

Research Paper

Residents and urban greenways: Modeling support for the Atlanta BeltLine

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ABSTRACT

Urban greenways have received significant attention due to their many publicized benefits and costs that make them contentious recreational developments. Most prior studies have approached urban greenways from a demand-side perspective solely focused on their users. This study adds to the literature by taking a supply-side approach to assessing resident attitudes towards greenways and using these attitudes to predict support for greenways. Building off of Weber's theory of formal and substantive rationality and social exchange theory, resident support for the Atlanta BeltLine is posited to be a function of different extrinsic and intrinsic factors. Extrinsicly, it is hypothesized support for the BeltLine is a function of residents' frequency of use and their perceptions of how the greenway trail generates economic benefits within their neighborhood. Intrinsicly, it is hypothesized resident support for the BeltLine is a function of how the BeltLine psychologically, socially, and politically empowers or disempowers residents. To test these hypotheses, surveys were distributed across three neighborhoods adjacent to portions of the Atlanta BeltLine using door-to-door systematic census-guided random sampling. The 568 usable surveys (60% response rate) were entered into SPSS' AMOS and used to assess both the construct validity and predictive validity of the measures. The model explained 62% of the variance in support for the Atlanta BeltLine with four of the five antecedents being significant. Implications suggest that support for greenways is more than just a function of frequency of use, but a complicated mix of use and perceptions of the trail's economic benefits and empowerment.

1. Introduction

Urban greenways and the recreational trails associated with them have received significant attention within the popular press as well as academic literature. This attention is due to their many publicized benefits as well as costs that make them popular recreational developments for some stakeholders and areas of contention for others. Most of these prior studies on urban greenways have approached the subject from a demand-side perspective that solely reports findings from the users of greenways (Akpınar, 2016; Byrne et al., 2009; Chon & Scott Shafer, 2009; Lee, Scott, & Moore, 2002). While this demand-side perspective has helped to provide a better understanding of the attitudes, preferences, and behaviors of urban greenway users, large-scale supply-side studies investigating residents' perceptions of living in close proximity to urban greenways are largely absent from the literature (Baur, Tynon, & Gómez, 2013; Corning, Mowatt, & Chancellor, 2012).

Examining urban greenways through the lens of the resident is important for multiple reasons. First, one cannot assume that residents are users of the trails and parks associated with these urban greenways. Second, the positive and negative impacts of urban greenways are

disproportionately felt by residents on a daily basis. Concerns ranging from safety and trespassing to unleashed dogs and owners not cleaning up pet waste are also more commonly voiced by residents rather than users (Corning et al., 2012; Gobster & Westphal, 2004). Additionally, development of urban greenways can cause an increase in property value. This increase may benefit homeowners wishing to sell and leave their neighborhoods, however, as commonly noted within the urban trail literature, it could also lead to increases in property tax and ultimately gentrification if residents' income does not increase commensurately (Wolch, Byrne, & Newell, 2014). Providing credence to these points is Corning et al. (2012, p. 284) who acknowledge that "Although trail research is not new, there is little information on residents and property owners adjacent to trails yet they are an important population as they are potentially more affected by trails than resident property owners living further from the trails." Residents represent an important constituency with the political power to either lobby for increased funding for urban greenways or to lobby legislatures to halt greenway development.

With these factors in mind, this study seeks to add to the urban greenway literature by taking a supply-side approach to assessing

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resident attitudes towards urban greenways and using these attitudes to model support of the Atlanta BeltLine. The Atlanta BeltLine was chosen because, as a large-scale, sustainable recreation and transportation redevelopment initiative currently under construction, it is uniquely suited for the purposes of this study (BeltLine.org, 2016). Of specific interest is understanding why residents support or oppose urban greenways within their neighborhood. Literature has suggested support to be an important factor of urban trail success and sustainability (Gobster, 1995; Gobster & Westphal, 2004), but until now, the antecedents to resident support have yet to be tested. Support for the Atlanta BeltLine is posited to be a function of different extrinsic and intrinsic factors. Extrinsically, it is hypothesized support for the BeltLine will be a function of residents' use and their perceptions of how the greenway trail generates economic benefits within their neighborhood. Intrinsically, it is hypothesized resident support for the BeltLine will be a function of how the BeltLine psychologically, socially, and politically empowers or disempowers residents. These extrinsic and intrinsic factors of urban trail development are investigated through the theoretical lens of social exchange theory (Emerson, 1976) and Weber's theory of formal and substantive rationality (Jagd, 2002). The resulting knowledge provides valuable information regarding how residents perceive and interact with urban trails in their neighborhoods and helps managers and academics better understand the various factors that lead to support or opposition to these controversial recreational developments.

2. Literature review

2.1. Evolution of greenways and urban trails

Greenways and urban trails have evolved over time in response to the physical and psychological pressures of urbanization and have recently appeared to transition from a diffuse state of greenway activities to a well-developed era of greenway planning for the sustainable development of cities (Fabos, 1995; Lindsey, 2003; Searns, 1995; Shafer et al., 2000). This evolution can be encapsulated in three distinct generations of the greenway development. The first generation consisted of axes, boulevards, and parkways that were the ancestral greenways (Schwarz, Flink, & Searns, 1993; Searns, 1995). The second generation consisted of trail-oriented recreational greenways that provide access to rivers, streams, ridgelines, railbeds, and other corridors within the urban fabric, often automobile free (Little, 1990). The third, and current, generation consists of multi-objective greenways that go beyond recreation and beautification to address all aspects of sustainable development including: conservation of urban biodiversity, restoration of ecological services, outdoor education, alternative transportation, economic development, growth management, and other urban infrastructure objectives (Bryant, 2006; Lindsey, 2003; Ryder, 1995). Greenways are now considered an important facet of urban sustainable development and a strategic tool for the planning, design, and management of sustainable landscapes (Lindsey, 2003; Reis & Jellum, 2012).

This evolution of greenways and their many diverse forms across the world make consensus on a precise definition of greenways hard to come by (Ahern, 1995; Searns, 1995). For the purpose of this study we use the definition of greenways provided by Corning et al. (2012), where they describe greenways as *multiuse trails*, which are usually closer to urban population centers, often paved, wider than sidewalks or hiking trails, and more accessible to diverse populations. This definition aligns with the Atlanta BeltLine Trail, first envisioned by Georgia Tech student Gravel (1999). The BeltLine, once completed will create 33 miles of multi-use trail circumnavigating the urban core of Atlanta by repurposing abandoned railroad right-of-ways.

