trails per se, but just staying exactly on the BeltLine, we've been pretty much around. So she loves it. She loves it. It helps her learn her surrounding areas. So, it's</p>

		<p>prepared her to drive too. Cause now she is like: “Okay. this area is there, we walked there”. So, it has actually helped her learn her surrounding areas.”[AP5]</p>
	<p>1.6. The BeltLine is putting the neighborhood on the map</p>	<p>“We have a lot of things that are growing every day in Adair Park; we’re gonna get like a small Krog Street Market - that’s on the horizon. And then, of course, the BeltLine has <u>finally</u> been connected. They’re not quite done. They still have a 20% gap. But it has finally been connected with the other side of the West side. So that’s been a great thing of getting people out, bringing them together and letting them know to come through and experience Adair Park.” [AP5]</p> <p>“I think that the BeltLine influence the Adair’s Park community in the sense that a lot of people moved here because of the BeltLine. That is what motivated them to move here. I bought my house partly because it was going to be on the BeltLine.” [AP6]</p> <p>“I believe that there are a lot of people out there on the BeltLine and using it. I was at Panola state park the other day in Stone mountain. And I was walking, I saw more people there I knew and I’m from the city then I would on the BeltLine. So that goes to say something - it’s bringing people in, that normally wouldn’t be here or around.” [WE1]</p>
	<p>1.7. The BeltLine connects the communities</p>	<p>“... I’m sure Gravel and all those architects of the BeltLine, when they looked at it, they said: “yes, this is going to connect all those communities”.</p> <p>And it literally does it, it does connect you with the rest, but it’s the other effects that it causes no one’s sketch those up. You can’t sketch those problems. Those are social problems, education problems, information problems and things like that.” [WE1]</p>
	<p>1.8. The BeltLine improved the quality of life</p>	<p>“Oh yeah, I think so. Without doubt. It improved quality of life for the whole neighborhood in all of the ways that you’ve</p>

	of the residents	mentioned- people being out, getting exercise, socializing, and interacting with each other, property values. It's a positive.” [AP3]
	1.9. The BeltLine benefits the senior residents	<p>Zorana: Do you see people from the community using the BeltLine? And if yes, who is using it?</p> <p>AP Resident 5: Yes. It brought the most benefit for, well, of course, middle age, but definitely I have seen more seniors out then I've seen in a long time, you know. So, I would say it's been for little kids and of course, for families, you know, of course. I have not really seen teenagers taking initiative to explore the BeltLine. But seniors have benefited the most, you know, and they, they walk there, and it's been surprising. Some of the neighbors that I grew up with when I see them, I'm like: “Oh my God, you're out of the house and you're walking”. And it's great. And I wish it were more things, a little bit closer for the seniors. We have the garden over here, but you know, it's a garden, so you have to wait for things to flourish, but I wish they had a little place where they can walk to get the necessities. Just fruits or vegetables or dairy or whatever.</p>
2. Perceived concerns of living in the BeltLine adjacent neighborhood	2.1. The BeltLine created its own community	<p>“I'd say the BeltLine is its own community. It's almost like its own neighborhood. You know, Ryan always talks about how it's supposed to tie together, what 43 neighborhoods, 45 neighborhoods. To me, the BeltLine it's always been the border between neighborhoods. And I think that they've transformed the BeltLine from being a border between neighborhoods to its own neighborhood. So, you know, is it enhancing the community? It's its own community. It's the people that use the BeltLine, for whatever reason. So, it should be its own NPU. It's the BeltLine it is not Adair park. It's not Capitol view. It is its own space.” [AP6]</p>

