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An Exploration of the Relationships Between Sense of Community, Park Benefits, and Neighborhood Park Use

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AN EXPLORATION OF THE RELATIONSHIPS BETWEEN SENSE OF COMMUNITY, PARK BENEFITS, AND NEIGHBORHOOD PARK USE

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ABSTRACT

AN EXPLORATION OF THE RELATIONSHIPS BETWEEN SENSE OF COMMUNITY, PARK BENEFITS, AND NEIGHBORHOOD PARK USE

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The purpose of this study was to explore the relationship between park use by residents that live within a ¼ to ½ mile radius of their neighborhood park, perceived benefits from neighborhood parks, and neighborhood sense of community (SOC) in three Norfolk, Virginia neighborhoods. The neighborhoods included Titustown, Colonial Place, and Edgewater. There is a lack of research regarding the relationship between neighborhood parks, perceived recreation benefits from neighborhood parks, and their relationship to neighborhood SOC (Gómez, Baur, Hill, & Georgiev, 2015). Participants completed a questionnaire that included the Sense of Community Index-2 (SCI-2), demographic questions, park usage questions, and park benefit questions. The SCI-2, which is a measurement tool based on the theoretical framework of SOC by McMillan and Chavis (1986), was used to rate their level of SOC in their neighborhoods. A second scale, the Perceived Benefits of Municipal Parks (PBMP) Scale (after Gómez, 1999) was used to measure benefits. Questionnaires were administered in person in the neighborhoods.

Descriptive statistics examined demographic characteristics and park use questions. Confirmatory factor analysis (CFA)/structural equation modeling (SEM) was used to confirm the two scales used in the study. Pearson correlations (*r*) were used to

assess if there was a direct relationship between park use and SOC. Additional correlations explored the relationship between (a) access to the park, (b) perception of the park, (c) park use, (d) SOC, (e) benefits, and (f) length of stay at the park. Independent samples *t*-tests were performed to see if there are differences with respect to users and non-users of the parks. Independent samples *t*-tests and ANOVAs were used to explore demographic differences. All analyses were performed at $p < .05$. Results indicate there is a significant but weak relationship between park use and SOC; however, park use was not a significant predictor of SOC. Results show a significant relationship between perceived park benefits and SOC, and benefits was a significant predictor of SOC. Practitioners can use findings to provide support for parks as catalysts to increase SOC in neighborhoods. Academics can use the scales for future research in parks and recreation management.

Dedication

This dissertation is dedicated to my husband and daughter. It has been a long three years with many ups and downs, but their love and support has sustained me through this process. My family and friends have encouraged me when I needed it. It is over, and I have done it! Thank you for everything.

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I would also like to thank my employer for their patience and understanding. They have worked with me while I was taking classes and teaching. I am lucky enough to have co-workers that will cover a class and understand what I have been going through to complete this program.

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CHAPTER 1

INTRODUCTION AND PURPOSE STATEMENT

In the United States (U.S.), 80.7% of the population live in urban areas, and from 2000 to 2010, the urban growth rate (12.1%) has outpaced the overall growth rate (9.7%) for the country (United States Census Bureau, 2012). People are increasingly returning to urban neighborhoods and it is important to provide parks in communities to promote healthy social interactions and connections (Lee, Jordan, & Horsley, 2015). Social interaction affects a wide range of health outcomes, including physical, social, and psychological aspects of health (Umberson & Montez, 2011).

Urban parks have a long history in the United States. They are places where residents can congregate for physical activity, social gatherings, and provide a sense of community (Coombes, Jones, & Hillsdon, 2010; Ellis, & Schwartz, 2016; Kuo, Sullivan, Coley, & Brunson, 1998; Ulrich & Addoms, 1981). In the 19th century, Frederick Law Olmstead pioneered the design and creation of large-scale urban parks. Some of them include Central Park and Prospect Park in New York, Belle Isle in Michigan, Cherokee Park in Kentucky, and many others (Eisenmen, 2013). At the time, urban areas were viewed as fast-paced and impersonal. These urban parks and green spaces provided city residents and visitors with a place to relax and take a break from everyday life.

The role of urban parks has changed over time where parks are more than just a space for recreation. Urban parks have been resources for the public in areas such as culture, education, and community development (Ellis & Schwartz, 2016). Culturally, urban parks have provided gathering places to enjoy outdoor events (e.g., concerts, art

shows, festivals, and plays). These events attract community members and allow them to create a space that is culturally enriching, which often engenders a stronger sense of belonging and engagement (Campelo, Aitken, Thyne, & Gnoth, 2014; Ellis & Schwartz, 2016). Community engagement has an impact on a number of health outcomes, including the physical and psychological aspects of health (Umberson & Montez, 2011). The focus of this dissertation is the latter.

As more people relocate to urban settings, neighborhood parks can provide spaces for individuals and communities to gather, form informal social connections, and create a sense of community (DeGraaf & Jordan, 2003; Francis, Giles-Corti, Wood, & Knuiman, 2012). The purpose of this study is to explore the relationship between park use and neighborhood sense of community (SOC) by utilizing the SCI-2 which is a measurement tool based on the theoretical framework of sense of community (SOC) by McMillan and Chavis (1986).

Statement of the Problem

Neighborhood parks do not generate income so the cost to maintain them needs to be justified for residents and policy makers. Literature supports the importance of neighborhood parks as community-building resources, yet there is a lack of research regarding the relationship between neighborhood parks, perceived recreation benefits from neighborhood parks, and their relationship to neighborhood sense of community (SOC) (Gómez, Baur, Hill, & Georgiev, 2015).

Purpose

The purpose of this study is to explore the relationship between neighborhood sense of community (SOC) in three Norfolk, Virginia neighborhoods, perceived

recreation benefits from neighborhood parks, and park use by residents who live within a ¼ to ½ mile radius of their neighborhood park. The neighborhoods include Titustown, Colonial Place, and Edgewater.

Significance of the Study

Park planners and policy makers need to be informed by research to provide opportunities to promote healthier communities in urban settings. Conducting research on the neighborhood parks and how those parks elevate or diminish a neighborhood's sense of community (SOC) could assist planners and policy makers in determining the best way to manage the resource for urban dwellers and offer a community-building perspective currently lacking in the justification for parks in urban neighborhoods. Regardless of whether people use or do not use neighborhood parks, green areas affect neighborhood social ties (Kuo, Sullivan, Coley, Levine & Brunson, 1998) and the presence of natural areas contribute to the quality of life in cities (Chiesura, 2004). Therefore, it is important to explore how the perception of benefits derived from parks (regardless of, or in addition to, usage) relates to overall SOC.

Research Questions

1. Does a relationship exist between park related variables (park use, overall perceived park quality, benefits from park, proximity, access and length of stay) and sense of community (SOC) in neighborhoods?
2. If a relationship exists, how do park-related variables affect sense of community (SOC)?
3. Is there a difference between park users/non-users of parks and overall park perception, perceived park benefits, proximity, access, length of stay and SOC?

4. Do neighborhood differences exist between park use, overall perceived park quality, park benefits, proximity, access, length of stay or SOC?
5. How do demographic variables help inform park use, perceived park benefits, overall park perception, proximity, access, length of stay and SOC?

Delimitations

The following are delimitations to this study:

1. The study will not examine social capital.
2. The study will not examine social cohesion.
3. The study will not ask respondents what activities they participate in at the park.
4. The study will not ask about leisure constraints.

Limitations

The following are limitations to this study:

1. The study only looks at neighborhood parks in the City of Norfolk, Virginia.
2. Cross-sectional designs allow researchers to examine multiple variables, but they do not examine those variables over a period of time.
3. A limited number of researchers and the short time frame to collect the data limits the study.
4. Only one method of data collection (in-person) was used. Online survey would have expanded the sample to more people.
5. The weather was cold during one week in January, which limited data collection.

Definition of Terms

Green space - pieces of land that are open to the public, underdeveloped, or free from infrastructure.

Neighborhood parks – serves as the recreational and social focus of the neighborhood where informal active and passive recreation takes place. They are ¼ to ½ mile distance to neighborhood homes and are normally uninterrupted by non-residential roads or other physical barriers (Mertes & Hail, 1995). For the purposes of this study, all neighborhood parks reside within urban neighborhoods, and therefore are also considered urban parks.

Sense of community (SOC) - a feeling that members have of belonging and being important to each other, and a shared faith that members' needs will be met through their commitment to be together (McMillan, 1976).

Small public urban green spaces (SPUGS) - provide areas of intense socialization, rest, and restitution for residents in dense urban areas who are not able to reach larger urban-proximate green areas, and SPUGS tend to be the most common type of urban green space (Byrne & Sipe, 2010; Peschardt et al., 2012).

Urban parks – public space in an urban setting that offers a recreational area for residents.

SCI – Sense of Community Index. A 12-item instrument used to measure SOC along the four-dimensional framework provided by McMillan and Chavis (1986).

SCI-2 – Sense of community Index 2. Revised SCI, which incorporated a Likert-type format and sought to address previous deficiencies in the original SCI and included twice as many items.

CHAPTER II

LITERATURE REVIEW

As of 2012, 80.7 % of the United States population resided in urban areas (United States Census Bureau, 2012). Neighborhood parks can provide a place for individuals and communities to come together and socialize in order to build stronger communities (DeGraaf & Jordan, 2003; Ellis & Schwartz, 2016), and urban parks can be a catalyst for increasing sense of community (SOC) within a neighborhood (Gómez, Baur, Hill, & Georgiev, 2015). While much research has focused on the general physical health benefits of urban parks, relatively few studies have investigated the extent to which park use influences a neighborhood or city living, generally speaking, or a neighborhood's SOC, in particular (Chiesura, 2004; Francis, Giles-Corti, Wood, & Knuiman, 2012; Gómez, Baur, & Malega, 2018). Furthermore, perceived individual/social recreation benefits derived from parks have never been explored as a variable relating to or predicting SOC in previous studies.

The purpose of this study is to address these research gaps in the recreation and park literature. To understand the role that parks play in neighborhood sense of community, it is important to provide a proper context for how an urban park is defined for the current study, and the role urban parks have played in the U.S. Following the definition and role of urban parks, this literature review documents the theoretical frameworks of recreation benefits and sense of community used for the current study. The review of literature concludes with where SOC or similar concepts have been used in the field of recreation, leisure, or sport.

Defining Urban Parks

There are several approaches to defining urban parks. One way is to situate urban parks within a historical context. Another approach is to define urban parks in terms of their size and the extent of their service area. A third approach is to define urban parks as green recreation spaces or places. Each approach will be discussed in turn to better understand how urban parks are defined in the current study.

Historical Context of Urban Parks

Urban parks in the United States were introduced in the nineteenth-century in an attempt to balance urbanization and industrialization. Urban parks were a way to fix numerous problems occurring in cites. Advocates for urban parks developed different types and styles of parks throughout history as solutions to societal problems (Clark, 1973; Cranz, 1978, 1980; Crompton, 2014). Cranz (1978, 1982) presented the best-known framework – an urban park typology of four urban parks that have occurred since the 19th century: (a) pleasure grounds, (b) reform parks, (c) recreation facilities, and (d) open space systems. Cranz and Boland (2004) further expanded the urban park typology to include a fifth park type: the sustainable park. Williams (2011) expanded Cranz and Boland's work by introducing the idea of a sixth urban park typology which is the spectacle park. These park types are discussed in detail in Appendix A as an Urban Park Typology.

Given this Urban Park Typology, urban parks in the current study would be historically categorized somewhere between reform parks and the open space system. Reform parks were reflective of the Progressive Era in the U.S. and were also known as "neighborhood parks" that were "widely distributed throughout the built-up areas of the

inner city" in order to be accessible to people who lived in congested residential districts (Tuason, 1997, p. 134). Park advocates believed that the presence of these reform parks would help society become healthier, wealthier, have no crime, and be more democratic (Cranz & Boland, 2004; Williams, 2011; Young, 1995). There was an emphasis on changing children's behavior through play, using parks for the Americanization, or assimilation, of immigrants into mainstream society, and the provision of public recreation opportunities for the working class (Cranz & Boland, 2004; Young, 1995). Thus, at the outset of the development of these neighborhood parks, the intent behind them was to use them as mechanisms for building stronger communities. The reform park also introduced passive and active recreation areas to parks (Cranz, 1978; Sadeghian & Vardanyan, 2015; Stormann, 1991; Williams, 2011). Passive recreation involves little exertion and does not damage any of the natural resources in the area, while active recreation requires much more energy and has a considerable impact on recreational sites (Williams, 2011).

Open space systems were developed from 1965 to the present, and reflect the idea that aesthetically pleasing urban parks can benefit individuals and the community (Barth, 2016; Cranz, 1980; Sadeghian & Vardanyan, 2015; Williams, 2011). Park planners believed that any open green space that was underdeveloped had the potential of being an escape from urban life and city living. These parks and open spaces were a part of selective revitalization. Cities needed something to make them more attractive to residents so the idea behind these parks was to provide the community with an escape from the city and the return of nature in the big city. The focus of both reform parks and open spaces was on strengthening communities and making cities more livable.

According to Cranz (1980), urban parks benefit individuals and the community, and it is important for park planners to take these benefits into consideration.

Urban Parks: Size and Service Area

Proximity. Urban parks have also been classified according to size and service area. The service area reflects the extent to which any given park is expected to serve a geographic area, based on its size – the larger the park, the greater the service area. This is important to note because the influence that any urban park should have on a neighborhood community should be based on its size and location. According to Harnik (2006), urban parks fall into four categories based on size and service area: (a) *neighborhood parks* are less than five acres, are located within a neighborhood, and has a service area of up to half a mile), (b) *community parks* are 20-50 acres, and serve two or more neighborhoods, with a half mile to three mile service area, (c) *district parks* are over 50 acres and serve the entire city, and (d) *regional parks* are over 50 acres and serve multiple cities. For the purpose of this study, the three parks in the current study are neighborhood parks. As these definitions indicate, proximity plays a role in the efficacy of the park on its surrounding neighborhood. Lund (2003) noted that distance or proximity is often used in studies as a way of measuring service area, with the service area generally being a ¼ to ½ mile distance from the neighborhood park.

Open space and access. Conceptually, urban parks are simply open spaces that have been set aside to allow residents the opportunity to freely engage in recreational pursuits. Parks offer passive, spontaneous, and structured recreation opportunities (Ellis & Schwartz, 2016). Passive recreation could include relaxing, escaping, and enjoying nature. Spontaneous recreation does not involve registration or planning (e.g., pick-up

basketball, enjoying nature, children playing, walking/running). Structured recreation generally involves team/league play or organized sports within park settings (e.g., baseball diamonds or soccer fields). According to Ellis and Schwartz (2016), parks must remain accessible and inclusive in order to afford urban residents an opportunity to participate in recreational pursuits and to "formulate a positive sense of place and belonging" (p. 3), indicating a positive relationship between park use and the neighborhood SOC, as well as access and SOC.

An urban park does not have to be a formalized space. Sometimes so-called "parks" could be greenways, undeveloped landscapes, or open areas. Public open spaces can be conceived of as "third places." According to Oldenburg and Brissett (1982):

A third place is a public setting accessible to its inhabitants and appropriated by them as *their* own. The dominant activity is not "special" in the eyes of its inhabitants, it is a taken-for-granted part of their social existence … It is simply there, providing opportunities for experiences and relationships that are otherwise unavailable … The most obvious of these opportunities is the possibility of pure *sociability*. (p. 270).

The concept of third places could be useful in conceptualizing the role of urban parks in neighborhoods. Many parks are often taken for granted, but when used they can provide opportunities for social interaction with neighbors. Francis et al. (2012) adopted Oldenburg's (1989) definition of public spaces as "the meeting or gathering places that exist outside the home and workplace that are generally accessible by members of the public, and which foster resident interaction and opportunities for contact and proximity" (p. 402). A type of third place is a small public urban green space (SPUGS). SPUGS provide areas of intense socialization, rest, and restitution for residents in dense urban

areas who are not able to reach larger urban-proximate green areas, and SPUGS tend to be the most common type of urban green space (Byrne & Sipe, 2010; Peschardt et al., 2012). One of the hallmarks of neighborhood parks and their ability to help society is that they must be accessible to residents (Tuason, 1997).

National Initiatives for Local Parks

Given these definitions or conceptualizations, urban parks are generally created with the intent to have an influence over their neighborhood. Furthermore, a park's "neighborhood reach" has traditionally been no more than a ½ mile from the urban park, or a 10-minute walk to the park. Through a historic advocacy campaign, the National Recreation and Park Association (NRPA), in conjunction with the Trust for Public Land (TPL) and the Urban Land Institute, announced the "10-Minute Walk" campaign (NRPA, 2017). The 10-Minute Walk park advocacy campaign has begun partnering with U.S. mayors to "ensure there's a great park within a 10-minute walk of every person, in every neighborhood, in every city across America" (NRPA, para. 1). According to NRPA:

> Studies show that high-quality parks provide a wide range of benefits to individuals and cities … from providing opportunities to be physically active and to interact with nature … and helping to revitalize neighborhoods, to providing opportunities for neighbors to interact with each other and work together to improve their surroundings. (2017, para. 3)

The goal of the initiative is to increase parks near populations within a 10-minute walk by increasing equitable park access (i.e., convenience to getting to a park) and quality.

TPL's ParkScore® calculates the U.S.'s top 100 cities' park rating based on a park system's access, investment, acreage and amenities (TPL, n.d.a). Using TPL's ParkScore, Norfolk, which has only 5% of its land dedicated to parks and recreation and

has 174 parks, is ranked 44th when compared to the top 100 largest U.S. cities, and TPL (n.d.a) calculated that 75% of residents live within a 10-minute walk of a park or recreation center (as compared to the national average of 54%). Additionally, a 10-minute walk seems to be equitable by race and income (TPL, n.d.a).

TPL's ParkServe® maps park access in over 14,000 cities and towns in the U.S. in a free mapping platform that helps cities pinpoint where to focus park investments to better facilitate the 10-minute walk to a park. Using TPL's ParkServe, it was estimated that 63,132 people live outside of a 10-minute walk to a park and that five additional parks are needed to optimize the 10-minute walk to a park for these Norfolk residents (TPL, n.d.b). Benefits derived from parks and their possibility to impact communities was a clear impetus for the campaign. These benefits are discussed in the next section.

General Recreation Benefits – A Brief Overview

This section is not meant to be exhaustive of the recreation benefits literature, as textbooks and other reviews exist on the topic (Driver, Brown & Peterson, 1991; Freidt, 2008; Gómez, Hill, Zhu, & Friedt, 2016; Manfredo, Driver, & Tarrant, 1996). The intent is to demonstrate general development of recreation benefits from a research and conceptual perspective. Personal and social benefits derived from parks have had a very long history (Driver, 1976); however, the traditional focus has generally been on outdoor recreation benefits in wilderness areas. Driver (1983) developed a general framework for explaining the benefits of leisure and recreation, which led to the Recreation Experience Preference (REP) Scales. The REP Scales focused on outdoor/wilderness recreation experiences after-the-fact and were heavily based on motivational theory (Manfredo et al., 1996).

In the 1990s, research by Driver and others expanded to include personal and societal benefits (Brown, 2016). In the 2000s, researchers began looking at outcomes-focused research related to recreation benefits (Moore & Driver, 2005), and Driver (2008) reconceptualized a benefit of recreation as having three outcomes: (a) a change resulting in an *improved* condition, (b) the *prevention* of an undesired condition, and (c) the realization of a satisfying *psychological* condition (Freidt, 2008; Hill et al., 2014). Gómez et al. (2016) referred to the model reflecting these three outcomes from recreation as Driver's Typology of Leisure Benefits. This model served as the basis of the Perceived Health Outcomes of Recreation Scale (Gómez et al., 2016), which has been used primarily on recreation trails.

These previous studies mostly focused on larger outdoor recreation settings, and most of them were non-urban. Additionally, none of these previous studies and conceptualizations of recreation benefits have specifically focused on recreation benefits related to neighborhood parks. Given the unique benefits related to neighborhood parks and the relative proximity to urban neighborhoods, it is important to review benefits derived from neighborhood parks. The next sections discuss (a) specific neighborhood park benefits found in the literature, (b) general benefits derived from parks at the individual level, and (c) general benefits derived from parks at the community level.