With the important role greenways play in the sustainable development of urban areas, the academic literature has followed with a host of studies on the user experience and user attitudes and preferences for urban greenways (Gobster, 1995; Lindsey et al., 2006;

Matsuoka & Kaplan, 2008; Shafer et al., 2000; Wolch et al., 2010). These studies have provided a rich profile of who urban greenway users are based upon demographic factors such as education, socio-economic status, age and family status (Lindsey et al., 2006; Shafer et al., 2000; Wolch et al., 2010) and how the aesthetics, design of greenways, and perceived crime/safety influences greenway use (Gobster & Westphal, 2004; Kaczynski et al., 2008; Reynolds et al., 2007; Wolch et al., 2010). While users are an important greenway stakeholder and provide valuable feedback on satisfaction with urban greenway experiences, their views do not necessarily represent the views of residents living in communities adjacent to urban greenways as evidenced in Corning et al.'s (2012) previous quote. This study seeks to build off the initial exploratory and qualitative work of Lindsey (2003), Wolch et al. (2010), Corning et al. (2012), and Baur et al. (2013) to quantitatively understand resident perceptions of urban greenways and how these perceptions influence support for proximal urban greenway developments.

2.2. Theoretical framework and proposed hypotheses

While there has been limited quantitative research on resident support for urban greenways, other bodies of literature have been modeling resident attitudes towards other types of recreation and tourism developments for years (Boley, McGehee, Perdue, & Long, 2014; Látková & Vogt, 2012; Nunkoo & Ramkissoon, 2012). Within this body of literature, resident support for recreational developments has been the ultimate dependent variable of interest because residents are viewed as the primary stakeholder who must be won over in order for the development to be considered successful and sustainable (Belisle & Hoy, 1980; Choi & Sirakaya, 2006).

Resident support has been conceptualized using multiple theoretical lenses. Two that are most pertinent to this study on resident support for urban greenway trails are social exchange theory (SET) and Weber's theory of formal and substantive rationality. According to Emerson (1976), SET is a theory stemming from the converging works of sociologists Homans (1958) and Blau (1964) and social psychologists Thibaut and Kelley (1959). SET provides a theoretical framework that suggests actors initiate and maintain favorable social associations because they receive a valued return, called reinforcement or exchange (Ap, 1992). Thus, SET sees an individual exchange as a single point in a series of past and potential future exchanges (Emerson, 1976). A participant's willingness to engage is determined by whether or not the valued return outweighs the cost of participation *over time*, not just during one specific exchange (Ap, 1992; Emerson, 1976). SET is widely used in tourism literature because it can clarify the varying attitudes held by different stakeholders within the host communities toward tourism development based upon their varying perceptions of the costs and rewards (Nunkoo & Ramkissoon, 2012). Advantages of using SET to measure resident perceptions towards urban greenways include its ability to scale from the individual to the community level, explain interactions of networks containing many actors, reconcile market imperfections, and accommodate explanations of both positive and negative perceptions of urban greenways.

While SET possesses the aforementioned advantages, its use is not without limitations, and has been critiqued for assuming all participants gain from exchange and overemphasizing the importance of economic benefits (Boley et al., 2014; Látková & Vogt, 2012). Further, SET assumes actors behave rationally and fails to account for non-economic rationales, thus failing to respond when actors exhibit inconsistent behaviors (McGehee, 2007). One solution suggested by Látková and Vogt (2012) and Boley et al. (2014) is to use social exchange theory in conjunction with other theories so that the economic and non-economic impacts of recreational developments can be considered.

With the complicated impacts of urban greenways on residents, a theory is needed that can cover the range of extrinsic and intrinsic

rationales as to why residents support or oppose urban greenways. One such theory with this capability is sociologist Weber's (1864–1920) theory of formal and substantive rationality. Weber's theory of formal and substantive proposes that rationality is the basis for economic activity, however, rationality in this theory is more complex than just weighing the economic benefits and costs as some have done with social exchange theory. Instead of treating human rationality as being only driven by economic gain, "Weber argued that rationality for economic activity may be formal or substantive (McGehee, 2007, p. 113)." Weber saw this difference in rationalization first hand through examining the differences between the rationalization processes of "Chinese, Indian and ancient Near East civilizations and the rationalization processes that characterize European-American civilization" (Kalberg, 1980, p. 1149). Rather than limiting rationality to Western societies and their focus on capitalism, and subsequently labeling non-Western civilizations as irrational, Weber acknowledged that rationality is inherent in all and is comprised of means-end rational action (formal rationality) as well as value-rational action (substantive rationality) (Kalberg, 1980).

The formal rationality that Weber speaks of is largely motivated by the provision of economic needs (McGehee & Mearns, 1998, p. 7). Formal rationality is "unaffected by errors or emotional factors, and ... directed to a single end, the maximization of economic advantage (Roth & Wittich, 1978; cited in Holton & Turner, 1989, p. 46). Formal rationality coincides with the prevalent use of social exchange theory to explain why residents who benefit financially from tourism usually view tourism impacts more favorably and have more support for tourism development (Boley et al., 2014).

While all are motivated by some sense of formal rationality, Weber writes that 'in reality,' purely formal motivations are unusual because of the tensions that arise from substantive motivations (Roth & Wittich, 1978; cited in Holton & Turner, 1989, p. 46). According to McGehee (2007, p. 113), substantive rationality "describes choices motivated by more than the provision of economic needs." Roth & Wittich (1978, cited in Jagd, 2002) describe substantive rationality as full of ambiguities because of the many different personal values that shape this type of rationality. Kalberg (1980, p. 1155) describes substantive rationality as being guided by a 'values-postulate'. This implies that human action can be guided by the necessity for internal consistency and that one's actions are consistent with the values that he or she holds (Kalberg, 1980). According to Weber, these two types of rationality coexist and the existing tension between the two result in how people make economic decisions (Jagd, 2002; Kalberg, 1980).

Weber's theory of formal and substantive rationality is useful for the investigation of resident attitudes towards urban greenways because resident support for urban greenways is likely based upon a mix of formal benefits such as frequency of use and perceptions of economic benefits, as well as substantive benefits in the form of pride, community development, and political empowerment. Below are five proposed hypotheses grounded in this combined social exchange and Weberian theoretical perspective (Fig. 1).