	2.2. The BeltLine trail failed to connect the neighborhoods	<p>Zorana: Did you feel that your neighborhood is well physically connected with other neighborhoods or the city?</p> <p>[AP6] No. Cause at the western end of Adair park is a rail track. And so, the only ways to exit the Adair Park are at Sylvan road, RDA, Murphy connector, but if there's a train stopped at any of those three or train passing you're trapped. I don't think that, beyond people walking to the West End, to "Monday Night Brewing" or "Box car" that anybody feels like the BeltLine has connected us to other neighborhoods. Definitely. So even if I was going to Capitol view, which is just straight south of us, all I did was cross the BeltLine. I don't use it to get there. I don't use the BeltLine to go to Capitol View Manor or Pittsburgh. I think that most people still drive to get to other neighborhoods except for slight recreational walk, one block over. I would say very few people, especially without rail are using it to: "Oh, I'm going to use the BeltLine to go to Mosley park or Washington park to visit a friend" or "I'm used the BeltLine to do that".</p>
	2.3. The BeltLine is contributing to gentrification	<p>"Maybe that has to do with the fact that the housing prices dropped. That's possible. But the BeltLine really, really generate a lot of influx". [AP3]</p>
	2.4. BeltLine's failed to fulfill the initial promise to bring the transit	<p>"Without rail and without a reason besides recreation, I'm not trying to do alliteration, I don't think it's fully connecting neighborhoods right now. I wouldn't say it's connecting neighborhoods yet. I think it's failed to do that, but I never thought that was the point." [AP6]</p> <p>"I also thought that the transit option was a very positive thing about the BeltLine. And I have a hard time seeing that happening in any less than 20 to 30 years away because they don't have anywhere near the financing, they need to do it. And once they start doing it, it's going to take a lot of years to put that entire system in. But I also think that that was a very positive thing, and I'm a little bit disappointed." [AP6]</p>

<p>3. Perceived frequency of use of the BeltLine trail</p>	<p>3.1. Self-reported frequent use of the trail for PA</p>	<p>“I typically work three days a week, but I use it morning and evening, I use it all day every day.” [AP1]</p> <p>“I use the BeltLine a couple times a week for biking and I usually run through the neighborhood.” [AP2]</p> <p>“Oh yes, we, me and my daughter, we ride our bikes there every other day, either we just exercising or trying to get to the store. She loves this little ice cream shop on the way to and from the store. So, it has motivated her to want to get out and not always jump in the car, you know: “Hey, will you just go on the BeltLine?” And I just love that about her, instead of: “I need you to take me here, we gotta go here” and I just, sometimes you just don't want to get in the car.”[AP5]</p>
	<p>3.2. Self-reported frequent use of the trail for commuting</p>	<p>“I use the BeltLine to get to work. So, I walk. If my bike doesn't have a flat tire, I just bike up the BeltLine and then pop off the BeltLine and I'm at work. I work two miles away. If I don't have a bike, I walk a little bit up and then I hop on the BeltLine cause I take a different route and then I walk the BeltLine, the rest of the way to get to work. So, I use the BeltLine pretty much every single day. And if I'm off, I use the BeltLine to walk to the liquor store and the there's a little Philly cheesesteak place down the street. So that's where I'll go eat on my days off. So, I'm on the BeltLine probably 360 days out of the year.” [AP6]</p>
	<p>3.3. Self-reported rare use of the trail</p>	<p>Zorana: How often do you go and when do you usually go?</p> <p>AP Resident 4: Rarely.</p> <p>AP Resident 3: Not that often. Right now, there's not shade. So once the trees grow up, we'll probably want to go more.</p>
	<p>3.4. Perception that other residents are using the</p>	<p>Zorana: Is it easy to be physically active in your neighborhood?</p>

	BeltLine for recreation and exercise	AP Resident 2: Yes. There's a lot of people out walking their dogs. Especially since the BeltLine is visible to us, we see a lot of people exercising and either just recreationally or are hard exercising.
4. Perception of the others using the BeltLine trail	4.1. Others are using the BeltLine for recreation and exercise	<p>Zorana: Is it easy to be physically active in your neighborhood?</p> <p>AP Resident 2: Yes. There's a lot of people out walking their dogs. Especially since the BeltLine is visible to us, we see a lot of people exercising and either just recreationally or are hard exercising.</p>
	4.2. The number of the BeltLine trail users growing	<p>"It definitely gets more activity. We just passed our two-year milestone last fall of it being open. And more people are coming familiar with it and using it more often." [AP1]</p> <p>"Well, it's definitely increased this year. We've had a very long pleasant spring, it hasn't gotten too hot yet, and then the coronavirus. I think probably between those two things, I would say it's doubled this year, even compared to fall. I don't know if it's just kind of a cumulative - more and more people know about it, or if it's because of coronavirus - more people have to stay home and want to exercise. So, definitely much more popular." [AP2]</p> <p>"I think that if you have this beautiful stone path behind your house, that's just put there in your neighborhood, you're going to get on it... Especially during these times [COVID-19], with everyone being in the house and this beautiful weather. It's something that's going to be here, and people are sort of understanding that." [WE1]</p>
	4.3. The users of the BeltLine are a mix of immediate	"Yeah, there are neighbors. Let's say there is a pretty good mix of folks on the BeltLine, also racially, both white and black. I guess it's the same as on the Eastside trail during the week it's