Neighborhood Park Benefits

Various themes related to benefits of neighborhood park use have been found in the literature. The seven general themes found in the neighborhood park literature include: (a) nature, (b) escape, (c) socialization, (d) exercise, (e) family/friends, (f) open green space, and (g) children. These themes and corresponding authors/works are found

in Table 1 and are elaborated upon below. While the table lists various authors, the summary paragraphs will give a general overview on neighborhood park benefits.

The park benefit items were borrowed from Gómez's (1999) dissertation, and later work related to benefits of public city parks (Gómez, 2006; Gómez & Malega, 2007).

Table 1
Themes Related to Benefits from Neighborhood Parks

Theme	Authors
Nature	Cohen, Sturm, Han, & Marsh (2014); Graham & Neill (2010); Kaplan (1995); Nisbet, Zelenski, & Murphy (2011); Olafsdottir, Cloke, & Vogele (2017); Pryor, Carpenter, & Townsend (2005); Ulrich, Simons, Losito, Fiorito, Miles, & Zelson (1991); Wolf & Wohlfart (2014)
Escape	Maas, Verheij, de Vries, Spreeuwenberg, Schellevis, & Groenewegen (2009); Pryor, Carpenter, & Townsend (2005); Wolf & Wohlfart (2014)
Socialize	Cohen et al. (2014); Ellis & Schwartz (2016); Furnham & Cheng (2000); Kearney (2006); Kingsley & Townsend 2006); Kuo, Sullivan, Coley, Levine & Brunson (1998); Lee, Jordan, & Horsley (2015); Maas et al. (2009); Peters, Elands, & Buijus (2010); Shinew, Glover, & Parry (2004); Temkin & Rohe (1998); Wakefield, Yeudall, Taron, Reynolds, & Skinner (2007)
Exercise	Cohen, Sturm, Han, & Marsh (2014); Coombes, Jones, & Hillsdon (2010); Gómez, Baur, Hill, & Georgiev (2015); Graham & Neill (2010); Lee, Jordan, & Horsley (2015); Olafsdottir, Cloke, & Vogele (2017); Pretty et al. (2005); Ulrich & Addoms (1981); Wolf & Wohlfart (2014)
Family/Friends	Ellis & Schwartz (2016); Furnham & Cheng (2000); Kearney (2006); Kuo, Sullivan, Coley, Levine & Brunson (1998); Temkin & Rohe (1998)
Open green space	Byrne & Sipe (2010); Gómez, Baur, Hill, & Georgiev (2015); Graham & Neill (2010); Lee, Jordan, & Horsley (2015); Maas, Verheij, de Vries, Spreeuwenberg, Schellevis, & Groenewegen (2009); Olafsdottir, Cloke, & Vogele (2017); Peschardt et al. (2012); Pretty et al. (2005); Ulrich and Addoms (1981); Wakefield, Yeudall, Taron, Reynolds, & Skinner (2007); Wolf & Wohlfart (2014)
Children	Chawla (2015); Ellis & Schwartz (2016); Moore (1986); Tuason (1997)

Gómez (1999, 2006) noted that these seven items/themes (Table 1) were derived in part from Iso-Ahola's (1980) *Benefits of Leisure Scale* (adapted to the park-specific context)

and the work by Neulinger (1981) and Witt and Ellis (1989) on cognitive aspects of leisure; however, Gómez never discussed each item in detail or included a more extensive rationale for the inclusion of the benefits items from other researchers, aside from the three noted earlier. Additionally, Gómez conceptualized the park benefits scale to be unidimensional.

The Gómez scale will be referred to as the *Perceived Benefits of Municipal Parks* (PBMP) *Scale* in the present study. Gómez's early work on the benefits scale found that three (escape, children, nature) of the seven items did not hold, and that the other four items combined for an alpha reliability greater than .80; however, Gómez used a cut-off of .60 or higher factor loading to keep an item, rather than the more standard .40 criterion (Kline, 2011). As such, the current study extends Gómez's previous work by replicating the scale to see if all items hold and give a more elaborate rationale for the inclusion of these items, as noted in the subsequent sections.

A place to enjoy nature. During the nineteenth century in the United States, Frederick Law Olmsted wrote about the stress people were experiencing in larger cities. Olmsted believed that viewing nature was a way to reduce stress and restore individuals to be more productive. According to Ulrich et al. (1991):

> Olmsted contended that for individuals experiencing stress, viewing nature 'employs the mind without fatigue and yet exercises it; tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration to the whole system' (Olmsted, 1865). (p. 204)

Olmsted's ideas justified providing pastoral parks throughout the United States and preserving natural areas for public use (Ulrich et al., 1991). Kaplan (1995) studied parks as a place to enjoy nature which included: getting away, fascination, extent, and capability. Getting away often takes place at destinations with bodies of water or a mountain/wilderness setting, but for people who are unable to leave, parks can provide an easily accessible natural environment (Kaplan, 1995). Natural settings can provide objects that fascinate people (clouds, sunsets, leaves, etc.), which allows them to think about other things. Trails and paths in parks can provide a feeling of being somewhere else. Extent or extension refers to the connection between all the elements in an environment and an example of that would be Japanese gardens. Compatibility is the last component of enjoying nature and it relates to individuals functioning better in natural environments than an urban one (Kaplan, 1995).

Nisbet, Zelenski and Murphy (2011) studied nature as being a contributor to well-being. They argued that "nature's influence extends beyond physical health to psychological health, and not just the absence of or recovery from ill health, but differences in well-being" (p. 305). Cohen, Strum, Han and Marsh (2014) examined the contribution of public parks to health and physical activity. They determined specific ways that parks may impact health and one of the pathways was exposure to nature. "Contact with nature has been linked to a greater ability to cope with life stressors, improved work productivity, reduced job-related frustration, increased self-esteem, enhanced capacity to pay attention, and greater life satisfaction" (Cohen et al., 2014, p. 4).

A place to escape. The component of being away, described by Kaplan (1995), is associated with parks and natural environments as places to escape. Ulrich and Addoms (1981) found that college students would visit parks because they felt that parks provided an escape from campus. Pryor, Carpenter and Townsend (2005) discussed the environmental changes that people are experiencing such as more vehicles, fatty diets, artificial lighting, and medication. Humans are spending less time with outdoor environments. Humans are experiencing an abundance of artificial intelligence and many people are not fully adapted to that technological presence. Parks provide a place for people to escape everything and increase their contact with a natural environment (Pryor, Carpenter, & Townsend, 2005).

A place to socialize. Kuo, Sullivan, Coley and Brunson (1995) examined common spaces in the inner-city neighborhood and found that "[overall], these findings indicate that the more vegetation associated with a resident's apartment and building, the more she socialized with neighbors, the more familiar with nearby neighbors she was, and the greater her sense of community" (p. 839). Public spaces can encourage interactions if they are accessible and open. Using public spaces usually involves meeting and seeing new people. Neighborhood parks can provide a way of social interactions that can simulate a feeling of being welcomed (Peters, Elands, & Buijs, 2010). "Socializing, volunteering, friendships, civic pride, preserving history, and appreciating one another's differences are just a few examples of the way activities in parks relay into community development" (Ellis & Schwartz, 2016, p. 4). Literature mentions the many advantages of increased social interaction when using a park and how that can positively impact an

individual's well-being (Ellis & Schwartz, 2016; Kearney, 2006; Lee, Jordan, & Horsley, 2015; Temkin & Rohe, 2010).

A place to exercise. Parks can provide people a place to be physically active, especially in urban areas, since open green space might be limited (Coombes, Jones, & Hillsdon, 2010; Maas, Verheij, Groenewegen, de Vries & Spreeuwenberg, 2006). Physical activity in parks can be in the form of walking, jogging, sports, exercise, or specific activities that involve park equipment. Parks are free locations that offer a way to increase physical activity and is a pathway to address the sedentary lifestyles linked to a variety of chronic illnesses (Cohen et al., 2007, 2014; Lee et al., 2015). Recent studies are examining the effects of green exercise (Graham & Neill, 2010; Olafsdottir, Cloke & Vogele, 2017; Pretty, Peacock, Sellens, & Griffin, 2005). This is combining two of the benefits to research the role they play together. Green exercise takes place in natural environments to provide physical and psychological health benefits. Being exposed to nature while exercising can help reduce stress, increase vitamin D and serotonin levels, and increase mental focus (Graham & Neill, 2010; Olafsdottir et al., 2017; Pretty, Peacock, Sellens, & Griffin, 2005).

A place to meet family/friends. Ellis and Schwartz (2016) stated:

> To attract people to a city, a positive first impression is advantageous; opportunities for one's self and their family are important. Parks play a large role in attracting and maintaining residents and this can be accomplished if there are a variety of cultural and recreation opportunities. (p. 6)

Parks can influence families to relocate to an area or they can be the reason why families stay in a specific area. Families and friends can benefit from parks as a shared resource.

Parks can serve as a location for family events and celebrations with friends. The availability and location are advantageous when using the resource to connect with others (Kuo, Sullivan, Coley, & Brunson, 1998).

A place that provides open green space. Kaplan (1995) discussed compatibility as the last component of being in a nature-based restorative environment. Compatibility refers to an individual's ability to function better in natural environments than an urban one. Open green space can provide ecological benefits such as regulating temperatures, air filtering, and noise reduction (Byrne & Sipe, 2010; Wolf & Wohlfart, 2014). Providing an open green space to individuals is a benefit that combines many of the previous benefits that were discussed. People in urban areas have busy lifestyles and benefit from being able to be outdoors and access green space (Maas et al, 2009; Nisbet, Zelenski, & Murphy, 2011; Pretty, Peacock, Sellens, & Griffin, 2005).

A place for children. One of the major tenets of reform/neighborhood parks was to provide a safe place, within walking distance of one's home, for children to recreate. According to Tuason (1997), "[municipalities] established [reform/neighborhood] parks … in response to conditions of overcrowding and the hazards of street life for children in working-class residential districts" (p. 124). In exploring how children utilize urban green spaces, and how urban landscapes can facilitate children's development, Moore (1986) noted that natural areas provide children with places for creative play and psychological well-being. Chawla (2015) presented an excellent review of the body of evidence noting how contact with nature in urban areas is critical for healthy communities and the well-being of children. This sentiment was echoed by Ellis and Schwartz (2016), who noted

that urban parks not only ensure opportunities for recreational pursuits for residents, but they are also “free and accessible areas for children and youth to develop” (p. 3).

General Neighborhood Park Benefits

In addition to the specific benefits noted above, green spaces and natural settings generally contribute to public health by reducing stress, increasing physical activity (Cohen, Sturm, Han, & Marsh, 2014; Mitchell, 2012), increasing the perception of quality of life, and reducing health inequalities (Mitchell & Popham, 2008). Neighborhood parks provide places for physical activity, improved living environment, and social interactions (Coombes, Jones, & Hillsdon, 2010; Maas, Verheij, de Vries, Spreeuwenberg, Schellevis, & Groenewegen, 2009). These benefits correspond with the definition of health determined by the World Health Organization (WHO, 2006), which includes physical, mental, and social elements in the overall concept of health. Policy makers and administrators play an important role in contributing to the support of public health. Neighborhood parks can help improve and maintain public health considering the amount of urbanization occurring in the United States.

Ulrich and Addoms (1981) wrote what may be the seminal article on psychological and recreational benefits of a residential park. Ulrich and Addoms noted that previous research had failed to report “benefits, psychological functions, and behavior associated with parks and other spaces in developed areas” (1981, p. 44). Recently, there has been a renewed interest in finding empirical evidence of benefits from urban parks (Baur, Gómez, & Tynon, 2013; Baur & Tynon, 2010; Wolch, Byrne, & Newell, 2014). Related to quality of life, urban natural recreation areas are important for the social and psychological development of city residents (Chiesura, 2004; Sherer,

2006). Parks have become a critical part of the urban infrastructure and provide many benefits to individuals and communities who utilize them.

Individual Benefits of Neighborhood Parks

Health, wellness, and psychological well-being are individual park benefits. Parks encourage individuals to enjoy the natural environment while exercising (Cohen, Sturm, Han, & Marsh, 2014). If people take advantage of the urban parks in their communities, they can improve their psychological and social health. Improved physical health is also a benefit of parks. Parks contribute to an individual's overall quality of life. For example, respondents have reported that green space helps relieve stress and mental fatigue (Maas et al., 2009).

Urban parks and green spaces provide a place for individuals to escape from their daily routines and stressful situations. They provide an opportunity to re-charge and be present in nature while engaging in various activities (Pryor, Carpenter, & Townsend, 2005; Wolf & Wohlfart, 2014). These benefits are important at a time when people are experiencing a disconnect with nature (Wolf & Wohlfart, 2014). The history of urban parks reveals that public green spaces benefit people's health and well-being by providing an escape from city life, stress relief, opportunity to socialize, exercise, and the ability to enjoy nature. As urban areas increase in size, urban parks and green spaces are often the only resources that provide a natural outdoor recreation space to promote healthy pursuits (Maas et al., 2009).

Many of the benefits that urban parks offer can be received in various ways. The act of being in and around nature helps to re-charge or re-energize individuals by building the relationship between humans and nature. There are studies that have found that

people have a need for nature, a concept known as “biophilia” (Kaplan, 1995; Nisbet, Zelenski, & Murphy, 2011; Ulrich, Simons, Losito, Fiorito, Miles, & Zelson, 1991). Physical activity in these green spaces also contributes to a person’s health and well-being. Researchers have found that people who live close to a public park more frequently engage in physical activity, even if it is minimal (Coombes, Jones, & Hillsdon, 2010; Gómez, Baur, Hill, & Georgiev, 2015; Lee, Jordan, & Horsley, 2015; Ulrich & Addoms, 1981). Performing physical activities, such as exercise, in green spaces has been shown to be more effective than doing it indoors (Pretty et al, 2005; Wolf & Wohlfart, 2014) “Green exercise” is more effective in improving mental and cardiovascular health (Graham & Neill, 2010; Olafsdottir et al., 2017; Pretty et al., 2005). Sightseeing and other low impact physical activity might be motivation to visit an urban park or green space, which is another factor in combating a sedentary lifestyle.

Ulrich and Addoms (1981) found that urban park users attached the greatest importance to passive recreation at urban parks and that even non-users and low users derived benefits from the park – the “data appear to suggest that mere cognizance of the park’s presence – i.e., ‘just knowing it’s there’ – is a psychological benefit derived by residents regardless of usage frequency” (p. 60). Looking out into green space can help people recover from mental trauma and people may not need direct access to parks to benefit from their presence (Byrne & Sipe, 2010). People receive benefits from parks simply from the park aesthetics (e.g., having something beautiful to look at) and that aesthetics play a role in park usage (Bedimo-Rung, Mowen, & Cohen et al., 2005; McCormack, Rock, Toohey, & Hignell, 2010.

Community Benefits of Neighborhood Parks

In addition to individual benefits, neighborhood parks provide important community benefits. Aesthetics and just knowing that the park is there has been a common finding related to community benefits as well (Gómez et al., 2015; Lackey & Kaczynski, 2009). Urban parks can strengthen community development, while building stable and healthy communities. Research does suggest that there is a relationship between urban parks, increased neighborhood health, and sense of community. For example, neighborhood parks can serve as the center of neighborhood activity, which helps in building stable and healthy communities (Cohen et al., 2014). Social benefits were noted as one of a set of outcomes from park visitation (see Figure 1 in Bedimo-Rung, et al., 2005). As the urban growth trend continues in the United States, it is important to understand how a community benefits from neighborhood parks.

According to Sherer (2003), "[among] the most important benefits of city parks – though perhaps the hardest to quantify – is their role as community development tools" (p. 22). Although city parks are typically seen as assets by urban planners and recreation practitioners, they do not generate income for a city, and the justification for maintaining a costly entity has not always been clear to residents (Ellis & Schwartz, 2016; McCormarck, Rock, Toohey, & Hignell, 2010). Urban parks can make cities and neighborhoods more enjoyable to live in and can strengthen community development. If neighborhoods utilize parks as places for recreational activities, social/special events, community meetings, and increased social interaction, they can build a healthier community, social cohesion, and trust among neighbors (Bedimo-Rung et al., 2005; Kingsley & Townsend, 2006; Maas et al., 2009; Gómez, Baur, & Malega, 2018).

Consistent social interaction by people who use city parks “form the basis of greater community ties, [and] foster a sense of identity and belonging” (Lee, Jordan, & Horsley, 2015, p. 133).

Research on dog parks indicates growing consensus related to the potential for community benefits as “new” neighborhood commons (Matisoff & Noonan, 2012), and dog parks can act as a potential mechanism for community development (Vincent, 2019). Dog parks “have moved from a controversial topic promoted by grassroots activists and dog enthusiasts, to entering the mainstream planning process for urban planners and parks and recreation department officials” (Matisoff & Noonan, 2012, p. 29). Gómez (2013) found support for individual canine and human benefits, as well as community benefits. Graham and Glover (2014) noted that dog parks can act as generators of social capital that can build stronger communities. Gómez et al. (2018) operationalized this relationship and found that as social capital increases at a dog park, so does neighborhood social cohesion. Another indicator of impact on the community from dog parks is its influence on homeownership. Studies have indicated that having a dog park in a neighborhood is a selling point for home buyers (Lee, Shepley, & Huang, 2009; Matisoff & Noonan, 2012).

Parks and open green spaces have a positive impact on the community’s satisfaction because they can provide an area for social interaction (Peters, Elands, & Buijus, 2010; McCormack, Rock, Toohey, & Hignell, 2010). Interactions between neighbors can build a sense of belonging within a community (Kearney, 2006). Social interactions with neighbors can strengthen a community because a relationship or bond is being built and that can increase the perception of satisfaction of one’s neighborhood and

life (Temkin & Rohe, 1998; Furnham & Cheng, 2000). Urban green spaces provide a place for increased social interaction, which can indicate a higher quality of life. They are a resource that can bolster relationships and healthy communities within urban areas.

Neighborhood Parks and Unintended Consequences

Although the current study focuses on the benefits of neighborhood urban parks, it is worth noting that there can be some negative unintended consequences related to green spaces in urban areas. For example, while urban greening initiatives supply park-poor neighborhoods with a park or small public urban green spaces (SPUGS) for environmental justice reasons, it might lead to environmental gentrification, which includes displacement of residents due to increased property values, as well as increased residential segregation (Dooling, 2009; Haffner, 2015; Wolch et al., 2014). Eco-gentrification was defined by Dooling (2009) as "the implementation of an environmental planning agenda related to public green spaces that leads to the displacement or exclusion of the most economically vulnerable human population … while espousing an environmental ethic" (p. 630).

While the focus of Dooling's study was on the displacement of the homeless, evidence also shows that when new green spaces are introduced, it could lead to displacement of disadvantaged populations. Wolch et al. (2014) noted the following:

> Redressing park-poverty in communities of color and/or low-income households can, however, create an urban green space paradox. As more green space comes on line, it can improve attractiveness and public health, making neighborhoods more desirable. In turn, housing costs can rise. Such housing cost escalation can potentially lead to gentrification: the displacement and/or exclusion of the very

> residents the green space was meant to benefit. In turn, residents may face higher rents and thus become precariously housed, while those who are actually displaced may be forced to leave their communities, ending up in less desirable neighborhoods with similar park-poverty problems. (p. 235)

However, Haffner (2015) noted that a "new trend has emerged in direct response to the problem of eco-gentrification … 'conscious anti-gentrification' … [this] kind of greening project aims to increase the environmental quality and public health of a neighborhood but without changing its socio-economic character" (para. 9). Related to issues of displacement due to greening, is the disproportionate provision of recreation resources in predominantly non-white areas (discussed below).