2.2.1. Frequency of use and support for urban greenways

Use has justifiably been one of the most commonly studied aspects of urban greenways (Gobster, 1995; Jim & Chen, 2006; Lee et al., 2002). While use has yet to be included as antecedent to support for urban greenways, social exchange theory and the formal portion of Weber's theory of formal and substantive rationality would suggest the more residents use urban greenways, the greater their support for the greenway would be. Research also asserts that the users of urban greenways are the ones who are reaping the physical, psychological, and social benefits that urban greenways provide (Kaczynski et al., 2008; Ross et al., 2012; Wolch et al., 2014). Stemming from this logic, we hypothesize a positive and significant relationship between residents' frequency of use of the Atlanta BeltLine and their support for the BeltLine.

H1. *Frequency of use will have a positive and significant relationship with support for the Atlanta BeltLine.*

2.2.2. Economic benefits and support for urban greenways

One of the publicized benefits of urban greenways is their potential to generate economic benefits (Corning et al., 2012; Lindsey et al., 2004; Nicholls & Crompton, 2005; Siderelis & Moore, 1995). The formal portion of Weber's theory would suggest the more residents perceive their neighborhood economically benefiting from the development of the urban trail, the more they would support the trail. On the other hand, residents may be concerned rising property taxes will push them out of the neighborhood. Social exchange theory would also posit the more residents perceive the economic benefits of urban trails, the more they would support them because the associated benefits help outweigh the costs of urban greenways and work to tilt the scale in favor of resident support for urban greenways. This logic has been substantiated within the tourism literature where the personal and community economic benefits of tourism have been shown to positively influence resident support for tourism (Perdue, Long, & Allen, 1990). With this in mind, the following hypotheses was tested:

H2. *Resident perceptions of the Atlanta BeltLine Trail's influence on neighborhood economic benefits will have a significant and positive relationship with support the trail within the neighborhood.*

2.2.3. Empowerment and resident support for urban greenways

A substantive factor likely to influence resident support for urban greenways is their perceptions of how the development and the presence of greenways psychological, social and political empower or disempower them. Scheyvens (1999) defines psychological empowerment as occurring when residents' pride and self-esteem are enhanced through recreation and tourism developments that highlight the uniqueness and value of the community. In essence, residents feel special because others are appreciative of the unique natural and cultural resources of their community. Boley et al. (2014), Maruyama, Woosnam, and Boley (2017), Strzelecka, Boley, and Strzelecka (2017) have all found the enhancement of pride and self-esteem associated with psychological empowerment to have a positive and significant relationship with support for tourism. In the context of urban greenways, it is believed the development of urban greenways can be a source of pride that boost residents' self-esteem. Forgotten neighborhoods could potentially be rediscovered through the development of urban trails making residents who were previous complacent or embarrassed of their neighbor reassess the neighborhood's value. Based upon the potential substantive benefits associated with psychological empowerment the following hypothesis is proposed:

H3. *Perceived psychological empowerment will have a significant and positive relationship with support for the Atlanta BeltLine.*

Social empowerment refers to a recreation or tourism development's potential to increase neighborhood cohesion and resiliency (Scheyvens, 1999). Improvement in community unity and social ties can occur when a recreational development encourages the community to work together towards a common goal or increases positive social interaction between community members (Boley et al., 2014). Evidence already exists in the greenway literature of how greenways improve social cohesion by increasing connectivity within a neighborhood, creating opportunities to exercise, and enhancing social interaction between neighbors (Corning et al., 2012; Shafer et al., 2000). Both social exchange theory and the substantive component of Weber's theory would suggest that the more residents see urban greenways as an impetus for community building and social cohesion, the more they will support urban greenways. Strzelecka et al. (2017) and Maruyama et al. (2017) found that the improvement in social ties and neighborhood cohesion associated with social empowerment had a positive and significant

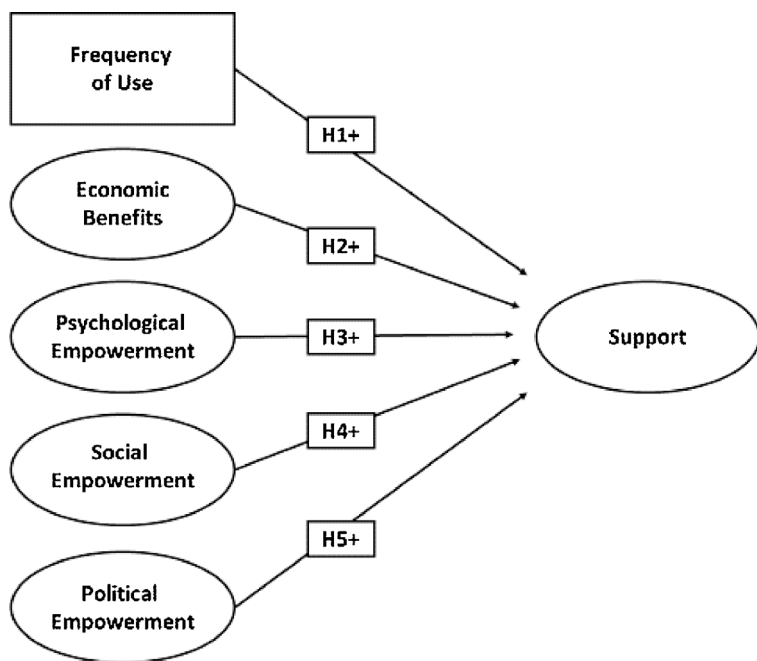


Fig. 1. Proposed Structural Model of Support for the Atlanta BeltLine.

relationship with support for tourism. Based upon evidence from the greenway literature of the substantive positive benefits of social empowerment and past findings of a positive relationship between perceptions of social empowerment and support for tourism, the following hypothesis was proposed:

H4. *Perceived social empowerment has a significant and positive relationship with support for the Atlanta BeltLine.*