	neighbors and visitors	immediate neighbors and on the weekends it's folks that come to the community from other places, that drive to the community instead of walk from their homes.” [AP1]
	4.4. The locals do not use the BeltLine as much	<p>“I would love to see the scenario where I can see residents using it more, you know.” [AP1]</p> <p>“But again, I don't really know many people in this neighborhood who utilize the BeltLine. Like we don't meet friends on the BeltLine. And I don't hear people talking about the BeltLine to be honest. So, specifically with older population; my mother's never been on it. None of our neighbors have ever been on it.” [WE3]</p>
	4.5. The older legacy residents are not using the BeltLine (lack of habit)	<p>“And older residents, many older residents are not physical. And so, it's not that they're not walking on it because they don't trust it or like it, they just don't get out much. They drive around and they don't really walk much. And that's on my block specifically. Like I've never seen any of them, the legacy residents at the BeltLine.” [AP1]</p> <p>“It would be great for the BeltLine to figure it out how to engage the legacy residents. And I know that in the past they've tried to do like do the trips to get people from the Westside to go see what the Eastside look like, so that they would know what was coming.” [AP1]</p>
<p>5. Self-Reported Facilitators to the Beltline trail Use</p> <ul style="list-style-type: none"> • ED- Environmental/Design • S - Social • P - Programmatic 	5.1. The presence of police, cameras and good lighting makes the trail feel safe (ED, P)	<p>Zorana: Does it feel safe for you to be on the BeltLine? During the day and maybe like after dark?</p> <p>“It's lit very well and has security cameras. There's other people out there.” [AP1]</p> <p>“I don't think about being there being any problem during the daytime on the BeltLine. I think I've heard of maybe one or two things early on when there were very few people on it, but there's quite a few more people now; they have lighting on it and police presence sometimes, but I haven't gone on it night. I just haven't</p>

		<p>chosen to and I don't see many people on it.” [AP2]</p> <p>AP Resident 5: Yes, I have found it pretty safe. And we also have like neighborhood controllers for the BeltLine, they switch out on duty, they rotate out throughout the day. So, somebody will take this shift and kinda walk up and down the BeltLine just to monitor things. So, that's a good thing they have in place, at least on our side...So, I feel pretty safe. I have never had any issues and I've been on the BeltLine after eight o'clock, still felt okay. The lighting is fine.</p> <p>The Beltline hasn't added to that or taken away from it. The BeltLine is made for people to move, not stand still. It doesn't make it easy for people to want to rob or do those types of things, unless it was set up in some sort of situation where it was dark. But it's cool, it's safe. And has most people ever since. Especially now with things going on [COVID-19], people are happy to see each another. I don't think that's the type of energy that goes on it [on the BeltLine].” [WE1]</p>
	<p>5.2. The presence of other people makes the trail feel safe (“eyes upon the street”) (S)</p>	<p>“I think in a sense, just because there's more traffic, that's added an element of safety; we didn't use to have people walking behind her house and now we do... I think probably just in a general way, it's added to safety just because there's a lot more people walking around that part of the neighborhood.” [AP2]</p> <p>“Maybe what made it feel safer, because due to the BeltLine, there is this influx of new, younger people who are out on the street, who are more active in the community who are walking, who are playing in the park, it just makes it feel it makes it feel safe.” [AP3]</p>
	<p>5.3. The trail offers space for pedestrian traffic, free of</p>	<p>Because primarily I think it's safety, meaning not like we feel like the people are unsafe anywhere else, but like the sidewalks in our neighborhood aren't great. So, there's a lot of like walking in the street,</p>