Demographics and Neighborhood Parks

Urban parks are able to provide barrier-free access to a community by providing benefits such as "socializing, volunteering, friendships, civic pride, preserving history, and appreciating one another's differences" (Ellis & Schwartz, 2016, p. 4). Modern-day parks are designed to serve diverse communities with wide-ranging recreational needs, and although U.S. cities have increased the supply of green spaces, the distribution of green spaces continue to disproportionately benefit predominantly white and affluent communities (Byrne & Sipe, 2010; Dahman, Wolch, Joassart-Marcelli, Reynolds, & Jerrett, 2005; Payne, Mowen, & Orsega-Smith, 2002; Wolch et al., 2014). According to Dahman et al. (2005):

> … unequal access to environmental decision-making processes, disproportionate lack of access to environmental resources and amenities has come to be seen as both a social and environmental injustice … Social inequities arise from lack of

> opportunities for play, social interaction, and community cohesion that facilities such as parks often provide. (p. 431)

In addition to race/ethnic differences in terms of use or resource availability, researchers have noted gender and age differences in perceptions of urban parks (Coutts & Miles, 2011; Ho et al., 2005; Payne, Mowen, & Orsega-Smith, 2002). However, other studies revealed no such differences in race or gender and frequency of use (Wolch et al., 2010). As such, it is important to explore demographic differences. This study will explore the demographics of each selected park. Urban communities in the U.S are continuing to grow, and neighborhoods are becoming more diverse. It is important to understand how a neighborhood's demographic makeup can help inform the role of parks and neighborhood sense of community.

Defining and Conceptualizing Sense of Community

Communities are often defined in terms of place and interest (Blanchard, 2008; Chipuer & Pretty, 1999; Long & Perkins, 2003; Obst & Stafurik; 2010; Obst & White, 2004). Communities of place and communities of interest have been traditionally referred to as locational/territorial and relational, respectively, and that the two are not mutually exclusive (Gusfield, 1975; Flaherty, Zwick, & Bouchey, 2014). There are various communities of place, which include physical or geographic locations, such as members of a neighborhood. A community of interest refers to groups such as gamers, surfers, and graduate students, who are not necessarily tied to place, but have a shared identity. Traditional definitions and conceptualizations of community were initially tied to neighborhoods (Glynn, 1981; McMillan & Chavis, 1986; Sarason, 1974), which is the focus of the current study. While neighborhoods are not the only place a community

exists, they are the places where people live, raise their families, and spend much of their time.

Growing Concerns about Communities in Decline

During 1960 and 1970, the white population of cities in the United States started to decline. The affluent white society was moving to the suburbs. The ones leaving were the upper-class and this phenomenon of 'white flight' impacted cities directly by causing reduced tax revenue and declining social and physical environments located in the metropolitan areas, which included parks (Blakeslee, 1979; Garrow & Garrow, 2014). When the United States urban population moved to the suburbs, they had small green spaces in their yards, therefore the purpose of the urban park shifted once again (Cranz, 1978; Harnik, 2006).

Interested in communities and community development grew out of a concern for social problems and the decrease of social connection in urban communities in the United States that were occurring in urban areas in the post-industrial era of the 1970s and 1980s (Putnam, 1995; Sarason, 1974). These social problems included an increase in crime (Hartnagel, 1979; Perkins, Florin, Rich, Wandersman & Chavis, 1990), decrease in social connection and engagement (Goss, 1994; Richard, Gauvin, Gosselin, & Laforest, 2009), and a diminished sense of community (Hunter, 1975; Sarason, 1974). Reasons for the decline in sense of community included urbanization, industrialization, technology, mobility, and demographic shifts (Cochrun, 1994; Dunham, 1986; Firth, Maye, & Pearson, 2011; Francis, Giles-Corti, Wood, & Knuiman, 2012; Putnam, 1995).

A strong sense of community was a normal part of life during the pre-industrial era. The urbanization and industrialization of the United States decreased the importance

of community and the need to have a physical place such as a neighborhood, park, or church to be considered a part of that community (Dunham, 1986; Paxton, 1999). The increase of the speed of technology and communications added to the decline. Technology advances allowed people to have leisure time in their homes rather than in their neighborhood (Putnam 1995). People did not have to be in a specific physical location if they had access to computers and other technologies (Dunham, 1986; Paxton, 1999; Putnam, 1995). Residents moving around the country to seek new opportunities uprooted families and their support systems. With increased mobility, people would have to establish new connections with the community every time they moved (Dunham, 1986; Paxton, 1999; Putnam, 1995). Corporate businesses took the place of smaller businesses that were a part of growing a community. Additionally, a significant demographic change occurred when women joined the work force. Researchers noted that as the number of single households increased, the loss of sense of community also increased (Bernard, 1981; Putnam, 1995).

These changes impacted urban communities. The frequency of social interaction and participation in social activities declined. There was a decline in attending church, labor unions membership, voting, volunteering, membership in civic organizations, and parent/teacher organizations. Groups that did show an increase in membership were national organizations and professional associations; however, these groups did not require a high level of participation or interactions (Bernard, 1981; McCarthy & Zaid, 1977; Putnam, 1995**)**.

Beginnings of Community Psychology

During the 1970s, Sarason elevated the notion of community and focused on the ideas of growing disconnectedness, lack of sense of community, and a call for a new type of psychology – community psychology (Cochrun, 1994; Sarason, 1974). According to Jason et al. (2016), community psychology emerged about 50 years ago (circa mid-1960s). However, community psychology as a separate sub-area of psychology was not formalized until the 1970s. In a seminal article, Sarason (1976) discussed the separation of community psychology from clinical psychology and the community health movement. Sarason's major thesis was that clinical psychologists, working with individual clients, separated individuals from their environment, and did not incorporate an ecological understanding of the individual within their community.

Community psychology focuses on community building as a mode of intervention. With a focus on ecologically-driven research, community psychology has had an orientation towards "[listening] to social actors, rather than to prescribe to them, which in turn has led to many insights regarding what life is like from the point of view of community members" (Jason et al., 2016, p. 7). Given this orientation, community psychology lends itself to finding out about the role parks play in neighborhood communities from the perspective of the individual.

Sense of Community: A Central Theory of Community Psychology

In response to growing evidence of problems in neighborhood communities affecting people, community psychologists introduced the theory of Sense of Community (SOC) as an explanation for how individuals interact with the community. There are some studies regarding sense of community that pre-date Sarason's (1974, 1976, 1986)

work (Goode, 1957; Hillery, 1955; Nisbet, 1962); however, Sarason has been generally given credit for introducing the SOC theory (Jason et al., 2016) within the context of community psychology.

Sarason (1974) defined psychological SOC as "the perception of similarity to others, and acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, the feeling one is part of a larger dependable structure" (p. 157). Sarason was "one of the first to identify that community members' feelings regarding each other and the community itself are important to the community's successful functioning (Blanchard, 2008). Literature on SOC spans more than 50 years (Jason et al., 2016), and a comprehensive presentation of five decades would take more pages than even the current document would allow; however, it is important to understand the development of the SOC theory in order to contextualize the theoretical framework for the current study.

Towards a Theoretical Framework

Prior to Sarason (1974), Hillery (1955) completed a review of literature on community. The review was done across several disciplines to unify the various definitions of community. Hillery discovered 16 different approaches with one area of overall agreement. The overall agreement was that community included social interaction taking place in a geographic area and having common ties. This established the idea that community was geographically based and influenced research in the 1970s and 1980s. For about a decade after Sarason's conceptualization of SOC, there was a broad range of research on the different aspects of PSOC. Because the 1970s and 1980s were pivotal to

the establishment of SOC today, work from these two decades will be discussed in more detail below, in order to contextualize the theoretical framework for this study.

Research in the 1970s illustrating development of SOC. Hillery's (1955) concept of geographically based communities was extended by Gusfield (1975). Gusfield described two dimensions of community noted earlier: territorial and relational. The relational dimension refers to the quality of the relationships in a community. The nature of that relationship is also a part of the relational dimension. The territorial dimension relates to specific groups of people within a community that are working in a certain specialty but do not necessarily have a specific territory that they live or work in. There are other communities that are defined by a territory, as in a neighborhood, but the territorial and relational dimensions need to be present to embody a community (Gusfield, 1975).

Sarason (1974, 1976) introduced the idea of psychological SOC as the interdependence one has with others in a community. Additionally, Sarason mentioned the feelings of kinship and a willingness to identify with shared values as aspects of a sense of community. It is important to note that although Sarason conceived the theory of psychological SOC, he never operationalized it or tested it empirically. In 1976, McMillan attempted to define sense of community (Chavis, Hogge, McMillan, & Wandersman, 1986; McMillan & Chavis, 1986). McMillan et al. (1986) cited this formal definition in the following manner: "Sense of community is a feeling that members have of belonging and being important to each other, and a shared faith that members' needs will be met through their commitment to be together (McMillan, 1976)" (p. 9).

One of the first to empirically test SOC was Doolittle and MacDonald (1978). They researched social behaviors and attitudes in neighborhoods and different factors that have influence over the structure of the community. Doolittle and MacDonald (1978) believed that SOC was based on five factors: (a) informal interaction, (b) localism, (c) safety, (d) neighboring preferences, and (e) pro-urbanism. Casual conversation was an example of informal interaction. Conversations would happen with neighbors as they were outside in their front yard or doing an outdoor activity. Localism referred to one's interest in participating in neighborhood activities. The safety factor related to their perception of safety in their neighborhood. Pro-urbanism is based on privacy and anonymity of the residents in the neighborhood. Lastly, neighboring preferences referred to how often someone wants to interact with their neighbors (Doolittle & MacDonald, 1978).

There were three notable relationships in Doolittle and MacDonald's (1978) findings. The people who needed or wanted less privacy chose to interact with neighbors. Second, as the perception of safety increased, so did the interactions with neighbors. Finally, as perceptions of safety increased, their pro-urbanism decreased. This meant that residents' desire for privacy decreased when they felt their neighborhood was safe.

Ahlbrant and Cunningham (1979) studied SOC and believed it was an essential element of neighborhood satisfaction. According to Ahlbrant and Cunningham (1979), there were three significant contributors to neighborhood satisfaction. First, there was an increase in neighborhood satisfaction when their neighborhood was a smaller community within the city. Second, residents who lived in the community longer and participated in neighborhood activities more were more satisfied. Lastly, when residents believed that

the neighborhood offered positive activities and events for the surrounding area, their satisfaction with the neighborhood increased.

Research in the 1980s illustrating development of SOC. Building on Gusfield's (1975) work, Riger and Lavarkas (1981) examined SOC in relation to neighborhood attachment, which resulted in two factors: social bonding and behavior rootedness. Social bonding referred to identifying with neighbors, feeling like the individual was a part of the neighborhood, and how many neighborhood children that person knew. Behavior rootedness referred to how long someone lived in the neighborhood, owning or renting the residence they lived in, and how long they expected to live there.

Glynn (1981) noted that "as often as [SOC] has been discussed and elaborated upon, there has been no successful attempt to operationalize [SOC] or describe it on a behavioral level" (p. 790). Glynn questioned whether (a) SOC is of sufficient importance to merit study, (b) SOC can be observed (i.e., is it measurable as a construct), and (c) if these two questions are "true," then how can we maintain/increase SOC in society? Glynn performed a study with three different communities that found there were 18 demographic aspects that could predict the SOC score. Glynn (1981) stated that the following were the strongest predictors of SOC: length of residency, community satisfaction, number of neighbors one knew by their first name, and the ability to function competently in the community. Glynn's findings suggested that (a) SOC is a group of attitudes and behaviors associated with community satisfaction and competence, (b) SOC may be predicted by characteristics of a neighborhood (e.g., neighborhood park), and (c) SOC is useful for community development. According to McMillan and Chavis (1986), "Glynn's (1981) work is particularly important in its recognition of the discrepancies

between real and ideal levels of sense of community and in demonstrating the relationship between sense of community and an individual's ability to function competently within it" (p. 8).

Bacharach and Zautra (1985) discovered that SOC could add to perceived control and empowerment for residents. The study examined how residents reacted to a potential threat (hazardous waste facility) to the community. The study questions addressed how residents viewed their community. The questions included: feeling at home in the community, agree with the community values, felt as if they belonged in the community, feeling of importance in the community, feeling of attachment to the community, interested in the community events, and satisfaction (overall) in the community (Bacharach & Zautra, 1985).

Bacharach and Zautra (1985) revealed a trend that those who had a strong SOC would actively be involved in the community. Those residents would attend meetings and activities on a regular basis. They would also be the residents who would try to solve problems within that community. This was a trend that was previously found in a study by Florin and Wandersman (1984) where they found that active members of the community (neighborhood associations) had a higher level of SOC.

In summary, since the 1970s, researchers have attempted to define SOC, identify related variables (e.g., neighboring, safety, support), and create indicators of SOC (Cochrun, 1994; Glynn, 1981; Hill, 1996; Long & Perkins, 2003; Unger & Wandersman, 1982). SOC relates to the overall quality of life for residents in a community. The early studies of sense of community (SOC) and neighborhoods revealed findings related to SOC and the amount of participation in organizations in an urban neighborhood

(Wandersman & Giamartino, 1980), perception of safety (Doolittle & MacDonald, 1978), and members of a community being competent in the roles they have in the community (Glynn, 1981). Riger and Lavarkas (1981) examined social bonding and behavior rootedness, Ahlbrant and Cunningham (1979) studied the interpersonal relationship and social fabric in neighborhoods.

These studies laid the foundation for SOC and revealed that the construct does exist. Although these early studies laid the foundation, they did not have a clear conceptual framework or definition. Chavis et al. (1986) provided an apt summary of the development in their review of the literature:

> While these studies do afford important insights into sense of community, they provide only a limited explanation of the construct. First, none of the studies are based on a definition or theory of sense of community. Second, four [previous studies] are based on a post-hoc derivation through factor analytic techniques, and the other was reported to be face valid (Bachrach & Zautra, 1985). Finally, these [previous] studies focus primarily on demographic factors rather than communality in the experience of a sense of community. A notable exception is the work of Bachrach and Zautra (1985), which showed that a sense of community indirectly increased community involvement. Clearly, a testable theory of sense of community is needed. (p. 25)

Theoretical Framework: Sense of Community (SOC)

Given previous shortcomings, McMillan and Chavis (1986) presented a formal definition of SOC (noted above) and developed and tested a theoretical framework. As various studies were published that used the theory of SOC, there were certain aspects

that emerged that needed to be considered when trying to understand the theory and using it for research. According to McMillan and Chavis (1986), previous studies only showed that sense of community does exist, and it is a part of people's lives. What was missing was "a full description of the nature of sense of community as a whole" (p. 8). McMillian & Chavis' (1986) conceptualized SOC as having four distinct elements, and Chavis et al. (1986) later developed a Sense of Community Index and tested it for validity (see below). The dimensions of McMillan and Chavis' SOC theoretical framework include (a) membership, (b) influence, (c) integration and fulfillment of needs (reinforcement), and (d) shared emotional connection. Each are discussed below. Following the discussion of each of the dimensions, the next sections present consensus regarding the McMillan and Chavis' conceptualization of SOC, a review of SOC found in leisure literature, and a review of attempts at measuring these SOC constructs.

Membership. Membership occurs when people feel they belong to a community and they can relate to others. It is important to know that membership has *boundaries* and it is very clear that some people belong to the community and some people do not belong to the community. Membership can be about intimacy and boundaries give members a sense of security and *emotional safety* when belonging to the community (McMillian & Chavis, 1986). Members need to feel secure within the communities they *belong to,* so boundaries are important, and the members of the community create those boundaries. If a member violates those boundaries, they can be kicked out or isolated outside the community. Membership also provides *identification* and the idea that people belong in that community. People identify as a member of that community. *Personal investment* is another area of membership and that entails contributing to the community and that

increases the sense of community. The last attribute of membership is a common symbol system. Some examples of this would be dress, language, a neighborhood name, flag, logo, or architectural style (McMillian & Chavis, 1986). These are all things that separate the community from others, and these can be positive or negative. Chavis et al. (1986) reported that the membership dimension represents knowledge of one's neighbors, sharing, and sense of belonging identified in previous studies from Glynn (1981) and Unger and Wandersman (1982).

Influence. Influence can refer to the member's influence on the community, but it can also refer to the community's influence over the members. Within influence there needs to be a cohesiveness among the community members (McMillian & Chavis, 1986). It has been found that members are more drawn to a community if they feel they will be influential. Conformity and influence on community members produce a stronger bond to the community, the individual and community see value in conformity and cohesiveness, and the influence of the individual exists concurrently with the influence of the community (McMillian & Chavis, 1986). Consistent with previous studies, the influence dimension incorporates personal influence, self-efficacy, political efficacy, and alludes to the psychological notion of locus of control (Chavis et al., 1986).

Reinforcement: Integration and fulfillment of needs. Reinforcement and need fulfillment are essentially the rewards an individual receives from the community. Members of a community want to be rewarded in some way, and one of those ways is the status of being a member of a successful group – psychological research has "shown that group success brings group members closer together" (McMillian & Chavis, 1986, p. 13). If a community is successful, then the members are successful and are proud to be a

member of that community. Another way to show reinforcement can be competence and having members that are able to benefit other members. Many people join certain communities because of what it can do for them (i.e., competencies are capabilities of members), but they bring something to the table as well. Individual values converged as group shared values to prioritize need-fulfillment activities leading to greater community satisfaction. This dimension incorporates earlier work from Doolittle and MacDonald (1978), Alhbrant and Cunningham (1979), and Glynn (1981), among others (Chavis et al., 1986; McMillan & Chavis, 1986).

Shared emotional connection. This construct is based on a shared history or identifying with a shared history. The shared history relates to the strength of the community and reflects strong neighboring characteristics, such as, socialization with neighbors, sharing advice, supporting each other, and confidence in one's neighborhood (Chavis et al., 1986). This dimension reflects concepts from psychology, such as, contact hypothesis, shared valent events, and social bonding (McMillian & Chavis, 1986). "Strong communities are those that offer members positive ways to interact, important events to share and ways to resolve them positively, opportunities to honor members, opportunities to invest in the community, and opportunities to experience a spiritual bond among members" (McMillian & Chavis, 1986, p. 14).

Consensus Regarding the SOC Theoretical Framework

Since the 1970s, researchers have attempted to define SOC, identify related variables (e.g., neighboring, safety, support), and create indicators of SOC (Cochrun, 1994; Glynn, 1981; Hill, 1996; Long & Perkins, 2003; Unger & Wandersman, 1982). SOC relates to the overall quality of life for residents in a community. SOC is one of the

pillars of community psychology and it is a feeling that emerges as the individual interacts with a community and incorporates the notion that individuals "exist within a larger network and structure and that these individuals are interdependent" (Jason et al., 2016, p. 12).

SOC has been operationalized in a variety of contexts. These areas have included internet communities (Obst, Zinkiewicz, & Smith, 2002; Obst & Stafurik, 2010; Reich, 2010), student communities (Pretty, 1990; Torres-Harding, Diaz, Antu, & Carollo, 2015), religious communities (Mammana-Lupo & Todd, & Houston, 2013; Miers & Fisher, 2002), immigrant communities (Hombrados-Mendieta, Gómez-Jacinto, Dominguez-Fuentes, & Garcia-Leiva, 2013; Sonn, 2002), and geographic communities (Brodsky, O'Campo, & Aronson, 1999; Newbrough, & Chavis, 1986; Perkins, Florin, Rich, Wandersman, & Chavis, 1990).

McMillan and Chavis' (1986) conceptualization of SOC and the creation and validation of the Sense of Community Index has provided a suitable model for "scientific investigation and as a framework for intervention" (Chavis et al., 1986, p. 38), filling a noticeable gap in the community psychology literature. Given its theoretical foundation in community psychology and qualitative empirical support, McMillan and Chavis' SOC framework has been widely recognized and accepted (Blanchard, 2007; Chipuer & Pretty, 1999; Long & Perkins; 2003; Obst & White, 2004). The McMillan and Chavis SOC conceptualization has been the most comprehensive theoretical framework grounded in community. While there have been other definitions and methodological approaches, and SOC has been explored in multiple settings, McMillan and Chavis

(1986) advanced the “only theory of SOC in the psychological literature” (Loomis & Wright, 2018, p. 384).