Political empowerment has been a dimension of empowerment focused on a community’s agency and control over development decisions. Scheyvens (1999) characterized political empowerment as when community priorities and concerns are heard and guide the entire development process (Scheyvens, 1999). Cole (2006, p. 631) stated that political empowerment is the upper end of the Arnstein’s (1969) participation ladder where residents are “active agents of change and they have the ability to find solutions to their problems, make decisions, implement actions and evaluate their solutions.” This definition of political empowerment closely resembles procedural justice, an aspect of environmental justice requiring affecting people to have continual access to decision making as scientific knowledge improves and the impacts of development become known (Ottinger, 2013). Substantive rationality suggests resident support for greenway development will increase or decrease commensurate to the amount they perceive themselves as able to meaningfully participate in the decision-making process to achieve a desired outcome. Evidence from the tourism literature, however, suggested that political empowerment may not have a positive or significant relationship with support for tourism (Boley et al., 2014; Strzelecka et al., 2017; Maruyama et al., 2017). Regardless, facilitating community participation in decision-making remains an important component of sustainable development (Scheyvens, 1999). Given the divergence in the literature surrounding political empowerment’s relationship to support for tourism development, the following hypothesis was put forward to gauge political empowerment’s relationship to resident support in the context of an urban greenway:

H5. *Perceived political empowerment has a positive relationship with support for the Atlanta BeltLine.*

3. Methods

3.1. Site selection

The model and five hypotheses were tested through a survey administered to residents living in neighborhoods adjacent to segments and spurs of the Atlanta BeltLine Trail. The Atlanta BeltLine Trail was chosen for this study in light of how Atlanta’s nascent greenway system is uniquely positioned for research on sustainable growth. The city of Atlanta contains over 463,000 residents, a population increase of 10.4% since the 2010 census, and is located within a metropolitan area that contains over 5.6 million people (U.S. Census Bureau, 2016). Atlanta currently struggles with overburdened infrastructure, air pollution, and is one of the highest ranking cities in terms of income inequality in the U.S. (Berube & Holmes, 2015; Ross et al., 2012). The Atlanta BeltLine proposes to address these challenges through a sustainable recreation and transportation redevelopment initiative that repurposes 22-miles of abandoned railroad right-of-ways into a continuous ‘green belt’ of trails and railcar line around the urban core (BeltLine.org, 2016; Kirkman, Noonan, & Dunn, 2012) (Fig. 2). The anticipated outcomes are alternate transportation, affordable housing, and economic development within the 45 neighborhoods it will connect once completed (BeltLine.org, 2016; Garvin, Garvin, Schroder, & Haskell, 2004).

With only a few segments of the proposed 33 total miles of trails developed and open for use, the decision was made to focus the research on the areas with pre-existing trails, so that the impacts of the trail on residents could actually be measured rather than asking residents to think about the hypothetical impacts of future trail development. The three neighborhoods and trail segments of focus for the study are located on the Eastside, Northeast side, and Southwest side of Atlanta (Fig. 3). The Eastside Trail is a two-mile trail segment that runs north-to-south from 10th Street and Monroe in the north to Irwin Drive in the South and was the first segment of the Atlanta BeltLine to be completed. The Eastside Trail connects Atlanta’s Piedmont Park to the Stone Mountain Trail and Freedom Park (BeltLine.org, 2016). Neighborhoods adjacent to this segment of the trail include Mid-Town,

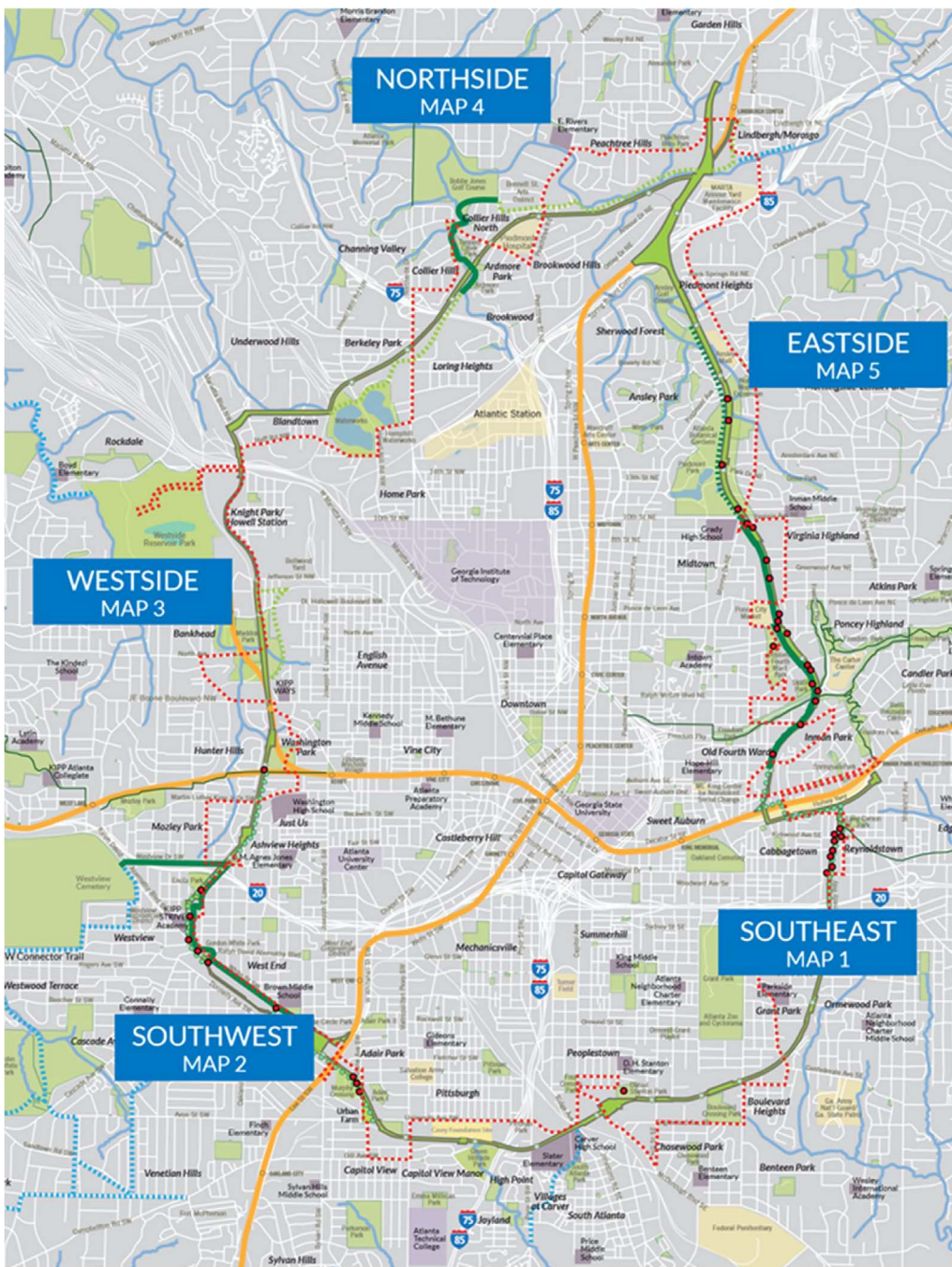


Fig. 2. Atlanta BeltLine Overview Map. Retrieved from: BeltLine.org.