	vehicle conflicts (E/D)	which doesn't, it's not great for my son. So, and it's not great for us either. And it's just you know, it's smoother path, it is open, you don't have to worry about cars, which is primarily why I don't like to walk throughout the neighborhood anyway". [WE3]
	5.4. The trail has a smooth, paved surface (E/D)	"You don't have to worry about potholes or any of that stuff. So it's just an easy, safe path to go down and I can take the stroller, which is the main thing because it's so annoying to take the stroller on the street because the sidewalks are terrible". [WE3]
	5.5. The trail is connected to the spur biking paths or trails (E/D, P)	<p>"...I bike on the BeltLine and then BeltLine, if you go down to Washington Park joins another path called the PATH. And so, I ride out there and get on that and can get about 10 or 12 or 15 miles." [AP2]</p> <p>"There is this little part when you get past <i>Monday Night Garage</i> and those places; it's kinda just going out and then they're trying to do a trail, meaning that you could actually stay on the BeltLine or you can do a trail. So, they're working to do a trail right now. So that'll be good. It kinda enhances it a little bit more. You don't just get too bored, like: "Oh, you can take this trail today", or we can just stay on the actual concrete path." [AP5]</p>
	5.6. Easy access to trail (E/D)	<p>Zorana: So, is it easy to access the BeltLine from where you live?</p> <p>WE Resident 1: There's a couple of entrances, so it's pretty close. I can get on the BeltLine fairly simple.</p>
	5.7. Amenities along the BeltLine trail (e.g. restaurants & shops) (E/D, P, S)	<p>Zorana: What do you usually do on BeltLine besides riding bikes?</p> <p>AP resident 5: We always go to the grocery store, we ride the bikes down to Kroger, and we usually stop at this ice cream place, I think is Gelato. So, we usually stop there and hang out. Or sometimes she gets on her skates and we ride on the BeltLine and then</p>

		we go off into that Best End parking lot and skate around there. So, we're pretty active.
	5.8. Trail offers the opportunity to socialize and enhance your social well-being (S)	<p>"I bump into people all the time: "Yeah, we're heading over to the BeltLine to go biking". Or people take their kids down there to go biking or walking or whatever. So, I think, it's definitely added a much more outdoor element, to our neighborhood, especially with the warmer weather." [AP2]</p> <p>"I know people often talk about: "Oh yeah, I was on the BeltLine and I saw so and so", so I feel like in a social sort of way, yes. Very rarely do I go ride my bike on the BeltLine that I don't see several people I know. I feel like it's helped socially, somewhat; just kind of almost like a gathering spot or several neighbors walking together, walking down to Monday night or one of the restaurants together." [AP2]</p>
<p>6. Self-reported barriers to the Beltline trail use</p> <ul style="list-style-type: none"> • E/D- Environmental/Design • S – Social • P - Programmatic 	6.1. Trail surface material makes it undesirable for running (E/D)	"I actually don't like to run on the BeltLine that much, just cause it's cement, but I do some...When we moved in the BeltLine was just an idea and it was a dirt path. So, I really liked it then because I ran on it with my dog all the time." [AP2]
	6.2. Residents preferred the natural features of the trail before it was paved (E/D, P)	"When we moved in the BeltLine was just an idea and it was a dirt path. So I really liked it then because I ran on it with my dog all the time. And it was, there was nobody on it. It just kinda went through the woods and there were homeless people that lived back there." [AP2]
	6.3. Residents prefer the more natural surfacing of the trail such as bark mulch, or natural earth (before it was paved) (E/D, P)	"...There used to be this older African American gentleman, there used to be a creek that ran where the BeltLine is right now, and he would actually go crawfish hunting there. And I would be walking down the BeltLine, it was abandoned, and he'd always be crawfish hunting and he would catch crawfish. And there was green heron that lived there that, I guess, also was eating the crawfish from the creek. And when they built the BeltLine, they actually,