Relationship between SOC and Social Capital

It is important to discuss the relationship between SOC and social capital. The dominant paradigm for the role that parks, and other recreation open spaces, play in augmenting community has been social capital. While the intent of this literature review is not to go into literature that is unrelated to the analysis, it is important to acknowledge social capital and where SOC and social capital intersect. For the purpose of this study, it is not necessary to review the social capital literature and its role in leisure, as these reviews already exist (Glover & Hemingway, 2005; Glover, Parry, & Shinew, 2005; Hemingway, 1999). However, it is important to acknowledge and illustrate where SOC fits within the social capital framework in order to situate SOC within a more familiar context for leisure scholars. Figure 1 illustrates where SOC intersects with social capital, as conceptualized by Perkins and Long (2002).

	Cognition/Trust	Social Behavior
Informal	Sense of community	Neighboring
Formally Organized	Collective efficacy	Citizen participation

Figure 1. Four Dimensions of Social Capital. Adapted from “Neighborhood Sense of Community,” by D.D. Perkins and D.A. Long, 2002, in A. Fischer, C. Sonn and B. Bishop (Eds.), *Psychological Sense of Community: Research, Applications, and Implications*, p. 294. Copyright 2002 by Kluwer Academic/Plenum Publishers.

In Figure 1, a 2x2 table shows that SOC relates to the informal and social cognition/trust aspects of social capital. SOC differs from social capital in other important ways. According to Perkins and Long (2002), social capital is generally

observed as a characteristic (or lack) of communities or societies, whereas SOC is generally measured and conceptualized from an individual perspective. Social capital's disciplinary origins are in political science, sociology and applied economics, and has a civic engagement orientation. SOC's disciplinary origins are in community psychology – a discipline that lends itself to community recreation. Lastly, because social capital appears in a variety of disciplines, it lacks a clear agreed upon definition and conceptualization given the multidisciplinary origins (Adler & Kwon, 2002; Glover & Hemingway, 2005; Poortinga, 2012). Although there have been some issues with its measurement, unlike social capital, the McMillan and Chavis (1986) SOC framework has been widely recognized and accepted (Chipuer & Pretty, 1999; Long & Perkins; 2003; Obst & White, 2004). The McMillan and Chavis SOC conceptualization has been the most comprehensive theoretical framework grounded in community (Loomis & Wright, 2018).

Empirical Testing of SOC and Scale Development

While instruments used in a study are normally found in the methods section, it is discussed here in order to provide a historical development of SOC measurement, given the relative newness of the concept to leisure studies. McMillan and Chavis (1986) acknowledged that other models and scales existed prior to their conception (Doolittle & MacDonald, 1978; Glynn, 1981), and there have been other scales created since their seminal work to measure SOC (Bishop, Chertok, & Jason, 1997; Nassar & Julian, 1995). The historical development noted in this section is reflective of the McMillan and Chavis (1986) SOC theoretical framework of four dimensions of SOC used for the current study.

SCI. Conceptualization of McMillan and Chavis' (1986) SOC theoretical framework eventually led to empirically testing SOC and the development of the *Sense of Community Index* (SCI), which consisted of 12 questions; three items per construct (Chavis et al., 1986). The SCI was used in various settings and had been supported empirically (Obst & White, 2004), but with mixed results as to whether SOC (as measured by the SCI) constituted a three-factor structure, four-factor structure, or a unidimensional factor structure (Loomis & Wright, 2018). However, the SCI had limitations due to the following: (a) its reliability was inconsistent and low, (b) it had limited application across cultural groups, (c) the nominal scale had limited statistical use, and (d) it did not have enough items (Chipuer & Perry, 1999; Community Science, n.d.; Obst & White, 2004; Peterson, Speer, & Hughey, 2006). The 12-item scale included three true/false questions for each of the four factors of sense of community. The scale had a reported internal reliability coefficient of .80 (Perkins, Florin, Rich, Wandersman, & Chavis, 1990). There was low internal reliability for the 12-item scale. The SCI alphas ranged from .64 to .69 and subscale alphas ranging from .07 to .72 (Chipuer & Pretty, 1999). The subscales' low reliability was likely due to the true/false format and that there were only three questions for each subscale (Chipuer & Pretty, 1999). Long and Perkins (2003) assessed the SCI to see if the scale measured SOC adequately and found that the SCI was not an appropriate scale to reflect the SOC theoretical model. Given these inadequacies, a revised SCI was created, the SCI-2.

SCI-2. The SCI-2 is grounded in the McMillian and Chavis (1986) theory of sense of community and it improved the reliability and validity of the original SCI. The revised index is still based on the original theory, but includes advancements made in the

study of SOC and an attempt to address limitations and concerns from critics (Chavis, Lee, & Acosta, 2008). The most significant change between SCI and SCI-2 was that SCI-2 has 24 items (vs. 12 in SCI) and the items are measured on a 4-point Likert scale (vs. a dichotomous yes/no response in the original SCI). SCI-2 was tested on "1,800 immigrants and receiving community members in 19 geographic areas across Colorado" and found to be reliable and valid across cultures, languages, and settings (Chavis et al., 2008, p. 9). That study showed the SCI-2 as reliable with an overall Cronbach's alpha of .94 with coefficient alpha scores of .79 to .86 (Chavis et al., 2008).

Sense of Community in the Leisure Literature

Parks and outdoor recreation. Sense of community (SOC) is a relatively new theoretical construct within the recreation and leisure literature and was only recently introduced in the urban neighborhood park literature (Gómez et al., 2015). As noted previously, several studies in the urban park literature note community benefits derived from urban parks, but very few look at the direct relationship between park use or park benefits and sense of community. Francis, Giles-Corti, Wood and Knuiman (2012) addressed this research gap by looking at public open space (POS) and its relationship to SOC. Additionally, evidence exists of a positive relationship between public and semipublic features of neighborhoods. For example, Kuo et al.'s (1998) central thesis in their work was that greener neighborhood commons give rise to stronger social ties in neighborhoods, which consequently creates stronger SOC.

Francis et al. (2012) introduced a conceptual model that illustrated the relationship between use of public space and sense of community (Figure 2). Their study utilized objective and subjective measures of physical (e.g., subjective proximity,

subjective quality, objective POS size, number of POS in neighborhood), social (e.g., perceptions of crime, participation in recreation activities with neighbors, amenities conducive to social interaction), POS use variables (e.g., frequency of park use, activities undertaken at a park, use park to relax), and demographic variables (e.g., gender, age, marital status, education). SOC was found to have a significant positive association with subjective quality of the parks, and a significant negative association with subjective distance to the park. Use of the park to relax was also positively associated with SOC. Francis et al. found no direct relationship between frequency of use and SOC.

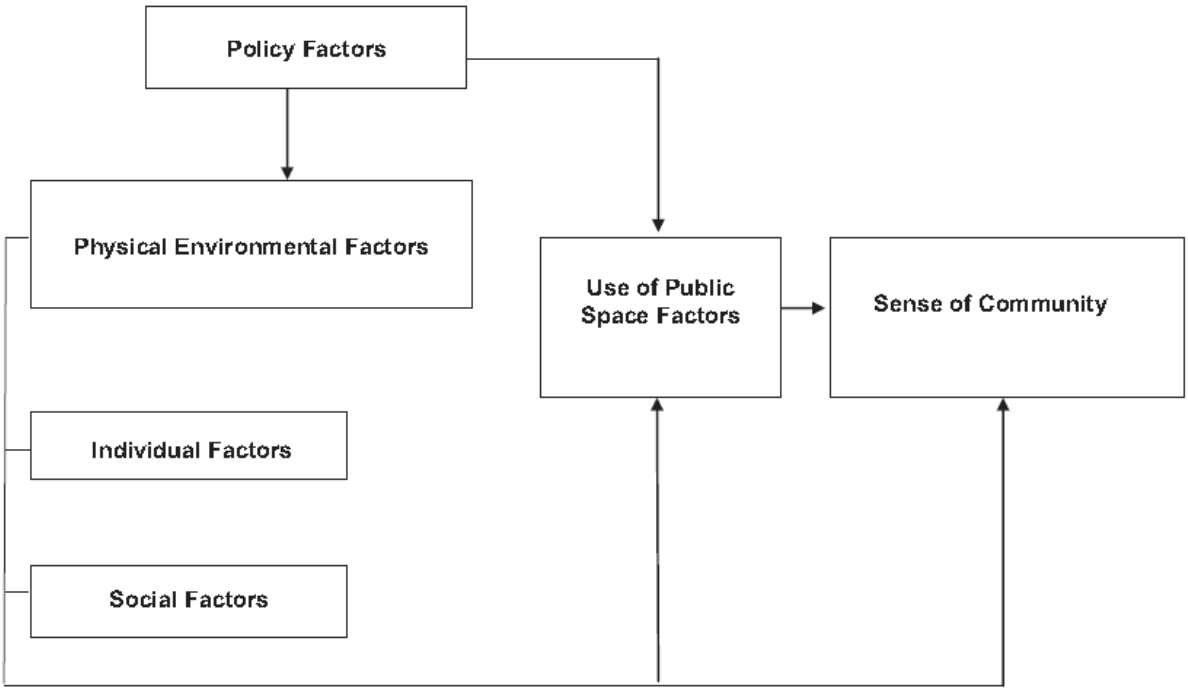

Figure 2. Conceptual model of relationship between public space and sense of community. Adapted from "Creating Sense of Community: The Role of Public Space," by J. Francis, B. Giles-Cort, L. Wood and M. Knuiman, 2012, *Journal of Environmental Psychology*, *32*, p. 403. Copyright 2012 by Elsevier Ltd.

Similarly, Gómez et al. (2015) found that there was not a significant direct relationship between neighborhood park use and SOC. They also found that proximity to

the park (operationalized as time in minutes to get to the park) and perceived distance to the park (operationalized by asking if the respondents thought the park was too far) both had a significant negative relationship with SOC. These findings were consistent with findings from Francis et al. (2012). The less time it took to get to the park and the less one perceived the park to be too far, the greater the overall SOC. Gómez et al. also reported that, on average, park users had significantly higher SOC than non-users and people living adjacent (property abuts the park) to a park had higher SOC than those non-adjacent (property has a physical barrier like a major road or water feature separating their neighborhood from the park) to the neighborhood park.

The only other study specific to recreation and mention of McMillan's (1986) SOC Theory was a study on outdoor recreation pursuits (wilderness experience program at a university) and perceived SOC of a campus outdoor recreation group (Breunig, O'Connell, Todd, Anderson, & Young, 2010). Breunig and colleagues found that college students participating in a wilderness experience program had an increase in all four dimensions of sense of community, as measured from initial group formation to the end of the experience. Although few articles have examined the direct relationship between SOC and urban park use, there is evidence from the community garden, urban green space, and sport management literature that SOC is a concept worthy of further exploration.

Community gardens. In community gardens, neighbors who care for a garden together create social connections and decrease social isolation (Shinew, Glover, & Parry, 2004; Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). Community gardens are places where people come together, increase communication with people from different

cultures/racial backgrounds, discuss issues within the community and can create a broader network within communities (Shinew et al., 2004; Wakefield et al., 2007). The level of social capital varies from one community garden to another, with some community gardens not having much of an impact (Firth, Maye, & Pearson, 2011). However, Kingsley and Townsend (2006) found that community garden benefits do not necessarily extend beyond the community garden in the initial stages of the development of the garden itself. Thus, there is indication of a lag between initial recreation resource availability and community benefits.

Green space. Green space refers to a piece of land that is open to the public and it is underdeveloped or free from infrastructure. Studies have shown that trees, grass, and vegetation attract residents who live in inner-city neighborhoods and greener neighborhoods have created strong social ties within the neighborhood (Kuo et al., 1998; Baur, Gómez, & Tynon, 2013). Maas et al. (2009) reported that people who had more green space around their homes were not as impacted during stress as those who did not live near green space. Small public urban green spaces (SPUGS) provide areas of intense socialization, rest, and restitution for residents in dense urban areas who are not able to reach larger urban-proximate green areas, and SPUGS tend to be the most common type of urban green space (Baur & Tynon, 2010; Baur et al., 2013; Byrne & Sipe, 2010; Peschardt et al., 2012).

Sport studies. The literature on sport studies has taken the lead in using the SOC framework and applying it to sport and athletic contexts. The sport management/sport studies literature has been using SOC in their research since 2011. Warner and Dixon (2013) were the first to explore the nature of SOC in sports, using collegiate sport athletes

as the community of interest. Unlike previous studies that operationalized the use of McMillan and Chavis' (1986) theoretical framework, Warner and Dixon sought to find a context-specific SOC for sport-related SOC. The central premise to their work was two-fold. First, they wanted to demonstrate if and when athletes have felt SOC within a specific sports context (e.g., collegiate athletics). Second, they wanted to identify the factors that contributed to a collegiate athlete's feeling of SOC.

Over several studies, Warner and her colleagues identified seven dimensions of SOC for athletes: (a) *Leadership Opportunities*, (b) *Social Spaces*, (c) *Administrative Consideration*, (d) *Equity in Administrative Decisions*, (e) *Competition* (f) *Voluntary Action*, and (b) *Common Interest*, and found a specific gendered perspective on the competition construct (Warner & Dixon, 2011; Warner & Dixon, 2013, Warner, Dixon, & Chalip, 2012). In consequent studies, not all dimensions held, but the seven dimensions led to the development of the Sport and Sense of Community (SSC) theoretical framework and model (Kerwin, Warner, Walker, & Stevens, 2015; Warner et al., 2012; Warner, Kerwin, & Walker, 2013). Kerwin et al. (2015), recommended that different versions of the SCS Scale may be considered based on context. In a separate study, using a phenomenological approach, Legg, Wells, Newland & Tanner (2017) found that social relationships, social spaces, perceptions of fairness, competition, and commitment were aspects of sport and sense of community in tennis players. Legg et al.'s findings both corroborated Warner and colleagues' previous work on the SSC theoretical framework and extended their findings.

Although Warner and colleagues felt that future research should explore the creation of a sport-specific SOC instrument, they did use the *Sense of Community Index-2*

(SCI-2) in previous studies while developing the SCS Scale and found consistent results using the SCI-2 (Walker et al., 2013). Walker and Leierer (2015) used the SCI-2 in a study on adolescents, and they found the four dimensions and overall SOC, as hypothesized by McMillan and Chavis (1986) to all be highly reliable, indicating continued utility of the scale in a sport context. Legg, Wells, and Barile (2015) also employed the SCI-2 in a study of youth sport parents and found the scale to have a very high reliability. Additionally, Phipps, Cooper, Shores, Williams and Mize (2015) used the SCI-2 in a study of on-campus intramural recreation participants and found significant relationships between frequency of participation and SOC, and frequency of participation and SOC dimensions.

In summary, the use of SOC has been discussed, alluded to, and measured in the leisure literature; however, there has been inconsistency in terms of measuring SOC. Inconsistencies in approaches and findings are due to context-specific SOC initiatives in sport studies and a lack of specific SOC scales using McMillan and Chavis' (1986) theoretical framework. In the Gómez et al.'s (2015) and Breunig et al.'s (2010) studies, they both referred to the McMillan and Chavis' SOC Theory, but did not use the SCI-2 scale, as the SCI-2 was not available until after their study was conducted. Findings from Warner and colleagues, as well as Legg and colleagues, and Phipps et al.'s (2015) study indicate that the SCI-2 is a reliable instrument used to measure SOC, and Gómez et al. suggested its specific use in future studies on park use and neighborhood SOC.

CHAPTER 3

METHODS

This study was reviewed by the Darden College of Education and Professional Studies' Human Subjects Review Board at Old Dominion University. Permission was given to use the SCI-2 (Appendix B). The study was granted exempt status on December 18, 2018 (see Appendix C). The following sections describe the instrument used, the targeted neighborhoods, and data collection procedures. Confidentiality was maintained by not asking residents to provide their name on the survey and not reporting street names in the study.

Instrumentation and Measurement

One of the limitations noted by Gómez et al. (2015) was that their study did not use a recognizable scale reflecting the SOC theory and suggested that future researchers use the *Sense of Community Index Scale 2* (SCI-2), given its theoretical grounding in community psychology. The instrument used for this study was the SCI-2 (Chavis, Lee, & Acosta, 2008). See Appendix D for the full instrument. The SCI-2 has been used in numerous studies that include samples from virtual communities (Abfalter, Zaglia, & Mueller, 2012), collegiate athletes (Phillips et al., 2015), adolescents and sport (Warner & Leierer, 2015), wilderness educational expeditions for students (Asfeldt, Purc-Stephenson, & Hvenegaard, 2017), people with physical disabilities and online communities (Obst & Stafurik, 2010). The SCI-2 was used in this study to measure McMillian and Chavis' (1986) theoretical framework of four dimensions of SOC. The SCI-2 is a 24-item measure that uses a four-point Likert-type scale (0 = not at all, 1=

somewhat, 2 = mostly, 3 = completely), with six items representing each of the four dimensions of SOC.

In addition to the SCI-2, there were other general questions included. The participants were asked how long they had lived in the neighborhood (in months/years) and how important it is for them to feel a sense of community with the members of their neighborhood (1 = prefer not to be a member of this community, 2 = not important at all, 3 = not very important, 4 = somewhat important, 5 = important, and 6 = very important). Participants were also asked how often they used the neighborhood park (1 = never, 2 = hardly ever/1-2 times a year, 3 = monthly/1-2 times a month, 4 = weekly/4 times a month, 5 = several times per week, and 6 = just about daily), how long it takes them to travel to the park (open-ended, in minutes), whether they walk or drive to the park (dichotomous), and how long they stayed at the park (open-ended, in minutes). The questionnaire also included questions about accessibility and the overall rating of the park (1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent). Benefits from the neighborhood park was on the survey and the Gómez scale, *Perceived Benefits of Municipal Parks* (PBMP) *Scale,* was used in the present study. The last section of the questionnaire included demographic questions.

Targeted Neighborhoods, Participants, and Data Collection

Data were collected in the surrounding streets of three neighborhood parks in Norfolk, Virginia. Norfolk is in the southeastern region of Virginia. The neighborhood parks are in the neighborhoods of Edgewater (Bluestone Park), Colonial Place (Colonial Place Greenway) and Titustown (Titustown Park). A map illustrating the civic leagues and associated neighborhoods can be found in Appendix E. As shown in the map, the

neighborhoods are primarily located in the eastern side of the city. Residents who were surveyed lived within a half mile radius of each park, since that is considered a reasonable walking distance and the park's service area (Lund, 2003). The questionnaires were administered door-to-door to residents over 18 years old. If a resident decided to participate, then his or her participation lasted approximately 10-15 minutes, if self-administered, or 20-30 minutes if administered by the researchers. Data collection began on December 20, 2018.

Christmas and New Year's fell on early weekdays, in 2018 and 2019, so respondents were surveyed on Thursdays, Fridays, Saturdays and Sundays in order to not interfere with festivities during the first two weeks of data collection. For the sake of consistency, this pattern was followed as it included two weekdays and two weekend days. Neighborhoods were visited at one of two 4-hour intervals: 9:00 a.m. – 1:00 p.m. or 2:30 p.m. – 6:30 p.m. (see Table 2). Thursday and Friday visits only used the 2:30 p.m. – 6:30 p.m. timeframe to try to reach residents between the time after school and around dinner time, it was speculated that most people would be working on Thursdays/Fridays, and the researcher did not want to bias the data collection process towards stay-at-home individuals. Both morning and afternoon times were used on Saturdays and Sundays, sometimes on the same day to maximize data gathering on any given street/neighborhood and availability of data collectors (Table 2).