Virginia Highlands, Old Fourth Ward and Poncey Highland. The demographics of residents living within these neighborhoods vary, but for the census tracts where the sample was taken (Census Tracts 13 and 14), residents are primarily white (70–85%) with the median age between 34 and 37 years old and a median household incomes between \$57,000 and \$70,000 (USA.com, 2016). The Eastside Trail was initially used for a pilot test of the survey and the data collection methodology, but with its success in obtaining an adequate sample size (n = 147) and including identical questions to those administered in other neighborhoods, the decision was made to include the pilot test data with the collected data from the two other neighborhoods.

The Northside Trail is a one-mile greenway spur of the BeltLine that runs along Tanyard Creek Park and connects the neighborhoods of Ardmore Park and Collier Hills (Fig. 3). The demographics of residents living within these neighborhoods vary, but for the census tracts where

the sample was taken (Census Tract 90 and 91.01), residents are primarily white (74–90%) with a median age between 32 and 34 years old and a median household income between \$70,000 and \$104,000.

The Southwest Connector Trail is a 1.15-mile greenway spur of the BeltLine that connects the Lionel Hampton Trail and Nature Preserve to Westwood Avenue on the southwest side of the city. This trail is situated in the Beecher Hills, Bollingbrook, Westwood and Westview neighborhoods, which were established as *de facto* Caucasian neighborhoods in the first half of the twentieth century. They transitioned to middle and working class African American neighborhoods after *de jure* desegregation was outlawed and have experienced economic decline in recent decades due to out-migration of middle class African Americans from the city. The demographics of residents living within these neighborhoods are homogenous. According to the census tracts where the sample was taken (Census Tract 80 and 81.01), residents are

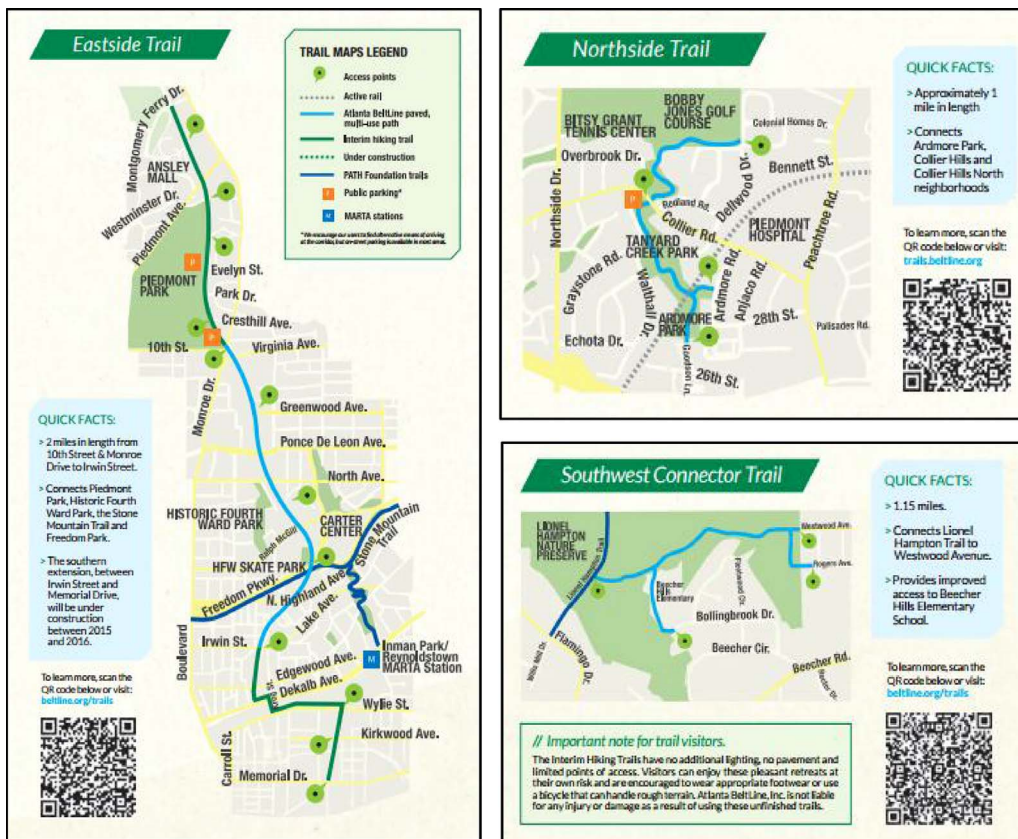


Fig. 3. Maps of Three Neighborhoods Surveyed. Retrieved from: BeltLine.org.

primarily black (96%) with the median age between 39 and 46 years old, with a median household income between \$29,000 and \$38,000.

3.2. Survey and distribution

Five constructs were used to model resident support for the Atlanta BeltLine. Frequency of use was measured by first asking residents if they had ever used the BeltLine. If residents answered yes, they were asked how often with the categories being ‘rarely,’ ‘monthly,’ ‘weekly,’ and ‘multiple times a week.’ This information was combined into one categorical variable of use ranging from zero equaling ‘never’ and four representing ‘multiple times a week.’ The construct of ‘economic benefits’ was developed specifically for this study and includes three items that measure residents’ perceptions of how the urban greenway in their neighborhood impacts neighborhood business development. Rather than develop new scales *sine exemplo*, this study adapts instruments used in the tourism literature to measure resident support for urban trails and seeks to validate them within an urban trail context. To measure the BeltLine’s impact on psychological, social, and political empowerment, a modified version of Boley and McGehee (2014) 12-item Resident Empowerment through Tourism Scale (RETS) was used. The ‘Support for the BeltLine’ scale is a modified four item version of Boley and Strzelecka’s (2016) ‘Support for Tourism Scale. Both scales were slightly modified by changing the context from tourism’s empowerment of the local people and their support or opposition to tourism in their local community to the context of how Atlanta residents living in close proximity to the BeltLine are empowered and whether or not they support the BeltLine’s presence in their neighborhood.