		for whatever reason, pumped the creek from one side to the other and shut it all off. And I don't think that the existing wildlife that was there survived. So now it's kinda more just a creek.” [AP6]
	6.4. Lack of respite areas along the trail, especially places to sit and gather (E/D, P)	Zorana: And BeltLine itself, the way it's designed, would you change anything about it? AP Resident 5: Yes. I would say more seating areas and more entertainment for kids, you know.
	6.5. The trail lacks vegetation and shade trees (E/D, P)	“It's mostly the trees. It's very hot in the summer. We don't go a lot, you know, in the winter either, but in the summer when you want to go out and walk on it more, it's so hot, the sun beating off of the pavement. Then maybe, I'm thinking, in 15, 20 years when the trees get a lot bigger, it will be much nicer.” [AP4]
	6.6. The condition of the trail (the trail is not fully finished and connected yet) (E/D)	“Yeah. Like I said, the activity level, and since it hasn't connected all the way, from my side of town, it gets a little boring, you know? So you're like: “Oh, we know it's going to happen, you know, it hasn't connected, but I'm waiting”. There is this little part when you get past <i>Monday Night Garage</i> and those places; it's kinda just going out and then they're trying to do a trail, meaning that you could actually stay on the BeltLine or you can do a trail. So, they're working to do a trail right now.” [AP5] “And the next part they're paving is just to the east of us, about another mile and a half. They're working on that now. It's closed. It's where I used to run with my dog, but now I can't run on that either, because they're actually working on that.” [AP2]
	6.7. The trail needs better informational signage (E/D, P)	“I think I would like a better description of signs. So, even though I live in this neighborhood, I grew up on this side of town, the directional signs keep me a bit confused as to where I'm headed. So, I'm not sure, you know, at the beginning it could say Cascade beltLine entrance, and

		<p>then when you get down there you can have a sign saying "ok, to the right you'll be headed to the Best End brewery and Whitehall, and to the left to this area". But it does not say that; it gives you a mile marker, and then it just gives you an area, and I'm like: "Which way is which?". So, yeah, better directional signage would be absolutely great because it is kind of easy to get lost on the BeltLine if you don't know where you are going...So, some directional signs that indicate the name of the street.” [WE4]</p>
	<p>6.8. The trail lacks diversity of uses (E/D, P)</p>	<p>AP Resident 6: I usually use the BeltLine. It's, it's purely for transportation. It's not interesting to me. If I personally want to go for a walk, I'd rather walk through the city, I'd rather walk through a cemetery. You know, the BeltLine is nice, but if I wanted nature, it's a weird thing. Like it's kind of nature-y, but it's not, it's not city, it's not nature. I love Ryan's vision. I'm not bashing the BeltLine and I see why some people do it, but I would rather walk through an urban environment or do something else. I rarely ever walked down the BeltLine for recreation. For me, it's purely transportation. Now the undeveloped portion of the BeltLine, I will walk on because there's wildlife and I let my dog off leash. But the developed part of the BeltLine is just to me, a way to skip traffic.” [AP6]</p> <p>“And the failure of the BeltLine has been that they didn't turn it into essentially what it should have been - a car-less street. You know, they turned it into kind of like a trail or a path. And so, you should have been able to walk down the East side. But there's a few bars, there's restaurants, it's an entertainment district. It's a nature trail posing as an entertainment district right now, both in the Eastside trail and down here. It definitely needs a diversity of uses and needs to have things that a lot of people can have a use for. So, there's something</p>

		<p>there for them because if you're not going to a bar or a restaurant on either trail, you know there's really no point for you to be there</p> <p>...So much of the stuff that exists there was actually immediately adjacent to it because it was where the trains drop stuff off. And so, they could have built it out differently and permitted things to be window shopping and walking along. And, you know, even if it turned into Fifth Avenue and was all luxury stuff, except every now and then here's this random grocery store, I think it just would have been better. It's a weird kind of escape, not from the busyness of city life, it's an escape from the crappiness of most of our street pedestrian environment.” [AP6]</p> <p>Zorana: If you had the power – what would you change or add to the Beltline that would make the use of it more enjoyable?</p> <p>WE1: “Oh, more performance areas. I would definitely say more amphitheaters. In that way, that communities can drive revenue, right to their neighborhoods...But definitely more performance areas, more areas for art. They [the BeltLine] don't want too much leisure, but it is cool to have a cutoff every once in a while. It's all, depending on the landscape of the area, but visually, I think it does what it can do.”</p>
	<p>6.9. Lack of amenities (development) along the trail makes it feel dreary (E/D, P)</p>	<p>“And when there's more development and amenities along the Beltline too. I think that's going to make it more attractive. More or less like it is now on the east side... I would like to see some more development. Like, when you walk around in the neighborhood, you can look at people's homes and what they're doing and look at their landscapes and things. And you go along the BeltLine, and so much of it now over here is still a shuttered abandoned warehouse that nothing is happening with. And so, I would just love to see that become something more, ...</p>