Table 2

Data Collection in the Neighborhood Streets and Weather

Date	Day	Time	Street Code*	Weather °F
20-Dec	Thursday	2:30-6:30pm	E1	Lt. Scat. Rain, 63°
21-Dec	Friday	2:30-6:30pm	E2	Partly Sunny, 70°
22-Dec	Saturday	9:00am-1:00pm	E3	Partly Sunny, 54°
22-Dec	Saturday	2:30-6:30pm	E4	Sunny, 55°
28-Dec	Friday	2:30-6:30pm	E5	Partly Sunny, 70°
29-Dec	Saturday	2:30-6:30pm	E6	Sunny, 63°
3-Jan	Thursday	2:30-6:30pm	E7	Lt. Scat. Rain, 52°
4-Jan	Friday	2:30-6:30pm	E8	Partly Sunny, 60°
5-Jan	Saturday	9:00am-1:00pm	E9	Sunny, 57°
5-Jan	Saturday	2:30-6:30pm	C1	Sunny, 57°
6-Jan	Sunday	9:00am-1:00pm	C2	Sunny, 59°
6-Jan	Sunday	2:30-6:30pm	C3	Sunny, 63°
10-Jan	Thursday	2:30-6:30pm	C4	Sunny, 41°
11-Jan	Friday	2:30-6:30pm	C5	Sunny, 39°
12-Jan	Saturday	9:00am-1:00pm	C6	Partly Sunny, 39°
12-Jan	Saturday	2:30-6:30pm	C7	Partly Sunny, 41°
13-Jan	Sunday	9:00am-1:00pm	C8	Lt. Scat. Rain, 43°
13-Jan	Sunday	2:30-6:30pm	C9	Lt. Scat. Rain, 43°
17-Jan	Thursday	2:30-6:30pm	C10	Partly Sunny, 45°
18-Jan	Friday	2:30-6:30pm	T1	Partly Sunny, 45°
19-Jan	Saturday	9:00am-1:00pm	T2	Sunny, 50°
19-Jan	Saturday	2:30-6:30pm	T3	Sunny, 50°
20-Jan	Sunday	9:00am-1:00pm	T4	Lt. Scat. Rain, 63°
20-Jan	Sunday	2:30-6:30pm	T5	Overcast, 59°
24-Jan	Thursday	2:30-6:30pm	T6	Lt. Scat. Rain, 66°
25-Jan	Friday	2:30-6:30pm	T7	Sunny, 46°
26-Jan	Saturday	9:00am-1:00pm	T8	Sunny, 46°
26-Jan	Saturday	2:30-6:30pm	T9	Sunny, 48°
27-Jan	Sunday	9:00am-1:00pm	T10	Partly Sunny, 52°
27-Jan	Sunday	2:30-6:30pm	T11	Partly Sunny, 52°

* - For purposes of confidentiality streets names are not shown, but are known only to the researchers

Data were collected on one street, per neighborhood visit. Visits to households were tracked using a tool to note homes that were approached, surveys conducted onsite, and if people refused, wanted to do the study via mail, or were not home (see Appendix F). If residents were willing to participate at the time of the visit, the questionnaire was administered immediately. The data collectors asked the first adult to come to the door to participate in the study. Only one member of each household was surveyed or asked to participate in the study.

Three data collectors were trained by Dr. Edwin Gómez, a faculty member of the dissertation committee. Upon the data collectors introducing themselves, residents were informed about the purpose of the study, verbally and with a flyer (Appendix G), and asked if they were over the age of 18 and interested in participating. If residents said "yes," the data collectors assumed informed consent (Appendix H) and let them know that they did not have to answer questions they were not comfortable answering. Residents had the option of self-administering or having the questionnaire administered to them. If residents self-administered, data collectors moved on to the next house in the street and informed the resident they would be back for the survey, and to feel free to flag them down if they were done before they returned. On days when it was particularly cold, residents would take the survey in their home and text or call the data collector's cell phone when they had completed the questionnaire. There were always two to three data collectors out on the same street during data collection in the neighborhood. At no point would a data collector ever enter a house, nor would a data collector ever be alone in the street/neighborhood.

If the resident did not have time, a survey was left with a self-addressed stamped envelope sent directly to the lead researcher. If there was no one home at the time, data collectors moved on to the next house. The total number of homes approached (i.e., those homes where data collectors interacted with a resident) per street and response rate per street and neighborhood were recorded (Table 3). Due to time and financial constraints, and the time of year, follow up visits were not conducted. Data collectors were fortunate that temperatures were relatively mild (Table 2).

As Table 3 indicates, total surveys collected were 309, and the overall response rate was 46.3% across all neighborhoods. For a questionnaire to be considered complete, all benefits and SOC items had to be answered. Data collectors were trained to visually inspect these items and ask/follow up with respondents to see if they would be willing to complete just the remaining benefits or SOC items. Because it involved only 2-3 items, respondents complied, resulting in almost all surveys being completed (Table 3). There were 19 surveys that did not meet the "completed" requirement and 18 of those were from surveys returned by mail. Overall, 30 streets were visited (9 in Edgewater, 10 in Colonial Place, and 11 in Titusville) in six weeks (Table 2). Weather/temperature did impact data collection, as either less people participated or more of them opted for mailing the survey. Mailed surveys in Table 3 reflect actual surveys received by mail. The next section explains how the data were analyzed.

Table 3

Neighborhood Street Summary (N = 309) and Response Rate

Neighborhood	Street Code*	Homes Approached	Onsite	Mailed	Total Surveys	Incomplete	Complete	RR**
Edgewater	E1	32	14	3	17	2	15	46.9%
	E2	33	14	2	16	1	15	45.5%
	E3	29	13	3	16	2	14	48.3%
	E4	32	13	3	15	2	13	40.6%
	E5	30	14	1	15	1	14	46.7%
	E6	13	5	1	6	0	6	46.2%
	E7	21	8	2	10	1	9	42.9%
	E8	26	9	0	9	0	9	34.6%
	E9	31	9	2	11	1	10	32.3%
		216	99	17	115	10	**105**	48.6%
Colonial Place	C1	25	12	3	15	0	15	60.0%
	C2	20	7	1	8	0	8	40.0%
	C3	31	13	3	16	1	15	48.4%
	C4	32	10	1	11	1	10	31.3%
	C5	30	9	1	10	0	10	33.3%
	C6	26	11	6	17	2	15	57.7%
	C7	12	4	1	5	0	5	41.7%
	C8	15	6	0	6	0	6	40.0%
	C9	21	9	3	12	1	11	52.4%
	C10	26	6	2	8	0	8	30.8%
		238	87	21	108	5	**103**	43.3%
Titustown	T1	32	13	3	16	2	14	43.8%
	T2	21	10	3	13	1	12	57.1%
	T3	12	8	0	8	0	8	66.7%
	T4	17	10	0	10	0	10	58.8%
	T5	15	8	0	8	0	8	53.3%
	T6	20	5	1	6	0	6	30.0%
	T7	22	7	1	8	0	8	36.4%
	T8	12	6	0	6	0	6	50.0%
	T9	14	5	1	6	0	6	42.9%
	T10	21	8	0	8	0	8	38.1%
	T11	28	13	3	16	1	15	53.6%
		214	93	12	105	4	**101**	47.2%

* - For purposes of anonymity, street names are not shown, but are known only to the researchers

** - RR = Response Rate

Data Analysis

Descriptive statistics were used to examine demographic characteristics, frequency of park use, perception of the park (overall rating/quality), perceived accessibility (convenience) to the park, how residents get to the park, and how long residents stay at the park. Confirmatory factor analysis (CFA)/structural equation modeling (SEM) was used to confirm the four factor SOC model, as measured by SCI-2 (McMillan & Chavis, 1986), and the unidimensional benefits-based items developed by Gómez (1999; 2006) – the *Perceived Benefits of Municipal Parks* (PBMP) *Scale*. Cronbach's alpha (α) was used to test the reliability of each dimension of the SCI-2 and the PBMP. IBM SPSS and Amos, version 24 were used for the analyses.

Correlation analysis. Pearson correlations (*r*) were used to assess the relationship between park use and the dimensions of the SCI-2 as well as the overall SOC to assess if there is a direct relationship between park use and SOC. Additional correlations will explore the relationship between (a) access to the park, (b) perception of the park, (c) park use, (d) SOC, (e) benefits, and (f) length of stay at the park. Support for these relationships exist or have been alluded to in the previously cited literature. If significant correlations were found, variables were then entered into a regression (r^2, multiple r^2) analysis, with SOC as the dependent variable.

Group analysis. Independent samples *t*-tests were performed to see if there were differences in each dimension of SOC and overall SOC with respect to users and non-users of the parks. Independent samples *t*-tests were also performed on gender, race and marital status differences related to perceived benefits, perceived perceptions of the park, and park use. ANOVAs were performed to explore differences between educational

groups, age groups, income groups, and the three neighborhoods to see if there are differences between perceived benefits, perceived perceptions of the park, and park use. All analyses were performed at $p < .05$.

CHAPTER IV

RESULTS

The purpose of this study was to explore the relationship between sense of community (SOC) in three Norfolk, Virginia neighborhoods and park use by residents that live within a ½ mile radius of their neighborhood park. This chapter provides an overview of the results for this study. A description of the sample is provided. Detailed information about data analysis and the findings are also included in this chapter. The findings for this chapter are ordered in the following manner: (a) descriptive statistics related to the overall sample and the neighborhoods, (b) an assessment of the factor structure of the SCI-2, which measures SOC, (c) correlation and regression analyses, and (d) analyses looking at mean differences (*t*-tests and ANOVAs).

Descriptive Statistics

Demographic variables (full sample). Out of 309 respondents surveyed, 52.4% were female (Table 4). Respondents' ages ranged from 18 to 85 (M = 43.7, SD = 16.2). The racial/ethnic background of the respondents was primarily white (67.6%). Originally, the non-white sample consisted of Black/African American (17.8%), Latino/Hispanic (3.2%), and other (3.2%), but were combined for the purposes of analyses as there were not enough of the Latino and "other" groups to warrant additional group divisions. Slightly over half the sample (56.6%) was married. Affluence was measured in terms of lower affluence (< $50,000), mid-affluence ($50,000-99,999) and high affluence ($100,000+). Overall, the sample was a fairly affluent sample with the majority (39.4%) in the mid-affluent group, followed closely by residents in the high affluence group (34.6%). Educationally, the majority had a bachelor's degree (37.2%), followed closely

by people having a graduate degree (35.3%). People less than 30 years old (22.6%) represented the largest group, followed very closely by those in their 40s (21.7%) and 30s (20.7%). In summary the sample represents a mostly white married female with post-secondary education and under the age of 50. However, these overall demographics vary by neighborhood (Table 4).

Demographic variables (notable differences by neighborhood). Table 4 indicates that although Colonial Place and Titus reflect the overall pattern for gender, Edgewater is more over-represented by women (61%), whereas Colonial Place and Titustown have about the same gender break-down and are slightly over-represented by men. From highest to lowest, Edgewater has the whitest (79.0%) representation in the sample, followed by Colonial place (66.0%) and Titustown (57.4%). The same pattern was noticeable related to affluence, where Edgewater had the most people in the high affluence category (46.7%), Colonial Place had the most people in the mid-affluence category (51.4%) and Titustown had the most people in the lower affluence group (46.6%). Table 4 indicates that Edgewater is more over-represented by married people (67.6%) in the sample, whereas Colonial Place and Titusville have about the same marital status break-down and are slightly over-represented by married residents. Age varied according to neighborhood as well. For example, Edgewater had more people in their 40s (24.5%) participate in the study, whereas Colonial Place and Titustown had more people in their 30s (30.8%) and < 30s (27.7%), respectively, participate in the current study. In summary, Edgewater residents were whiter, older, more married and had the highest socioeconomic standing based on income and education, while Titustown residents were the most diverse, youngest, had an equal amount of married to non-married individuals,

and had the lowest socioeconomic standing. Colonial Place was somewhere between the two. Given these differences, it will be important to explore the relationship between demographic variables, park use, perceived benefits and SOC.

Table 4
Demographic Characteristics

Variables	Total Sample *N* [a] = 309		Edgewater *n* = 105		Colonial Place *n* =103		Titustown *n* = 101	
	n	%	*n*	%	*n*	%	*n*	%
Gender Categories								
Female	155	52.4	64	61.0	43	47.8	53	47.5
Male	141	47.6	41	39.0	47	52.2	48	52.5
Ethnic/Race Categories								
Non-White	100	32.4	22	21.0	35	34.0	43	42.6
White	209	67.6	83	79.0	68	66.0	58	57.4
Marital Categories								
Unmarried	134	43.4	34	32.4	50	48.5	50	49.5
Married	175	56.6	71	67.6	53	51.5	51	50.5
Income Categories								
< 50,000	66	26.0	17	19.6	7	9.5	41	46.6
50,000 – 99,999	100	39.4	31	33.7	38	51.4	34	35.2
100,000+	88	34.6	43	46.7	29	39.2	16	18.2
Education Categories								
< Baccalaureate	85	27.5	21	20.0	11	10.7	53	52.5
Baccalaureate	115	37.2	42	40.0	45	43.7	28	27.7
Graduate	109	35.3	42	40.0	47	45.6	20	19.8
Mean age	43.7 (*SD* = 16.18)		43.7 (*SD* = 15.73)		43.0 (*SD* = 14.56)		44.3 (*SD* = 17.97)	
Age Categories								
18-29	61	22.6	22	22.4	13	16.7	26	27.7
30-39	56	20.7	19	19.4	24	30.8	13	13.8
40-49	58	21.5	24	24.5	18	23.1	16	17.0
50-59	44	16.3	17	17.3	10	12.8	17	18.1
60+	51	18.9	16	16.3	13	16.7	22	23.4

[a] – *N*/*n* varies by variable due to missing cases

Park variables. The frequency of park use for residents ranged from never to daily (Table 5) and residents averaged (*M* = 2.0, *SD* = 1.5) 1-2 monthly trips (Table 6). Park non-users and low-users (1-2 times a year) were recoded into *non-users* (43.4%) and all others were coded as *park users* (56.6%). The reported travel to all three parks ranged from 1-30 minutes and residents averaged approximately six minutes (*M* = 5.8, *SD* = 4.0) to get to a neighborhood park. Once residents were at the park they stayed on average 50 minutes (*M* = 50.8, *SD* = 30.7; *Mdn* = 45; *Mde* = 60). In Tables 5 and 6, results show that residents generally find the parks to be accessible (accessibility was defined for residents as the extent to which they feel a park is convenient to get to in their neighborhood) and the majority (79.5%) walk to their neighborhood park. Residents in all neighborhoods perceive their parks to be of "good" quality; however, 9 of the 10 who indicated "poor" for the entire sample were from Titustown.

Park variables (notable differences by neighborhood). Table 5 indicates that Titustown has the highest number of non-users (52.5%), followed by Colonial Place (42.7%) and Edgewater (35.2%), indicating that those in Edgewater use the neighborhood park more than the other two neighborhoods. The same pattern was noticeable related to the perceived time it took to get to the park (Table 6), where Titustown had the longest travel time (*M* = 6.5 min, *SD* = 4.8), followed by Colonial Place (*M* = 6.0 min, *SD* = 3.5) and Edgewater (*M* = 4.9 min, *SD* = 3.3). Results showed that residents generally find parks to be accessible (accessibility was defined for residents as the extent to which they feel a park is convenient to get to in their neighborhood). Titustown residents perceived the least access to their park and Edgewater perceived parks to be the most accessible.

Table 5
Park and Neighborhood Characteristics – Frequencies and Percentages

Variables	Total Sample *N* [a] = 309		Edgewater *n* = 105		Colonial Place *n* =103		Titustown *n* = 101	
	n	%	*n*	%	*n*	%	*n*	%
Park Use [b] (original)								
Never	49	15.9	12	11.4	10	9.7	27	26.7
Hardly Ever (1-2x/year)	86	27.8	26	24.8	34	33.0	26	25.7
Monthly (1-2x/month)	68	22.0	27	25.7	20	19.4	21	20.8
Weekly (4x/month)	48	15.5	17	16.2	23	22.3	8	7.9
Several times/week	39	12.6	16	15.2	12	11.7	11	10.9
Just about daily	19	6.1	7	6.7	4	3.9	8	7.9
Park Use [c] (dichotomous)								
Non-users	134	43.4	37	35.2	44	42.7	53	52.5
Users	175	56.6	68	64.8	59	57.3	48	47.5
Access/Convenience [d]								
Not accessible	4	1.3	1	1.0	1	1.1	2	2.0
Poorly accessible	6	1.9	0	0.0	1	1.1	5	5.0
Kind of accessible	38	12.3	10	9.6	10	10.6	18	17.8
Accessible	71	23.0	17	16.3	27	28.7	27	26.7
Very Accessible	88	28.5	35	33.7	33	35.1	20	19.8
Extremely Accessible	92	29.8	41	39.4	22	23.4	29	28.7
Overall Park Perception [e]								
Poor	10	3.2	1	1.0	0	0.0	9	8.9
Fair	44	14.2	13	12.4	18	17.5	13	12.9
Good	127	41.1	22	21.0	57	55.3	48	47.5
Very Good	103	33.3	53	50.5	24	23.3	26	25.7
Excellent	25	8.1	16	15.2	4	3.9	5	5.0
Walk/Drive to Park								
Walk	232	79.5	93	90.3	79	83.2	60	63.8
Drive	60	20.5	10	9.7	16	16.8	34	36.2
Importance of SOC [f]								
Prefer not to be …	4	1.3	0	0.0	1	1.0	3	3.0
Not important at all	6	1.9	1	1.0	0	0.0	5	5.0
Not very important	18	5.8	7	6.7	6	5.8	5	5.0
Somewhat important	57	18.4	18	17.1	18	17.5	21	20.8
Important	129	41.7	47	44.8	45	43.7	37	36.6
Very important	95	30.7	32	30.5	33	32.0	30	29.7

[a] – *N*/*n* varies by variable due to missing cases
[b] – Park use, Likert-scale coded from 0 = Never to 5 = Just about Daily
[c] – Park use re-coded, 0 = Never/Hardly ever combined (non-user) and 1 = all other previous use categories (users)
[d] – Accessibility/Convenience, Likert-scale coded from 1 = Not Accessible to 6 = Extremely Accessible
[e] – Overall Park Perception, Likert-scale coded from 1 = Poor to 5 = Excellent
[f] – Importance of feeling a Sense of Community with other neighborhood members, Likert-scale coded from 1 = Prefer not to be a part of this community to 6 = Very important

The pattern was also found to be related to access, where Titustown residents generally perceived the least access to its park, followed by Colonial Place residents, and Edgewater residents perceived parks to be the most accessible (Tables 5 and 6). Although residents of Titustown use parks the least, when they do use them, they tend to stay more time on average than residents in the other two neighborhoods (Table 6). An overwhelming majority (90.2%) of Edgewater residents walk to their neighborhood park.

Table 6
Park and Neighborhood Characteristics – Means and Standard Deviations

Variables	Total Sample *N* [a] = 309		Edgewater *n* = 105		Colonial Place *n* =103		Titustown *n* = 101	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Park Use [b]	2.0	1.5	2.2	1.4	2.1	1.3	1.8	1.6
Travel Time to Park [c]	5.8	4.0	4.9	3.3	6.0	3.5	6.5	4.8
Time Stayed at Park [d]	50.5	30.7	46.0	30.2	45.8	27.2	61.1	32.4
Access/Convenience [e]	4.7	1.2	5.0	1.1	4.7	1.1	4.4	1.3
Perception of Park [f]	3.3	0.9	3.7	0.9	3.1	0.7	3.1	1.0
Length of Residency [g]	12.5	14.1	12.2	12.6	10.2	11.9	15.1	17.0
Importance of SOC [h]	4.9	1.1	5.0	0.9	5.0	0.9	4.7	1.3

[a] – *N*/*n* varies by variable due to missing cases
[b] – Park use Likert-scale coded from 0 = Never to 5 = Just about Daily
[c] – Travel Time to Park (in minutes), open-ended, Range: 1 minute to 20 minutes
[d] – Time stayed at the park (in minutes), open-ended, Range: 5 minutes to 120 minutes
[e] – Accessibility/Convenience, Likert-scale coded from 1 = Not Accessible to 6 = Extremely Accessible
[f] – Overall Park Perception, Likert-scale coded from 1 = Poor to 5 = Excellent
[g] – Time living in neighborhood, open-ended, months converted to years, Range: 1 month (.08 years) to 971 months (80.92 years)
[h] – Importance of feeling a Sense of Community with other neighborhood members, Likert-scale coded from 1 = Prefer not to be a part of this community to 6 = Very Important

Neighborhood variables. On average, residents lived on their block 12.5 years (*SD* = 14.1), and length of residency ranged from 1 month to 81 years. Table 5 indicates that all neighborhoods felt that SOC was important as the majority (two thirds or more) in all neighborhoods reported SOC in the neighborhood as being either “important” or “very important.” Table 6 also indicates that the average was around a “5” or “important” across all groups.