The survey was distributed to residents across the three neighborhoods using proportionate census-guided random sampling. Proportionate census-guided systematic random sampling was implemented to ensure representativeness of residents living in close proximity to the BeltLine (Boley & McGehee 2014; Woosnam, 2008).

Proportionate census-guided systematic random sampling utilizes the US Census Bureau’s census tracts and block groups to develop a stratified sampling framework for neighborhoods based upon the number of households in each census block (Woosnam, 2008). Each census tract is believed to represent a homogenous group of residents with similar socio-demographic characteristics (Woosnam, 2008). With the goal being to administer 300¹ surveys to residents along each trail section, the target sample number was multiplied by the percentage of households living within each block of each block group to ensure that the census tract was proportionately sampled according to the number of households residing in each block.

Our sampling method was pilot tested in a neighborhood bordering the Atlanta BeltLine’s Eastside Trail on census tracts 13 and 14. These census tracts were subdivided into 3 and 2 block groups respectively, which yielded 54 individual neighborhood blocks for survey distribution. After confirming the viability of the sampling framework, portions of census tracts 90 and 91.01 containing a neighborhood adjacent to the Northside trail were surveyed. These census tracts were further divided into 2 and 4 block groups respectively, which covered 36 neighborhood blocks. Census tracts 80.5, 81.01 and 60 were used for the Southwest side neighborhood and were further divided into 1 and 3 block groups respectively which led to survey distribution in 64 neighborhood blocks.

Using this sampling framework, three research groups led by the primary investigator distributed surveys door-to-door during March and April of 2016. Door-to-door distribution was chosen based upon the technique’s ability to achieve high response rates, obtain a sample reflective of the neighborhood, and include minority groups that may otherwise be overlooked (Woosnam, 2008). Researchers started at the corner of each block and went door-to-door asking residents to participate in the study in a clockwise rotation. If a resident agreed to

¹ 200 surveys were allotted for the Eastside neighborhood since that was the pilot test.

participate in the study, a single survey was left with the head of the household who had the most recent birthday to be picked up later in the afternoon. If they participated or declined, researchers would skip the next residence and proceed to the following residence. However, if no one answered the door, researchers would proceed to the next immediate residence. This process repeated until the quota of surveys for each census block was met.

Across the 154 blocks surveyed, eleven blocks (~8%) were not entirely sampled using the above methodology. This alteration was due to either gated apartment complexes that prevented knocking on residents' doors or not enough residents answering the door on the first walk through the block. In these cases, the first procedure was to re-sample the block by visiting every household. If this sampling technique did not produce the number of allotted surveys for the block, the remaining surveys were distributed within the same block group to ensure representativeness at the block group level.

During the four-week period of data collection, 2583 households were visited resulting in contact with 939 eligible residents who were 18 years of age and permanent residents. Out of the 939 eligible households, 797 residents were willing to participate with 142 declining. This resulted in an initial acceptance rate of 84%. Of the 797 surveys distributed, 584 were returned. Cleaning for incomplete or haphazardly completed surveys yielded a total of 568 usable surveys. This approach resulted in 60% of the contacted households successfully completing the survey and participating in the study. Respondents were slightly more likely to be female (51%) than male (49%) and were 55.8% white, 32.4% black, 3.5% Hispanic and 3.1% Asian. The median age of respondents was 41 years with 71.8% having a four-year college education or higher. Average household income ranged from less than \$30,000 to over \$210,000, with the median of respondents falling in the \$60,000 to \$89,999 range (19.7%).

4. Results

4.1. Confirmatory factor analysis results

Before testing the hypotheses within the proposed model, confirmatory factor analysis (CFA) was performed to assess model fit and construct validity. *Frequency of use* was excluded from the CFA because it is measured by a single item. Model fit is a series of tests to see how well the covariance matrix from the sample matches the proposed model (Kenny, 2015). The CFA revealed good model fit: $\chi^2 = 580.617$, ($p < .001$); normed- $\chi^2 = 3.318$, RMSEA = 0.064, and CFI = 0.96. The chi-square statistic is known to be sensitive to large sample size, thus other overall fit statistics, such as the Root Mean Square Error of Approximation (RMSEA) and the normed chi-square, should also be examined to account for bias against large sample sizes (Hair, Black, Babin, Anderson, & Tatham, 2010). Overall fit was determined adequate due to RMSEA being below the standard cutoff value of 0.08 and normed- χ^2 falling within the acceptable range of 2.0 and 5.0. Likewise, incremental fit, measured by CFI, exceeded the threshold of 0.90 exhibiting adequate incremental fit considering sample size and model complexity (Hair et al., 2010).

Similarly, the CFA revealed strong construct validity. Construct validity is a test of “the extent to which a set of measured items actually reflect the theoretical latent constructs those items are designed to measure” (Hair et al., 2010, p. 686). The four subcomponents of construct validity include content/face validity, convergent validity, discriminant validity and nomological validity (Hair et al., 2010). Content/face validity is established by forming a nexus between the language of the items and the definition of the underlying construct. The definitions of the constructs were adapted from the tourism literature, and the verbiage of the items were crafted by a team of three academic researchers. Convergent validity, which shows that indicators for a specific construct share a high amount of common variance with the latent construct is demonstrated when the standardized factor

loadings are significant and greater than 0.5, average variance extracted (AVE) estimates exceed 50%, and the construct reliability (CR) exceeds 0.7 (Hair et al., 2010). Table 1 reveals the indicators all possess standardized factor loadings above 0.5 and are significant at the 0.05 level. The constructs also all possess an AVE over the 50% threshold and have CR values exceeding the 0.7 goal. These aspects taken together indicate strong convergent validity.

Discriminate validity gauges the extent that constructs included in the model are independent from one another. A conservative test for establishing discriminate validity between constructs is to compare the AVE estimates to the squared correlation between the constructs (Hair et al., 2010). The AVE estimates greater than the squared correlation between constructs indicate the constructs explain more variance than they share. As shown in Tables 1 and 2, all but one construct had AVEs that exceed the square correlations between constructs. There is a high squared correlation between social empowerment and psychological empowerment (0.71), but psychological empowerment's higher AVE estimate of 79% demonstrates the two constructs are in fact unique. Nomological validity examines whether the proposed model supports the theorized relationships between the constructs (Hair et al., 2010). Nomological validity was demonstrated through the significant and positive correlations found between the four independent variables and support for urban greenways. The preceding tests of convergent, discriminate and nomological validity substantiates the construct validity of the scales included within the model, permitting an analysis of relationships at the structural level.