		<p>more, I don't know, what's the word I'm looking for - more urban or where there are people and there's life... And that is a lot about the BeltLine on this end, when you walk through a big section of it, you're just looking at the back doors of warehouses and it's boring (laugh).” [AP3]</p> <p>“It has to be a living, breathing entity, like on the East side, in some areas, and not literally just a path. I think it'd be fun. [AP3]</p>
	<p>6.10. The trail lacks different activities and spaces for people of all ages (E/D, P)</p>	<p>Zorana: And BeltLine itself, the way it's designed, would you change anything about it?</p> <p>AP5: Yes. I would say more seating areas and more entertainment for kids, you know. Because I know my kids, when we walk so far, they want to stop and kind of play and fiddle with things. So if they had little more areas off to the side; it doesn't necessarily have to be a playground, but just an activity, where they can just go and run a jump for a minute and then we get back on the path, and conclude our walk. So that's what I would add, just more activities for all ages. That would be nice. Like you know, you go and run and then you stop and, you play a little miniature golf; or you stop and there's a little soccer field maybe; so you can practice with your ball. You know just whatever, just more activities need to be added on the BeltLine. And that'll keep a lot of people physically fit and it helps hold the neighborhoods together. And I think people will appreciate the BeltLine more and respect it more... Well, like I said, I just want them to come up with more activities around the BeltLine. Just make it a little more interesting.</p>
	<p>6.11. Lack of organized approach for the vulnerable groups (P)</p>	<p>“But I think it would take, for people Darwin's generation to organize. I don't know if I can organize like: “Hey, 12 legacy, let's go take a walk on the BeltLine”. Like, I don't know that that would work. But I think if it was done within their peer group that there'd be more</p>

		<p>buy-in for the older residents to participate and use it.” [AP1]</p> <p>“In that sense, the BeltLine, I think, has really done a bad job. So, they do their fundraisers where they have the 5K and the 10K and I've run some of those. And jogging the BeltLine is a great thing. But you know, the BeltLine, if they really want to encourage health, they should be going door-to-door to community residents, seniors, and saying: “Hey, we're going to organize a walk”. To get people out of their houses and say: “we will be here for you, we got water. If you get tired, we've got a golf cart that we'll take you home on”.</p> <p>There's tons of people in this community that are, unfortunately, as you know, lower income African American communities are disproportionately affected by obesity and diabetes. If the point of the BeltLine is to get people more active, as someone who's been on the board of parks, like historical Fourth Ward and Selena S. Butler Park, you have to do programming. And if the BeltLine is intended to be a health asset to the community members around it, that need motivation to be more active for more healthy lifestyle, their programming is bad. Cause they're not doing it. You know, they're not actively encouraging and engaging people that live near the BeltLine that could use it to walk as a safe space. They probably spent 10 times as much on planting trees with Trees Atlanta, then they have engaging people around the neighborhood that could probably use it as a healthy, active space to be in. And that programming is not there at all and that's a complete failure, but they don't care about that. They really don't. The BeltLine cares about getting developments around the BeltLine so they can continue to build the BeltLine.” [AP6]</p>
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	6.12. “This is not for me” sentiment (P)	“I think even now they know what's is there, but they're not going to that. That's not for them... Like not “it wasn't built for me”, but “that's not for me”. I'm not going to go walk anywhere. I have a car; I'm not going to walk.” [AP1]
	6.13. Long term residents do not have established regular physical activity routine (P)	“Those 12 legacy residents, I don't remember them going anywhere to walk, expect their own backyard. I think they're just more sedentary. They just kinda like to be in their home. Maybe in the whole 40 years, they've been here, they've never really gone out and walked around and used parks, so it's not just because one of these amenities shows up and they will use it immediately. If it has not been part of your routine the whole time you've lived here.” [AP1]

APPENDIX J. THE CHANGES IN THE WALKABILITY BETWEEN 2015 AND 2017 MEASURED BY WALK SCORE®

Table J.1: The changes in the walkability between 2015 and 2017 measured by Walk Score

Area	Adair Park	West End	Zip Code 30310	Atlanta (city)
Year	Walk Score®			
2015	52.7	69.1	50.7	N/A
2017	58.1	72.4	52.5	N/A
2020*	55	71	49	48

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