While this section reported on patterns in the data, it is important to note that these have been descriptive in nature and have not been tested for statistically significant differences. These analyses will be performed below to confirm whether these notable patterns within and between neighborhoods are statistically significant. Prior to assessing relationships and further analyses, the next section will discuss the CFA for the sense of community and benefits items. It is important to assess these constructs to know if all or some constructs can be used in subsequent analyses. The next section discusses the confirmatory factor analyses on the SCI-2/SOC and the *Perceived Benefits of Municipal Parks* (PBMP) *Scale*.

Confirmatory Factor Analysis of Sense of Community

Evaluating model fit. Evaluation of model fit (i.e., do the models for SOC and PBMP fit the sample data) was based on the following fit indices: the χ^2 model test; Bentler's (1990) revised normed comparative fit index (CFI; > .95 great, > .90 traditionally acceptable), the root mean square error of approximation (RMSEA; < .05 great, .05 - .10 is acceptable, > .10 poor), and standardized root mean square residual (SRMR; < .09 is acceptable). These indices reflect model fit (χ^2 test), absolute fit (SRMR, RMSEA), incremental fit (CFI), and the corresponding thresholds are generally accepted in CFA/structural equation modeling (SEM) (Byrne, 2010; Hair, Black, Babin, & Anderson, 2010; Hooper, Coghlan, & Mullen, 2008; Kline, 2011; Thompson, 2004). Assuming dimensions hold, items were converted to composite variables for the purposes of other analyses.

For the current study, each question in the SCI-2 was given a corresponding item name for the purposes of analyses (Table 7). The item names will be referred to in

subsequent analyses, and in any figures presented. In Table 7, the 24 questions used to represent SOC are separated by reinforcement of met needs (RMN), membership (MEM), influence (INF) and shared emotional connection (SEC) dimensions, reflecting six items per dimension. The graphic representation of the four dimensions of SOC is presented in Figure 3.

Table 7

Item Names for Sense of Community Variables from the SCI-2

Number and Wording on Sense of Community Index-2	Item Name
Reinforcement of Met Needs	
1. I get important needs of mine met because I am part of this community.	RMN01
2. Community members and I value the same things.	RMN02
3. This community has been successful in getting needs of its members met.	RMN03
4. Being a member of the community makes me feel good.	RMN04
5. When I have a problem, I can talk about it with members of this community.	RMN05
6. People in this community have similar needs, priorities, and goals	RMN06
Membership	
7. I can trust people in this community.	MEM01
8. I can recognize most of the members of this community.	MEM02
9. Most community members know me.	MEM03
10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people recognize.	MEM04
11. I put a lot of time and effort into being part of this community.	MEM05
12. Being a member of this community is a part of my identity.	MEM06
Influence	
13. Fitting into this community is important to me.	INF01
14. This community can influence other communities.	INF02
15. I care about what other community members think of me.	INF03
16. I have influence over what his community is like.	INF04
17. If there is a problem in this community, members can get it solved.	INF05
18. This community has good leaders.	INF06
Shared Emotional Connection	
19. It is very important to me to be a part of this community.	SEC01
20. I am with other community members a lot and enjoy being with them.	SEC02
21. I expect to be a part of this community for a long time.	SEC03
22. Members of this community have shared important events together, such as holidays, celebrations, or disasters.	SEC04
23. I feel hopeful about the future of this community.	SEC05
24. Members of this community care about each other.	SEC06

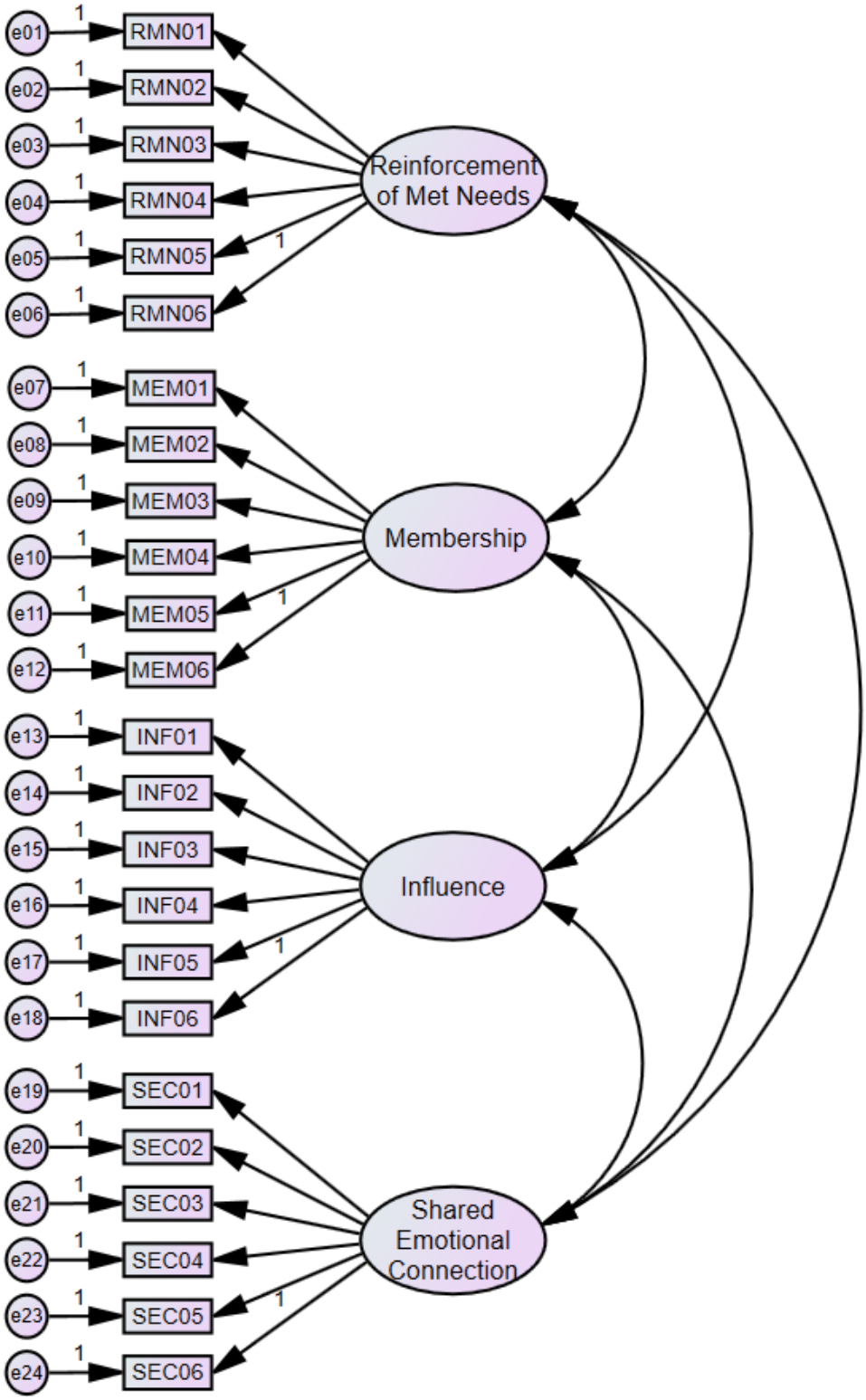

Figure 3. Conceptual Model of Sense of Community

Assessment of normality. Table 8 reflects the means for Edgewater, Colonial Place, Titustown and the full database. All SCI-2/SOC items were measured on a 4-point, Likert-type scale where 0 = not at all, 1 = somewhat, 2 = mostly, and 3 = completely. Table 8 shows univariate analysis of the means, standard deviations, skewness and kurtosis of the SOC items for the full database. Prior to using items in a CFA, it is important to assess normal distribution.

According to Kline (2011), for SEM, the skewness index with absolute values > 3.0 and a kurtosis index with absolute values > 10.0 indicate “extreme” non-normality, and corrective action should be taken (e.g., transformation or removal). For SOC items in Table 8, none of the items are overly skewed or kurtotic, indicating the items do not depart substantially from normality. For multivariate analysis of normality, the Mahalanobis distance test was used to assess multivariate outliers, using Kline’s suggestion of $p < .001$ for significance, only four cases appeared to be potential outliers in the dataset. The four were removed and comparisons between the full data set and the new data resulted in no notable improvement in skewness or kurtosis, indicating that although there are outliers, their influence on skewness and kurtosis was relatively minor. As such, the original data set was retained.

Table 8

Sense of Community Means and Distribution Statistics

	Full Sample [a]				Edgewater		Colonial Place		Titustown	
Items	*Sk*	*K*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
RMN01	-0.07	-0.79	1.69	0.89	1.77	0.87	1.73	0.76	1.55	1.01
RMN02	-0.19	-0.17	1.82	0.72	1.82	0.73	1.86	0.66	1.76	0.76
RMN03	-0.35	0.04	1.80	0.73	1.87	0.69	1.82	0.64	1.70	0.85
RMN04	-0.69	-0.23	2.12	0.85	2.19	0.83	2.26	0.73	1.91	0.94
RMN05	-0.24	-0.72	1.75	0.90	1.74	0.82	1.84	0.81	1.65	1.04
RMN06	-0.33	-0.18	1.80	0.78	1.78	0.78	1.89	0.66	1.72	0.88
MEM01	-0.52	0.23	1.94	0.76	1.98	0.65	1.96	0.64	1.86	0.95
MEM02	-0.11	-0.70	1.70	0.87	1.63	0.89	1.70	0.83	1.78	0.88
MEM03	0.13	-0.57	1.48	0.84	1.41	0.78	1.49	0.81	1.53	0.93
MEM04	0.41	-0.73	1.18	0.95	1.08	0.88	1.38	0.85	1.10	1.07
MEM05	0.36	-0.52	1.30	0.88	1.19	0.80	1.41	0.82	1.30	1.01
MEM06	0.22	-0.95	1.35	0.98	1.21	0.94	1.49	0.92	1.35	1.07
INF01	-0.05	-0.82	1.52	0.92	1.37	0.87	1.64	0.87	1.54	1.01
INF02	0.03	-0.75	1.61	0.88	1.66	0.88	1.66	0.82	1.51	0.93
INF03	0.08	-0.80	1.42	0.91	1.30	0.78	1.46	0.92	1.51	1.03
INF04	0.32	-0.45	1.26	0.85	1.17	0.69	1.37	0.80	1.24	1.02
INF05	-0.09	-0.45	1.69	0.79	1.67	0.72	1.74	0.73	1.65	0.92
INF06	-0.13	-0.62	1.72	0.84	1.69	0.80	1.72	0.71	1.76	1.00
SEC01	-0.25	-0.72	1.73	0.91	1.68	0.89	1.89	0.78	1.61	1.02
SEC02	0.08	-0.95	1.52	0.96	1.52	0.91	1.50	0.93	1.55	1.04
SEC03	-0.45	-0.81	1.86	0.97	1.84	0.94	1.96	0.95	1.79	1.03
SEC04	-0.19	-0.79	1.76	0.90	1.68	0.85	1.91	0.79	1.69	1.03
SEC05	-0.73	0.01	2.05	0.86	2.09	0.81	2.16	0.71	1.91	1.01
SEC06	-0.50	-0.02	1.96	0.78	1.99	0.71	2.02	0.63	1.87	0.98

[a] - *Sk* = Skewness (SE=.14); *K* = Kurtosis (SE=.28) - presented for full sample only

Assessing the SOC model. Figure 3 was entered into Amos in order to assess model fit. Following best practices for reporting CFAs and scale development (Cabrera-Nguyen, 2010; Hurley et al., 1997; Schreiber, Nora, Stage, Barlow, & King, 2006), decision and test guidelines should be noted before a CFA is conducted. An *a priori* hypothesis was that the relationships between the variances of variables should increase the fit of the model. Pragmatic justification, such as items containing similar words or phrases, has been used as a rationale for error correlation (Cabrera-Nguyen, 2010). For the current study, if modification indices (MIs) noted an error covariance for a better fitting model, the covariance was only allowed if the modification improves (decreases) the χ^2 by 30 points and such modification is theoretically sound (Byrne, 2010).

Goodness-of-fit indices for each model are shown in Table 9. Table 9 illustrates that the CFI in the original model (Modal A) was just under .90 and not acceptable, but the RMSEA and SRMR were acceptable. MIs indicated that the errors between MEM08 (I can recognize most of the members of this community) and MEM09 (Most community members know me) would decrease the χ^2 and should be correlated. Correlating these two items makes sense because if residents were able to recognize most people in the neighborhood, then it would make sense this is highly correlated with residents feeling that most community members would also know them.

Table 9
CFA Models for Sense of Community

CFA Model	Goodness-of-Fit Indices						Model Comparison	
	χ^2	*df*	χ^2/df	*CFI*	*RMSEA (90% CI)*	*SRMR*	*ΔCFI*	$\Delta\chi^2$
A	857.297	246	3.485	0.875	.090 (.083, .096)	0.054	-	-
B	670.422	244	2.748	0.913	.075 (.069, .082)	0.049	0.038	186.875*

Note. * $p < .05$; CFA=confirmatory factor analysis; CFI=comparative fit index; RMSEA = root mean squared error of approximation; 90% CI=90% confidence interval; SRMR=standardized root mean-square residual; Model A=24 items; Model B=24 items with error covariance between RMN08–RMN09 and INF17–INF18.

The MIs also indicated that the errors between INF17 (If there is a problem in this community, members can get it solved) and INF18 (This community has good leaders) would decrease the χ^2 and should be correlated. Correlating these two item error variances is understandable because if residents feel that neighbors can solve community problems, then it would be reasonable that this is correlated with residents feeling that there are good leaders in the community. Although other changes were suggested by MIs, they did not make substantive or theoretical sense to correlate error terms. The goal was to keep the model as true to the original McMillan and Chavis (1986) conceptualization, while stabilizing the model and achieve minimal acceptable levels of model fit, based on previously noted statistics for model fit.

The extent to which the new slightly modified model (Model B) was an improvement over its predecessor was assessed by $\Delta\chi^2$ and ΔCFI between the two models, whereby a $\Delta\chi^2$, $p < .05$, and $\Delta|CFI| > .01$ is considered significant (Cheung & Rensvold, 2002; Kline, 2011). Modifying the model by correlating the two pairs of items within the MEM and INF dimensions decreased the χ^2 by 186.88 (Table 9). The change

was found to be significant and the Δ|CFI| was > .01. Table 9 illustrates that the CFI in the revised model was over .90 and the RMSEA and SRMR were also acceptable – indicating the model had an acceptable fit with the data and no further modifications were needed – all 24 items were retained. Figure 4 illustrates the final conceptual model used for this study. In Table 10, items met the minimum criteria of having a primary factor loading (λ) of .40 or above (Stevens, 2002).

Reliability Analysis of the SCI-2

The SCI-2 was used to measure the SOC and the 24-item questionnaire has four dimensions. Each dimension consists of six items (Table 10). Cronbach's alpha (α) was used to test the reliability of each dimension. Membership, influence, reinforcement of needs, and shared emotional connection are the four dimensions in the SCI 2. The membership subscale (MEM) consists of six items (α = .83), the influence subscale (INF) consisted of 6 items (α = .87), the reinforcement of needs subscale (RON) consisted of 6 items (α =.88), the shared emotional connection subscale (SEC) consisted of 6 items (α = .89). The SCI-2, when assessed unidimensionally, was found to be highly reliable (24 items; α = .96). An inspection of the data analysis indicated that the scale reliability could not be improved by eliminating any items from the SCI-2 in this case.

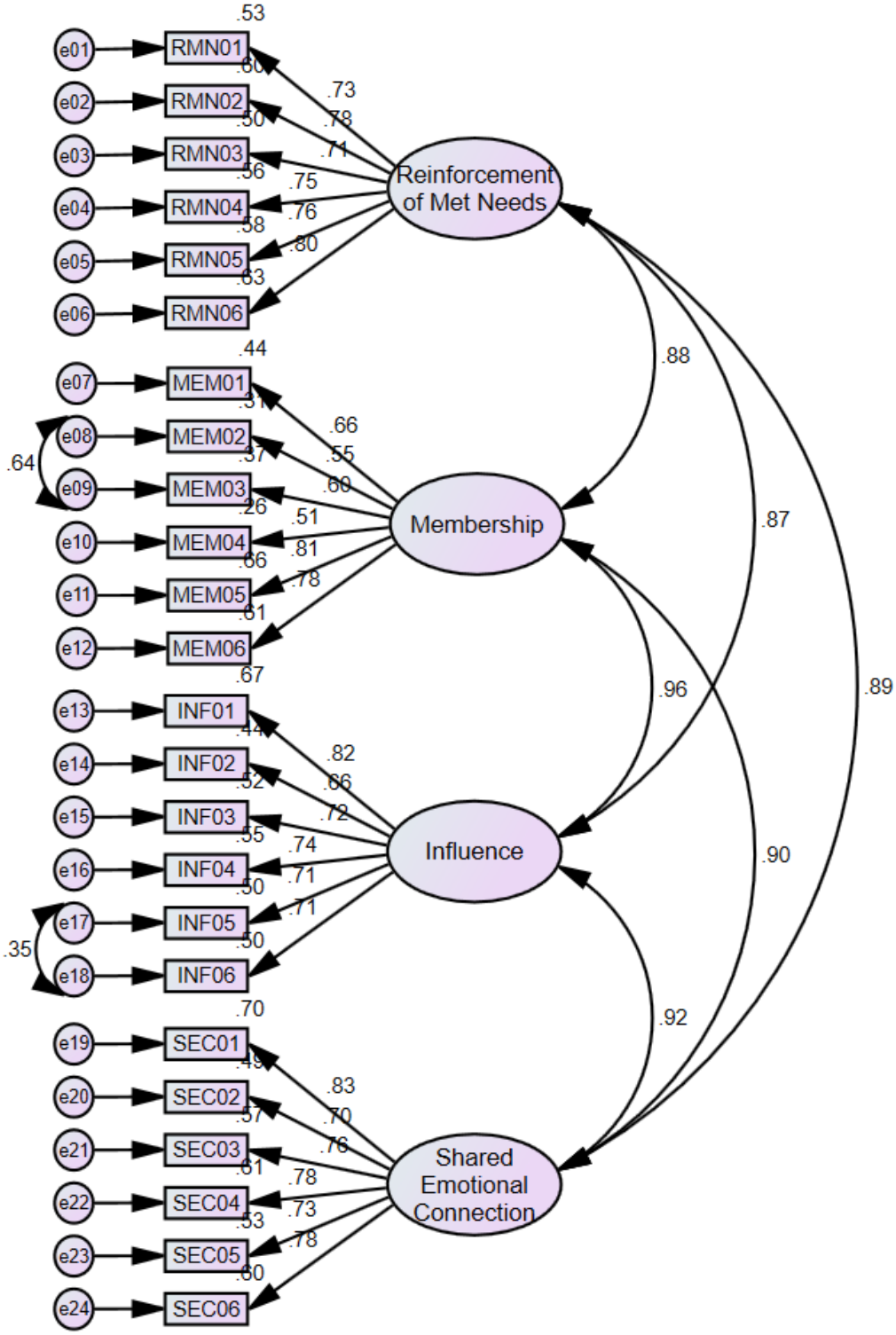

Figure 4. Sense of Community Structural Equation Model with Standardized Parameters

Table 10
Standardized Items and Factor Loadings for SOC as Measured by SCI-2

Factors/Items	Factor Loading	*SE*	*α*
Reinforcement of Met Needs (RMN)			.88
RMN01	.73	.08	
RMN02	.78	.06	
RMN03	.71	.06	
RMN04	.75	.07	
RMN05	.76	.08	
RMN06	.80	--	
Membership (MEM)			.83
MEM01	.66	.06	
MEM02	.55	.06	
MEM03	.60	.06	
MEM04	.51	.07	
MEM05	.81	.06	
MEM06	.78	--	
Influence (INF)			.87
INF01	.82	.09	
INF02	.66	.09	
INF03	.72	.09	
INF02	.74	.09	
INF02	.71	.06	
INF02	.71	--	
Shared Emotional Connection (SEC)			.89
SEC01	.83	.08	
SEC01	.70	.09	
SEC01	.76	.09	
SEC01	.78	.08	
SEC01	.73	.08	
SEC01	.78	--	

As part of the assessment of SOC, via the SCI-2 (see Appendix B), it is recommended that researchers correlate the SOC dimensions and overall SOC with the "Importance of SOC" (*ImpSOC*) variable (i.e., How important is it to you to feel a sense of community with other community members? Coded from 1 = Prefer not to be a part of this community to 7 = Very important). In the instructions for SCI-2, the correlations between SOC and *ImpSOC* is a validating step. According to Vaske (2008), this is known as convergent validity and it is another form of construct validity. Evidence of convergent validity exists when variables are expected to correlate and "relatively large correlations among the concepts are observed" (Vaske, 2008, p. 71). Vaske (citing Cohen, 1988) defined small correlations as ranging from .10 to .29, medium correlations from .30 to .49 and large correlations from .50 to 1.0. As Table 11 below illustrates below, there is a significant ($p < .01$) large correlation (r = .55) between overall SOC and the importance of SOC, as well as medium to large correlations between the subdimensions of SOC. Thus, convergent validity was obtained between SOC and the importance of SOC.