4.2. Structural equation model results

Following the validation of the measurement model, the five proposed hypotheses were tested using SEM. The same model fit measures used in CFA were used in SEM to see how well the proposed model fit the data (Hair et al., 2010). The SEM revealed fit statistics slightly lower than those revealed in CFA, but remained within the appropriate guidelines: $\chi^2 = 511.428$, ($p < .001$); normed- $\chi^2 = 3.778$, RMSEA = 0.063, and CFI = 0.96. The hypotheses were tested using the statistical significance of the construct's relationship and the direction of that relationship. Overall, the SEM was able to explain 62% of the variance for support of the Atlanta BeltLine. Four of the five hypotheses were supported by the SEM model (Table 3). The extrinsic hypotheses proposing support for the BeltLine will be a function of resident's use ($\beta = 0.187$; $p < 0.001$) and perceptions of how the BeltLine influences economic benefit within their neighborhood ($\beta = 0.198$; $p < 0.001$) were both supported. Thus, use and economic benefits have a significant, positive relationship with support for the Atlanta BeltLine.

Additionally, the intrinsic hypotheses that resident support for the BeltLine will be a function of how the BeltLine psychologically ($\beta = 0.387$; $p < 0.001$) and socially ($\beta = 0.187$; $p < 0.017$) empowers or disempowers residents were both supported. Results show that psychological empowerment, and to lesser degree social empowerment, are significant predictors of resident support for the Atlanta BeltLine. The SEM model did not support the hypothesis that resident support for the BeltLine will be a function of how the BeltLine politically empowers or disempowers residents ($\beta = -0.058$; $p = 0.142$).

5. Discussion and conclusions

This study sought to contribute to the urban greenway literature by exploring why Atlanta residents support or oppose portions of the Atlanta BeltLine within their neighborhoods. With this study being one of first quantitative supply-side studies, there are numerous theoretical and managerial implications. For academics who study landscape and urban planning, the combination of SET and Weber's theory of formal and substantive rationality provides a novel lens for understanding residential support for urban greenways. Incorporating both Weber's theory and SET in the same theoretical framework permits the

Table 1
Confirmatory Factor Analysis of Measurement Model.

Scale and item description ¹	N	Mean	R	Error	AVE	CR
Psychological Empowerment					79%	0.95
<i>The Atlanta BeltLine...</i>						
Makes me proud to live in this neighborhood.	566	4.01	0.90*	0.17		
Makes me feel special to live in this neighborhood.	564	3.83	0.90*	0.20		
Makes me want to tell others about what we have to offer in my neighborhood.	565	4.00	0.92*	0.15		
Reminds me that I live in a unique neighborhood.	562	4.01	0.89*	0.19		
Makes me want to work to keep my neighborhood special.	566	4.02	0.82*	0.29		
Social Empowerment					66%	0.86
<i>The Atlanta BeltLine...</i>						
Makes me feel more connected to my neighborhood.	564	3.80	0.85*	0.28		
Provides ways for me to get involved in my neighborhood.	565	3.54	0.73*	0.41		
Fosters a sense of ‘community spirit’ within me.	562	3.63	0.85*	0.27		
Political Empowerment					70%	0.90
I have a voice in development decisions pertaining to the BeltLine Trail.	561	2.71	0.87*	0.26		
I have access to the decision making process when it comes to the BeltLine Trail.	561	2.67	0.89*	0.23		
My vote makes a difference in how the BeltLine Trail is developed.	559	2.88	0.83*	0.32		
I have an outlet to share my concerns about the BeltLine Trail.	559	2.95	0.76*	0.44		
Perceived Economic Benefits					66%	0.83
My neighborhood benefits economically from the BeltLine Trail.	563	3.68	0.85*	0.34		
New businesses have come into this neighborhood because of the BeltLine Trail.	562	3.33	0.79*	0.46		
The BeltLine Trail has increased opportunities for business expansion in this neighborhood.	564	3.57	0.80*	0.39		
Support for the BeltLine					75%	0.94
In general, the positive benefits of the BeltLine Trail outweigh its negative impacts in my neighborhood.	565	4.35	0.78*	0.37		
I believe the BeltLine Trail should be actively encouraged within my neighborhood.	564	4.39	0.91*	0.14		
I support the BeltLine Trail.	562	4.46	0.91*	0.13		
My neighborhood should continue to support the BeltLine Trail.	563	4.39	0.87*	0.20		
Frequency of Use					Percent of Responses	
Never					21.5%	
Rarely					11.5%	
Monthly					17.9%	
Weekly					22.4%	
Multiple Times a Week					26.6%	

Note: Measure of model fit: RMSEA = 0.064; CFI = 0.96.
 R = standardized regression coefficient; AVE = average variance extracted; and CR = construct reliability.
 *p = 0.001; Scale: 1 = Strongly Disagree to 5 = Strongly Agree.

Table 2
Correlations and Squared Correlations between Constructs within the Model.

	SB	PSY	SOC	POL	ECON
Support for the BeltLine (SB)	1.00	0.56	0.48	0.08	0.43
Psychological Empowerment (PSY)	0.75	1.00	0.71	0.16	0.57
Social Empowerment (SOC)	0.69	0.84	1.00	0.28	0.51
Political Empowerment (POL)	0.29	0.40	0.53	1.00	0.21
Economic Benefit (ECON)	0.66	0.76	0.71	0.45	1.00

Note: Values below the bold diagonal line are correlation estimates among constructs and values above the diagonal are squared correlations. All correlations are significant at p = 0.001.

Table 3
Results of the Structural Equation Model Testing Antecedents to Resident Support for Urban Greenways.

Hypotheses	Hypothesized Relationship	β	p	Support for Hypothesis
H1	Use → Support	0.187	< 0.001	Y
H2	Economic Benefits → Support	0.198	< 0.001	Y
H3	Psychological empowerment → Support	0.387	< 0.001	Y
H4	Social Empowerment → Support	0.187	0.017	Y
H5	Political Empowerment → Support	-0.058	0.142	N

Note: Measure of model fit: RMSEA = 0.063; CFI = 0.96.
 R² for “Support for BeltLine = 0.62.

examination of extrinsic factors, such as use and economic benefits, and also intrinsic factors, such as psychological, social, and political empowerment (Boley et al., 2014). Using this theoretical framework and the findings that support for the Atlanta BeltLine is more than just a function of frequency of use, researchers now have the needed theoretical and practical support for investigating a myriad of other potential antecedents to residential support for urban greenways. The non-use constructs’ ability to predict support for the BeltLine affirms Baur et al.’s (2013) claim that resident nonusers represent an underutilized source of support for urban greenways. Findings also provide credence to Corning et al.’s (2012) emphasis on the need for more research on “residents and property owners adjacent to trails.” For researchers looking to build upon this initial research, the CFA demonstrates the construct validity of the scales used to measure support for urban greenways, perceptions of psychological, social, and political empowerment, and perceptions of economic benefits from urban trails. These scales can be used as building blocks for other researches interested in modeling resident support for urban greenways.

These findings also have practical implications for planners and managers of urban greenways. First, this study provides strong support for considering the resident perspective when developing urban greenways. While these urban greenways are often hailed as key components of developing 21st century sustainable cities (Lindsey, 2003; Salici, 2013), research has arguably over focused on the users of urban greenways. With residents holding the political clout to fund urban greenways through special purpose local option sales tax (SPLOST) initiatives and to elect commissioners who can approve or disapprove greenway development plans, there has been limited understanding of why residents support or oppose urban greenways. Results suggest

resident support for urban greenways is a function not just of use, but of how the greenways economically benefit the neighborhood and psychologically and socially empower residents. With these results in mind, greenway planners interested in boosting residential support for greenways should hold charrettes with neighborhood residents that focus on designing greenways that will spur the tangible economic benefits sought in urban development projects and boost resident pride and community cohesion (Bueno, Tsihrintzis, & Alvarez, 1995; Lindsey, Maraj, & Kuan, 2001). These charrettes could cover a range of issues leading to economic development from the trail such as low interest loans, tax incentives for business development, and greenway locations that would maximize flow from recreational use to shopping and entertainment venues.

Other core areas of focus for greenway planners should be on how greenways can better foster psychological and social empowerment among residents. Psychological empowerment was the strongest predictor of support for urban greenways, which suggests that residents are particularly sensitive to the impact of urban greenways on their pride and self-esteem. The strong relationship between boosting residents' pride and self-esteem and their support for recreation and tourism development has also been noted by Boley et al. (2014), Maruyama et al. (2017), Strzelecka et al. (2017). This study's findings provide further credence to the important influence recreation and tourism developments can have on the identities of residents. With this in mind, greenway developers should consider allowing neighborhood trails segments to aesthetically vary by the unique physical and human geography of the neighborhood. For example, if a neighborhood is known for a certain type of art, then pride could be increased if artists from that neighborhood are commissioned for murals along the trail that depict the neighborhood's unique qualities. It should be noted that at the time of this research there was a lot of hype over the development of the Atlanta BeltLine because only a few of the proposed 33 miles were completed. It is possible that psychological empowerment was particularly strong among residents in the neighborhoods sampled because these residents had a recreational asset that others in the city coveted. Psychological empowerment could potentially fade as more sections of the trail are completed and the novelty of having the BeltLine within one's neighborhood fades.

Resident perceptions of social empowerment were also significant predictors of support for the BeltLine. Greenway planners need to take into consideration how urban greenways can aid in the revitalization of neighborhoods where the urban greenway acts as a pillar of unity and cohesion without being an impetus of gentrification (Wolch et al., 2014). This is a tough balancing act, but paramount for the greenway to be considered a successful and sustainable development. The Atlanta mayor, Kasim Reed, has already initiated the Anti-Displacement Tax Fund Program to help qualified homeowners along the BeltLine's Westside Trail offset the costs of higher property taxes (Abraham, 2017). Longitudinal research needs to follow up residents to see how psychological and social empowerment change over time and if these two types of empowerment still significantly predict support five and ten years after a trail is built.

5.1. Limitations & future research

As with all research, limitations exist with this study. One in particular is the high squared correlation between social empowerment and psychological empowerment. While psychological empowerment's AVE was higher than the squared correlation between social empowerment and psychological empowerment, future research may want to refine the indicators for social empowerment to increase the construct's AVE and thus make the constructs more unique and share less variance. Another limitation of the research is its quantitative nature. While large-scale data collection is one of the proposed benefits of our study, little is known about what leads to why residents perceive the greenway as psychologically and socially empowering them and providing

economic benefits to the neighborhood. Additional research should follow-up with qualitative interviews of residents to answer more of the 'why' questions. This approach could be beneficial to greenway planners looking for tangible ways to increase resident support for urban greenways.

An additional limitation of this study is that the model is only tested in one urban context. Before extensive conclusions can be drawn on the factors leading to residential support for urban greenways, more research needs to test the presented model. Hence, the survey should be administered across distinct regions and cultures to see if the impact of empowerment, use, and economic benefits have the same relationship with support for urban greenways in different contexts. Another line of research could be to see if these constructs predict support for greenway development the same way in a rural setting as well as they do in urban Atlanta. Future research could also incorporate new theories into the theoretical framework to generate new constructs for modeling resident support.

Urban greenway research focusing on residents and their perceptions of the costs and benefits of urban greenways within their neighborhood is still in its infancy. This study adds to that nascent field by modeling why residents support or oppose urban greenways. This study supports an approach that looks beyond metrics of use and takes a holistic perspective, accounting for resident attitudes of both users and non-users impacted on a day-to-day basis. Both intrinsic and extrinsic factors were found to play a significant role in determining how residents view greenways passing through their neighborhoods. These findings inform greenway managers and developers that they can increase support and potentially lower opposition to future development by appealing to the pride, social cohesion, and potential economic benefits greenways bring to neighborhoods.

Paper's suitability for landscape and urban planning

Our study is the first large-scale study to quantitatively examine resident support for an urban greenway. While user attitudes towards greenways have been extensively studied, little is known regarding the formation of resident attitudes towards these greenway developments. As the premier journal for research on urban greenways (e.g., Ahern, 1995; Fabos, 1995; Gobster, 1995), this paper fits within *Landscape and Urban Planning's* aim to promote sustainable solutions by addressing a shortfall in the understanding of urban resident's attitudes towards greenways in their neighborhoods.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.landurbplan.2017.09.006>.

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