Table 11
Correlation Analysis between SOC and its Subdimensions and Importance of SOC

N = 309	1	2	3	4	5	6
1. Recognition of Met Needs	-					
2. Membership	.75**	-				
3. Influence	.77**	.78**	-			
4. Shared Emotional Connection	.79**	.77**	.81**	-		
5. Overall Sense of Community	.90**	.90**	.92**	.93**	-	
6. Importance of Sense of	.57**	.45**	.47**	.52**	**.55****	-

* - $p < .05$ ** - $p < .01$ *** - $p < .001$

CFA for Perceived Benefits of Municipal Parks (PBMP) Scale

Evaluating model fit. For the current study, each question in the PBMP Scale was given a corresponding item name for the purposes of analyses (Table 12). The item names were referred to in subsequent analyses, and in any figures presented. In Table 12, the seven questions used to represent PBMP. The graphic representation of the unidimensional PBMP Scale is presented in Figure 5.

Table 12
Item Names for Perceived Benefits of Municipal Parks (PBMP) Scale Variables

Number and Wording on PBMP Scale	Item Name
A benefit of going to the neighborhood park is that …	
1. Parks offer a place to enjoy nature.	BEN01
2. Parks offer a place to escape for a while.	BEN02
3. Parks offer a place to socialize/create personal contacts.	BEN03
4. Parks offer a place to get some exercise.	BEN04
5. Parks offer a place to spend time with family/friends.	BEN05
6. Parks offer a place with open green space.	BEN06
7. Parks offer a place for children/youth to go.	BEN07

Assessment of normality. Table 12 reflects the means for Edgewater, Colonial Place, Titustown and the full database. All PBMP items were measured on a 5-point, Likert-type scale where 1 = strongly agree and 5 = strongly disagree. Table 12 shows univariate analysis of the means, standard deviations, skewness and kurtosis of the SOC items for the full database. Prior to using these items in a CFA, they were assessed for normal distribution.

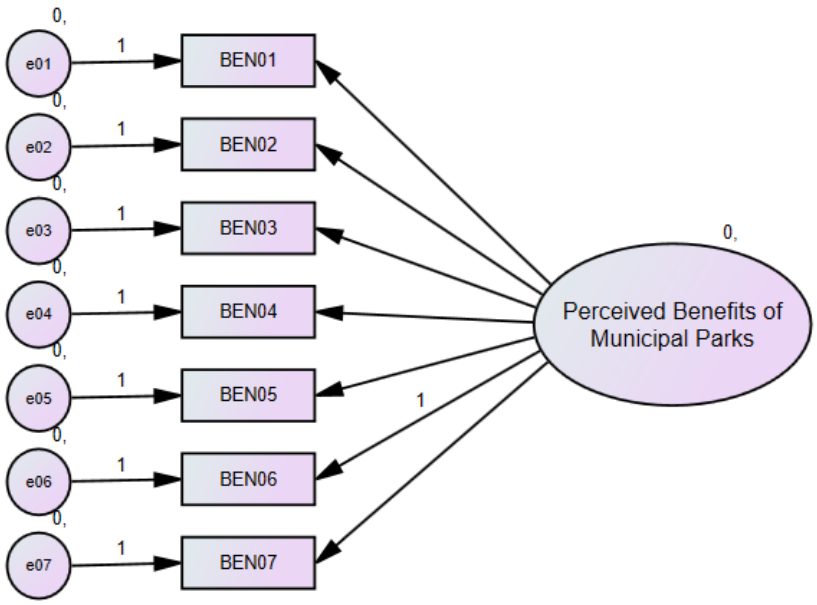

Figure 5. Conceptual Model of Perceived Benefits of Municipal Parks

For PBMP items in Table 13, none of the items are overly skewed or kurtotic, indicating the items do not depart substantially from normality. For multivariate analysis of normality, the Mahalanobis distance test was used to assess multivariate outliers, using Kline's suggestion of $p < .001$ for significance, and the same four cases appeared to be potential outliers in the dataset; however, their influence on skewness and kurtosis was relatively minor. As such, the original data set was retained.

Table 13

Perceived Benefits of Municipal Parks Item Means and Distribution Statistics

	Full Sample [a]				Edgewater		Colonial Place		Titustown	
Items	*Sk*	*K*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
RMN01	-0.99	0.26	4.00	1.11	4.02	0.99	4.01	1.18	3.98	1.16
RMN02	-0.94	0.24	3.98	1.08	3.98	1.04	4.01	1.08	3.86	1.14
RMN03	-0.68	-0.20	3.74	1.14	3.77	1.04	3.83	1.05	3.63	1.31
RMN04	-0.94	0.14	3.98	1.10	3.91	1.13	4.08	1.02	3.97	1.15
RMN05	-0.97	0.38	4.05	1.05	4.10	0.99	3.98	1.02	4.06	1.13
RMN06	-1.22	0.95	4.18	1.02	4.27	0.88	4.22	1.06	4.07	1.11
RMN06	-1.45	1.44	4.27	1.06	4.45	0.92	4.25	1.02	4.09	1.21

[a] - *Sk* = Skewness (SE=.14); *K* = Kurtosis (SE=.28) - presented for full sample only

Assessing the PBMP Scale. Figure 5 was entered into Amos to assess model fit. Following best practices for reporting CFAs and scale development (Cabrera-Nguyen, 2010; Hurley et al., 1997; Schreiber, Nora, Stage, Barlow, & King, 2006), decision and test guidelines should be noted before a CFA is conducted. An *a priori* hypothesis was that the relationships between the variances of variables should increase the fit of the model. Pragmatic justification, such as items containing similar words or phrases, has been used as a rationale for error correlation (Cabrera-Nguyen, 2010). For the current study, if modification indices (MIs) noted an error covariance for a better fitting model, the covariance was only allowed if the modification improves (decreases) the χ^2 by 30 points and such modification is theoretically sound (Byrne, 2010).

Goodness-of-fit indices for each model are shown in Table 14. Table 14 illustrates that the CFI in the original model (Model A) was just over .90, which was acceptable, and SRMR was also acceptable, but the RMSEA was not < 0.10. MIs indicated that the errors between BEN01 (Parks offer a place to enjoy nature) and BEN02 (Parks offer a

place to escape for a while) would decrease the χ^2 and should be correlated. Correlating these two items makes sense because being in nature is often viewed as a form of escape from the city and incorporate Kaplan's (1995) notion of "getting away" when in nature. The MIs also indicated that the errors between BEN06 (Parks offer a place with open green space) and BEN07 (Parks offer a place for children/youth to go) would decrease the χ^2 and should be correlated. Correlating these two item error variances makes sense because traditionally neighborhood parks have been viewed as open spaces primarily for children (Tuason, 1997) and these open spaces are places for creative play and psychologically for facilitating child development (Chawla, 2015; Moore, 1986).

Table 14
CFA Models for Perceived Benefits of Municipal Parks

CFA Model	Goodness-of-Fit Indices						Model Comparison	
	χ^2	*df*	χ^2/ *df*	*CFI*	*RMSEA (90% CI)*	*SRMR*	*ΔCFI*	*Δ* χ^2
A	141.273	14	10.091	0.921	.172 (.147, .198)	0.044	-	-
B	27.391	12	2.283	0.990	.065 (.032, .097)	0.021	0.069	113.882*

Note. * $p < .05$; CFA=confirmatory factor analysis; CFI=comparative fit index; RMSEA = root mean squared error of approximation; 90% CI=90% confidence interval; SRMR=standardized root mean-square residual; Model A=24 items; Model B=24 items with error covariance between RMN08–RMN09 and INF17–INF18.

Although other changes were suggested by MIs, they did not make substantive or theoretical sense to correlate error terms. The goal was to keep the model as true to the original Gómez (1999) conceptualization, while stabilizing the model and achieving minimal acceptable levels of model fit, based on previously noted statistics for model fit. The extent to which the new slightly modified model (Model B) was an improvement over its predecessor was assessed by $\Delta\chi^2$ and ΔCFI between the two models, whereby a $\Delta\chi^2$, $p < .05$, and $\Delta|CFI| > .01$ is considered significant (Cheung & Rensvold, 2002;

Kline, 2011). Modifying the model by correlating the two pairs of items decreased the χ^2 by 113.88 (Table 13). The change was found to be significant and the $\Delta|CFI|$ was > .01. Table 14 illustrates that the CFI in the revised model was over .90 and the RMSEA and SRMR were also acceptable – indicating the model had an acceptable fit with the data and no further modifications were needed – all seven items were retained. Figure 6 illustrates the final conceptual model used for this study. In Table 15, items met the minimum criteria of having a primary factor loading (λ) of .40 or above (Stevens, 2002).

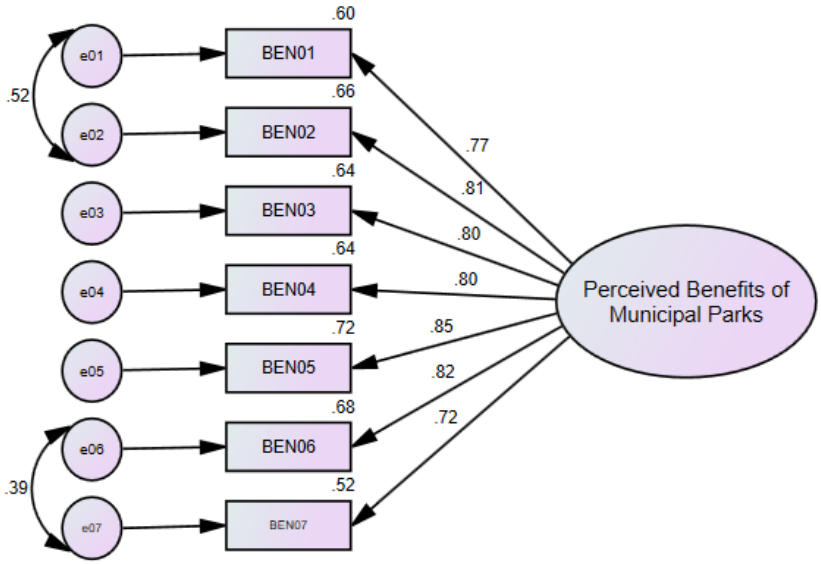

Figure 6. Perceived Benefits of Municipal Parks Structural Equation Model with Standardized Parameters

Reliability Analysis of the PBMP Scale

The PBMP Scale was used to measure the perceived benefits from parks and the 7-item scale was unidimensional (Figure 6, Table 15). Cronbach's alpha (α) was used to test the reliability of the PBMP Scale. The PBMP Scale, when assessed unidimensionally, was found to be highly reliable (7 items; $\alpha = .93$). An inspection of the

data analysis indicated that the scale reliability could not be improved by eliminating any items from the PBMP Scale.

Table 15
Standardized Items and Factor Loadings for the PBMP Scale

Factors/Items	Factor Loading	*SE*	*α*
Perceived Benefits from Municipal Parks (PBMP)			.93
BEN01	.77	.07	
BEN02	.81	.06	
BEN03	.80	.07	
BEN04	.80	.07	
BEN05	.85	.06	
BEN06	.82	--	
BEN07	.72	.05	

Based on the above analyses, the dimensions/items of sense of community were combined to give one overall (composite average) score for sense of community, henceforth referred to as SOC in the following analyses. Additionally, all seven items for PBMP were combined to give one overall (composite average) score for perceived benefits derived from parks, henceforth referred to as PKBEN in the following analyses. The next section discusses correlation analyses used to explore the relationship/association between variables noted in the original research questions. Given the exploratory nature of the current study, other additional variables will also be explored based on the literature review. All analyses were performed using IBM SPSS version 24, and analyses are conducted as two-tailed tests at the $p < .05$ significance level.

Correlation Analysis

A Pearson correlation (*r*) was computed to assess the relationship between *park use*, overall perceived park *quality*, PKBEN and SOC. Additional variables of interest included perceived *access* and perceived *proximity* due to the role these variables play in the "10-minutes to a Park" initiative (NRPA, 2017) and previous research related to proximity and SOC (Francis et al., 2012). If residents did use the park, how long they *stayed* at the park was a variable of interest as well. The rationale is that this is another measure of park usage. A resident may not use the park much, but when he or she does use the park, the time spent at the park (i.e., length of stay, rather than frequency) might be associated with SOC. The variables used in the correlation analysis (and how they were operationalized) are found in Table 16.

All variables (proximity, park use, length of stay, access, perceived park quality, and park benefits) were found to have a significant and positive relationship with SOC (Table 15). The strongest associations with SOC came from the perception of the quality of the park ($r = .24$, $p = .0001$) and the perception of perceived benefits from the park ($r = .24$, $p = .0001$). The weakest relationship came from park use ($r = .14$, $p = .02$). Additionally, access ($r = .15$, $p = .01$), reported proximity ($r = .16$, $p = .006$), and length of stay ($r = .16$, $p = .009$) had similar correlations as park use, but stronger significance/probability. Given that all the variables were significantly associated with SOC, they were entered as predictor (independent) variables in a regression analysis, with SOC as the dependent variable.

Table 16
Variables used in Correlation Analysis

	1	2	3	4	5	6	7
1. Proximity [a]	-						
2. Park Use [b]	**-.12***	-					
3. Length of Stay at Park [c]	**.04**	**.09**	-				
4. Access to Park [d]	**-.30*** **	**.36*** **	**.03**	-			
5. Overall Perception of Park [e]	**-.06**	**.34****	**.11**	**.49*** **	-		
6. PKBEN [f]	**.07**	**.21*** **	**.04**	**.28*** **	**.34*** **	-	
7. SOC [g]	**.16****	**.14***	**.16****	**.15****	**.24*** **	**.24*** **	-

[a] – How long does it take you to travel to your neighborhood/community park? (open-ended; in minutes)
[b] – In the past year, how often do you use your neighborhood/community park? 0=never, 1=hardly ever (1-2 times/year), 2=monthly (1-2 times/month), 3=weekly (4 times/month), 4=several times/week, 5=just about daily
[c] – When you use a park, how long do you stay at the neighborhood/community park? (open-ended; in minutes)
[d] – How would you rate your accessibility (convenience) to your neighborhood park? 1=not accessible, 2=poorly accessible, 3=kind of accessible, 4=accessible, 5=very accessible, 6=extremely accessible
[e] – How would you rate your neighborhood park overall? 1=poor, 2=fair, 3=good, 4=very good, 5=excellent
[f] – PKBEN = Perceived Benefits from Municipal Parks
[g] – SOC = Sense of Community
* - $p < .05$ ** - $p < .01$ *** - $p < .001$

Regression Analysis

A linear regression analysis was conducted to examine the effect that (a) proximity, (b) park use, (c) length of stay at the park, (d) access/convenience to the park, (e) overall perception of the park, and (f) perceived park benefits have on a resident's overall SOC. The R^2 value (coefficient of determination) indicates how much variation of the outcome variable can be explained by the regression model's predictors (Field, 2009). The regression analysis is illustrated in Table 17.

For this regression analysis, 13.5% of the variance in respondent's overall SOC score can be explained by the combined model variance of (a) proximity, (b) length of stay at the park, (c) perception of park quality, and (d) benefits. This means that knowing

these four variables allows us to predict SOC 13.5% of the time. While not a large percentage, these four items are nonetheless significant predictors. Park use and access/convenience to the park were not found to be significant predictors of neighborhood SOC. Furthermore, the standardized beta weights (β) in Table 17 indicate relative influence of each predictor on the dependent variable (SOC) by converting all independent variable scores to z-scores (Field, 2009).

Table 17
Summary of Regression Analysis for Variables Predicting Sense of Community

	Model 1			Model 2		
Variable	*B*	*SE B*	β	*B*	*SE B*	β
Constant	0.341	0.241		0.495	0.218	
Proximity	0.028	0.010	0.185**	0.024	0.009	0.159*
Park Use	-0.005	0.028	-0.011			
Length of Stay	0.003	0.001	0.129*	0.002	0.001	0.127*
Access	0.059	0.040	0.107			
Park Quality	0.112	0.049	0.159*	0.144	0.043	0.204*
PKBEN	0.102	0.047	0.137*	0.111	0.046	0.149*
N	250			251		
R^2	0.142			0.135		
F	6.71***			9.56***		
ΔR^2	.			0.007		
ΔF	.			2.85		

* - $p < .05$ ** - $p < .01$ *** - $p < .001$

In Table 17, “park use” refers use by all residents (users and non-users; i.e., users coded as “0” who never used parks to users coded as “5” for just about daily). This allowed for a ratio scale, as the scale with a zero was meaningful. However, because park use was influenced by non-users, additional analyses (not shown) were run to see if park use representing only users would make a difference. Two new variables (*Parkuse2* and

Parkuse3). The original *Parkuse* ranged from 0 to 5, where 0 is no use and 5 is just about daily. *Parkuse2* included the range of 2-5, where 2 is monthly and 5 is daily. *Parkuse3* was created, where it ranged from 1-5, where 1 is 1-2 times a year and 5 is daily. In both the *Parkuse2* and *Parkuse3* scenarios, the correlation was not significant between use and SOC.

There was a -.03 correlation between parkuse2 and SOC (p = .696) and a .08 correlation between parkuse3 and SOC (p = .20). Keeping non-users was deemed important because the "0" is meaningful, and two things happened. First, the scale was converted from a ratio to an interval scale when the analysis removed respondents who were coded as 0. Second, the restriction of range when the non-users were removed explained less variance. All three versions of *Parkuse, Parkuse2* and *Parkuse3* were still normally distributed. If the correlations are not significant, they cannot be subsequently included in a regression; therefore, a regression analysis reflecting only users was not performed. As such, the original analysis reflected in Table 17 was reported.

The next sections compare groups. Both *t*-tests (comparing two group means) and Analysis of Variance (ANOVA, comparing three or more group means) were performed to investigate group means/averages along several variables of interest in the current study. These analyses will consider differences according to users/non-users, neighborhood differences, and demographic differences (as noted in Table 4). For the group analyses, I will first present *t*-tests and then ANOVAs. Given the exploratory nature of this study, all analyses were two-tailed tests at the $p < .05$ significance level. Levene's Test will be used to assess whether the group variances are equal – if $p \leq .05$, then variances are unequal, if $p > .05$, then variances are equal (Field, 2009). The actual

Levene's Test will not be reported for the sake of brevity in the reporting of findings. Equal versus unequal variances will determine which degrees of freedom and statistic to report for a *t*-test, and whether to use a Tukey HSD (for equal variances) or a Tamhane's T2 (for unequal variances) for post-hoc analyses in ANOVAs (Field, 2009). If significance is found for *t*-tests and ANOVAs, *effect size* (amount of influence independent variable has on the dependent variable; how much we are better able to predict the dependent variable by knowing the independent variable; proportion of variance in the dependent variable explained by the independent variable) will be reported using r^2_{pb} (squared point biserial correlation) for *t*-tests and η^2 (eta squared) for ANOVAs (see Heimen, 2011 for r^2_{pb} and η^2 formulas on p. 283 and p. 311, respectively).

Group Analyses

Park users/non-users. Park non-users and users were compared to see if there were differences between them regarding proximity, access, overall park perception (proxy for park quality), PKBEN, and SOC. An independent samples *t*-test revealed no significant difference between non-users and users on the reported time to get to the park (proxy for proximity). On average, park users had higher overall park perceptions (M = 3.53, SD = 0.79) than non-users (M = 2.96, SD = 0.98). This difference was significant with t (307) = -5.70, p = .0001 (r^2_{pb} = .10). On average, park users perceived greater access to parks (M = 5.02, SD = 0.98) than non-users (M = 4.27, SD = 1.26). This difference was significant with t (229.38) = -5.61, p = .0001 (r^2_{pb} = .12). On average, park users perceived greater benefits from parks (M = 4.15, SD = 0.86) than non-users (M = 3.88, SD = 0.94). This difference was significant with t (271.61) = -2.63, p = .009 (r^2_{pb} = .02). On average, park users had higher SOC (M = 1.75, SD = 0.60) than non-users (M =

1.55, *SD* = 0.63). This difference was significant with *t* (307) = -2.87, *p* = .004 (r^2_{pb} = .03).

Gender. Women and men were compared to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception, PKBEN, and SOC. An independent samples *t*-test revealed no significant differences between women and men with respect to proximity, park use, length of stay, overall perception of the park, and SOC. On average, women perceived higher PKBEN (*M* = 4.23, *SD* = 0.77) than men (*M* = 3.91, *SD* = 0.96). This difference was significant with *t* (268.51) = 3.10, *p* = .002 (r^2_{pb} = .03).

Race. Non-whites and whites were compared to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception, PKBEN, and SOC. An independent samples *t*-test revealed no significant difference between non-whites and whites with park use, length of stay, overall perception of the park, PKBEN and SOC. On average, non-whites report a higher time to get to the park/proximity (*M* = 6.65, *SD* = 4.95) than whites (*M* = 5.43, *SD* = 3.38). This difference was significant with *t* (121.98) = 2.10, *p* = .038 (r^2_{pb} = .03). On average, non-whites report lower access (*M* = 4.42, *SD* = 1.23) than whites (*M* = 4.83, *SD* = 1.12). This difference was significant with *t* (158.14) = -2.72, *p* = .007 (r^2_{pb} = .04).

Marital status. Unmarried and married residents were compared to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception, PKBEN, and SOC. An independent samples *t*-test revealed no significant differences between unmarried and married residents with respect to proximity, length of stay, access, overall park perception, PKBEN, and SOC. On average,

unmarried residents use parks less (M = 1.78, SD = 1.49) than married residents (M = 2.17, SD = 1.42). This difference was significant with t (307) = -2.34, p = .02 (r^2_{pb} = .02).

Neighborhood. An ANOVA was run to compare differences between residents in Edgewater, Colonial Place and Titustown to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception, PKBEN, and SOC. Table 18 presents the summary tables for each variable in the neighborhood ANOVA analysis. Reported travel distance to the park (proximity) differed significantly between Edgewater (M = 4.94, SD = 3.32), Colonial Place (M = 6.01, SD = 3.51), and Titustown (M = 6.52, SD = 4.78) residents, F(2, 286) = 4.25, p = .015. The Tamhane T2 test revealed that only the mean for Edgewater residents differed significantly ($p < .05$) from the other two neighborhoods, indicating that on average Edgewater residents reported less time to travel to their park than the other neighborhoods. This manipulation accounted for .03 of the variance in scores (using η^2).

Length of stay at the neighborhood park differed significantly between Edgewater (M = 46.03, SD = 30.24), Colonial Place (M = 45.74, SD = 27.21), and Titustown (M = 61.08, SD = 32.41) residents, F(2, 257) = 7.06, p = .001. A Tukey HSD test revealed that only the mean for Titustown residents differed significantly ($p < .05$) from the other neighborhoods, indicating Titustown residents stayed longer at the parks than residents of the other two neighborhoods. This manipulation accounted for .05 of the variance in scores (using η^2).

Table 18
Summary of ANOVAs for Neighborhood Group Analysis

Variable		Sum of Squares	*df*	Mean Square	*F*	*p*
Proximity	Between Groups	129.93	2	64.97	4.25	0.015
	Within Groups	4371.53	286	15.29		
	Total	4501.46	288			
Park Use	Between Groups	10.74	2	5.37	2.54	0.080
	Within Groups	646.26	306	2.11		
	Total	657.00	308			
Length of Stay	Between Groups	12678.10	2	6339.05	7.06	0.001
	Within Groups	230628.89	257	897.39		
	Total	243306.99	259			
Access	Between Groups	16.57	2	8.29	6.29	0.002
	Within Groups	389.94	296	1.32		
	Total	406.51	298			
Park Quality	Between Groups	23.18	2	11.59	14.89	0.0001
	Within Groups	238.19	306	0.78		
	Total	261.37	308			
PKBEN	Between Groups	0.64	2	0.32	0.40	0.674
	Within Groups	250.51	306	0.82		
	Total	251.15	308			
SOC	Between Groups	0.92	2	0.46	1.21	0.300
	Within Groups	115.93	306	0.38		
	Total	116.85	308			

Access to the neighborhood park differed significantly between Edgewater (M = 5.0, SD = 1.05), Colonial Place (M = 4.66, SD = 1.05), and Titustown (M = 4.44, SD = 1.31) residents, $F(2, 296) = 6.29$, $p = .002$. The Tamhane T2 test revealed that the mean for Edgewater and Titustown residents differed significantly ($p < .05$) from each other, indicating Edgewater residents perceived greater access to the neighborhood park, while

Titustown residents perceived their neighborhood park to be less accessible/convenient to get to. This manipulation accounted for .04 of the variance in scores (using η^2).

The overall perception of the neighborhood park (quality) differed significantly between Edgewater (M = 3.67, SD = 0.92), Colonial Place (M = 3.14, SD = 0.74), and Titustown (M = 3.05, SD = 0.97) residents, $F(2, 306) = 14.89$, $p = .0001$. The Tamhane T2 test revealed that only the mean for Edgewater residents differed significantly ($p < .05$) from the other neighborhoods, indicating Edgewater had a higher positive perception of their neighborhood park than residents of the other two neighborhoods. This manipulation accounted for .09 of the variance in scores (using η^2). No other significant differences were found between the three neighborhoods with respect to park use, PKBEN or SOC.

Income. An ANOVA was run to compare differences between lower (< $50,000), middle ($50,000-99,999) and higher ($100,000+) income groups to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception, PKBEN, and SOC. Table 19 presents the summary tables for each variable in the income ANOVA analysis. Length of stay at the park differed significantly between lower (M = 60.61, SD = 32.88), middle (M = 43.01, SD = 28.32) and higher (M = 52.19, SD = 30.31) income groups, $F(2, 242) = 2.86$, $p = .003$. A Tukey HSD test revealed that only the means for the lower income group differed from the middle income group ($p < .05$), with the lower income group staying at parks longer on average. This manipulation accounted for .05 of the variance in scores (using η^2).

Table 19
Summary of ANOVAs for Income Group Analysis

Variable		Sum of Squares	*df*	Mean Square	*F*	*p*
Proximity	Between Groups	83.56	2	41.78	2.55	0.080
	Within Groups	3968.93	242	16.40		
	Total	4052.49	244			
Park Use	Between Groups	11.30	2	5.65	2.78	0.064
	Within Groups	510.70	251	2.04		
	Total	522.0	253			
Length of Stay	Between Groups	10681.44	2	5340.72	5.83	0.003
	Within Groups	201625.41	220	916.48		
	Total	212306.85	222			
Access	Between Groups	12.50	2	6.25	5.02	0.007
	Within Groups	312.65	251	1.25		
	Total	325.15	253			
Park Quality	Between Groups	3.62	2	1.81	2.11	0.123
	Within Groups	214.81	251	0.86		
	Total	218.43	253			
PKBEN	Between Groups	0.39	2	0.19	0.26	0.773
	Within Groups	189.23	251	0.75		
	Total	189.62	253			
SOC	Between Groups	0.39	2	0.20	0.50	0.610
	Within Groups	98.88	251	0.39		
	Total	99.27	253			

Access to the park differed significantly between lower (M = 4.67, SD = 1.16), middle (M = 4.50, SD = 1.06) and higher (M = 5.01, SD = 1.15) income groups, $F(2, 242) = 2.86$, $p = .003$. A Tukey HSD test revealed that only the means for the middle income group differed from the higher income group ($p < .05$), with the middle income group perceiving less access to parks on average. This manipulation accounted for .05 of the

variance in scores (using η^2). No other significant differences were found between income groups regarding proximity, park use, park quality, PKBEN or SOC.

Education. An ANOVA was run to compare differences between those who had not completed bachelors (< bachelors), bachelors, and graduate degree educational groups to see if there were differences between them regarding proximity, park use, length of stay, access, overall park perception/quality, PKBEN, and SOC. Table 20 presents the summary tables for each variable in the education ANOVA analysis.

The overall perception of the park/quality differed significantly between < bachelors (M = 3.12, SD = 1.04), bachelors (M = 3.44, SD = 0.87) and graduate (M = 3.27, SD = 0.86) degree groups, $F(2, 306) = 2.98$, $p = .052$. A Tukey HSD test revealed that only the means for the < bachelor education group differed from the bachelors group ($p < .05$), with the < bachelors group indicating a less favorable perception of the quality of their neighborhood park than those with a bachelor's degree, on average. This manipulation accounted for .02 of the variance in scores (using η^2).

Although the F-test was significant for SOC in the ANOVA, the Levene's test indicated that the variances were not equal between groups and the Tamhane's T2 pairwise comparison test did not reveal any significant pairwise comparisons in the post hoc analysis. According to Field (2009) post hoc tests can "perform badly when group sizes are unequal and when population variances are different" (p. 374). Additionally, Field noted that there could be instances where significance was found in the ANOVA analysis, and not in the post hoc analysis because post hoc "procedures are more conservative (i.e., have less power to detect true effects" (p. 386). Therefore, a significant difference was found in SOC among the groups, but the post hoc procedures did not

allow the researchers to see, with certainty, where the difference between the groups exists. No other significant differences were found between education groups regarding proximity, park use, length of stay at the park, access, or PKBEN.

Table 20
Summary of ANOVAs for Education Group Analysis

Variable		Sum of Squares	*df*	Mean Square	*F*	*p*
Proximity	Between Groups	0.47	2	0.24	0.02	0.985
	Within Groups	4500.99	286	15.74		
	Total	4501.46	288			
Park Use	Between Groups	0.76	2	0.38	0.18	0.838
	Within Groups	656.24	306	2.15		
	Total	657.00	308			
Length of Stay	Between Groups	1252.98	2	626.49	0.67	0.515
	Within Groups	242054.01	257	941.84		
	Total	243306.99	259			
Access	Between Groups	2.66	2	1.33	0.98	0.378
	Within Groups	403.85	296	1.36		
	Total	406.51	298			
Park Quality	Between Groups	5.00	2	2.50	2.98	0.052
	Within Groups	256.37	306	0.84		
	Total	261.37	308			
PKBEN	Between Groups	3.84	2	1.92	2.38	0.094
	Within Groups	247.31	306	0.81		
	Total	251.15	308			
SOC	Between Groups	2.48	2	1.24	3.32	0.038
	Within Groups	114.37	306	0.37		
	Total	116.85	308			

Age. An ANOVA was run to compare differences between the following five age groups: < 30, 30s, 40s, 50s, 60+ to see if there were differences between these age groups regarding proximity, park use, length of stay, access, overall park perception/quality,

PKBEN, and SOC. Table 21 presents the summary tables for each variable in the age group ANOVA analysis.

Table 21
Summary of ANOVAs for Age Group Analysis

Variable		Sum of Squares	*df*	Mean Square	*F*	*p*
Proximity	Between Groups	88.06	4	22.02	1.91	0.109
	Within Groups	2925.40	254	11.52		
	Total	3013.46	258			
Park Use	Between Groups	12.25	4	3.06	1.40	0.233
	Within Groups	578.55	265	2.18		
	Total	590.80	269			
Length of Stay	Between Groups	10062.44	4	2515.61	2.83	0.026
	Within Groups	206307.49	232	889.26		
	Total	216369.93	236			
Access	Between Groups	3.89	4	0.97	0.74	0.569
	Within Groups	350.44	265	1.32		
	Total	354.33	269			
Park Quality	Between Groups	2.67	4	0.67	0.78	0.538
	Within Groups	226.03	265	0.85		
	Total	228.70	269			
PKBEN	Between Groups	7.70	4	1.93	2.54	0.040
	Within Groups	200.95	265	0.76		
	Total	208.65	269			
SOC	Between Groups	9.29	4	2.32	6.70	0.0001
	Within Groups	91.93	265	0.35		
	Total	101.22	269			

Length of stay at the park differed significantly between < 30 (M = 52.76, SD = 33.70), 30s (M = 55.67, SD = 24.93), 40s (M = 53.30, SD = 29.14), 50s (M = 45.38, SD = 31.47), and 60+ (M = 37.18, SD = 29.86) age groups, $F(4, 232) = 2.83$, $p = .026$. A Tukey HSD test revealed that only the means for those in their 30s differed from the 60+ age

group ($p < .05$), with the 30s age group staying at parks longer on average. This manipulation accounted for .05 of the variance in scores (using η^2).

PKBEN differed significantly between < 30 ($M = 4.01$, $SD = 1.11$), 30s ($M = 4.31$, $SD = 0.74$), 40s ($M = 4.17$, $SD = 0.70$), 50s ($M = 3.90$, $SD = 0.78$), and 60+ ($M = 3.84$, $SD = 0.94$) age groups, $F(4, 265) = 2.54$, $p = .04$. Although the F-test was significant for PKBEN in the ANOVA, the Levene's test indicated that the variances were not equal between groups and the Tamhane's T2 pairwise comparison test did not reveal any significant pairwise comparisons in the post hoc analysis. Therefore, a significant difference was found in PKBEN among the age groups, but the post hoc procedures did not allow me to see, with certainty, where the difference between the groups exists.

SOC differed significantly between < 30 ($M = 1.34$, $SD = 0.61$), 30s ($M = 1.63$, $SD = 0.65$), 40s ($M = 1.75$, $SD = 0.56$), 50s ($M = 1.73$, $SD = 0.59$), and 60+ ($M = 1.87$, $SD = 0.51$) age groups, $F(4, 265) = 6.70$, $p = .0001$. A Tukey HSD test revealed that the mean for those < 30 differed from all the other age groups ($p < .05$), with the < 30s age group staying at perceiving a lower SOC on average, and those 30 and over perceiving similar SOC in their neighborhoods. This manipulation accounted for .09 of the variance in scores (using η^2). No other significant differences were found between age groups regarding proximity, park use, access, or perceived park quality.

The next chapter considers the discussion related to the findings presented in this chapter. Chapter V first presents the research questions followed by findings specific to the research questions. Next, the findings are examined with respect to their relationship to previous literature.

CHAPTER V

DISCUSSION

The purpose of this study was to explore the relationship between neighborhood sense of community (SOC) in three Norfolk, Virginia neighborhoods, perceived recreation benefits from neighborhood parks, and park use by residents that live within a ¼ to ½ mile radius of their neighborhood park. The neighborhoods include Barraud Park, Colonial Place, and Edgewater. A discussion of the findings, conclusions, and recommendations for further research are included.

Research Questions

Research Question 1. Does a relationship exist between park related variables (e.g., park use, overall perceived park quality, or benefits from park) and sense of community (SOC) in neighborhoods? The current study indicated that there was a relationship between SOC and park use, overall perceived park quality, and benefits from the park. A Pearson correlation (*r*) was computed to assess the relationship between park use, overall perceived park quality, park benefits, and SOC. All the variables were found to have a significant and positive relationship with SOC. The strongest associations with SOC came from the perception of the quality of the park and the perception of benefits from the park. These findings corroborate previous research that supports people receiving benefits from parks based on the aesthetics of the park (Bedimo-Rung, Mowen, & Cohen et al., 2005; McCormack, Rock, Toohey, & Hignell, 2010; Ulrich & Addoms, 1981). The positive perception of the park was related to community benefits as well (Gómez et al., 2015; Lackey & Kaczynski, 2009). Gómez and colleagues found no direct relationship between park use and overall SOC; however, unlike the Gómez et al. (2015)

study, this study found that there was a direct relationship with overall SOC and park use. However, although there was a direct relationship, park use is not a significant predictor of SOC (see below, next question).

The Pearson correlation (*r*) assessed that for park users, how long they stayed at the park was a significant variable associated with SOC. A resident may not use the park very much, but the time spent at the park was found to be associated with SOC. A question not asked in this study was what activities users are participating in while at the park. Length of stay is an overlooked variable, as the focus tends to be on usage of parks. Research shows that parks contribute to health and physical activity and one of those pathways is exposure to nature (Cohen et al., 2014). Another way to spend time at a park is to exercise and that can take more time than sitting under a tree for a moment. Physical activities in parks increase the length of stay and might increase SOC. Studies have shown that green exercise can help reduce stress and increase mental focus (Graham & Neill, 2010; Olafsdottir et al., 2017; Pretty, Peacock, Sellens, & Griffin, 2005). There is a possibility it also might increase SOC. Access to parks was found to have a significant and positive relationship with SOC. In this study, proximity was found to have a significant and positive relationship with SOC. Gómez et al. (2015) found that proximity to the park had a significant negative relationship with SOC.

Research question 2. If a relationship exists, how do park related variables affect sense of community (SOC)? A linear regression examined the effect of (a) proximity, (b) park use, (c) length of stay at the park, (d) access/convenience to the park, (e) overall perception of the park, and (f) the perceived park benefits have on a resident's overall SOC. The regression showed that knowing the four variables allows us to predict SOC

13.5% of the time. The percentage is not large, but the four items were significant predictors. The two items that are not found to be significant predictors of SOC are park use and access/convenience to the park. These findings contradict the findings of Ellis and Schwartz (2016). Their findings showed there was a positive relationship between park use and the neighborhood SOC, as well as access and SOC. Francis et al. (2012) found that the use of parks to relax was positively associated with SOC, yet this study did not find that association. Gómez et al. (2015) also found that there was no significant direct relationship between neighborhood park use and SOC. They also found that the less time it took to get to the park the greater the overall SOC.

Research question 3. Is there a difference between park users/non-users of parks and overall park perception, perceived park benefits, and SOC? The current study indicated that there was a significant difference between park users and non-users of parks. Independent samples *t*-test was conducted and found on average, parks users had higher overall park perceptions than non-users. Park users perceived greater benefits from parks than non-users. Park users have a higher SOC than non-users. Gómez and colleagues (2015) found significant differences between users/non-users and their SOC as did this study. There was a significant difference between users/non-users. Park users have a higher SOC. The relationship was stronger with park users – which reinforces community benefits from the park as noted by Lackey and Kaczynski (2009). Park users perceived greater access to parks than non-users.

Research question 4. Do neighborhood differences exist between park use, overall perceived park quality, park benefits, or SOC? The current study indicated that there were no significant differences between neighborhoods and park use, perceived

benefits of neighborhood parks, and SOC. There are significant differences in the overall park perception. Edgewater residents had the highest rated overall park perception. Titustown had the highest number of non-users, followed by Colonial Place, and then Edgewater, which indicates that people in Edgewater use their park more than the other two neighborhoods.

Research question 5. How do demographic variables help inform park use, perceived park benefits, overall park perception, and SOC? This study found no race or income differences in perspectives towards park use, overall perceptions of the park, benefits, or overall SOC. Additionally, we found that married people are the group using the parks more. On average, non-whites report lower access than whites. On average, non-whites report taking more time to get to the park/less proximity than white residents. There was a difference between education and overall perception of the park and SOC. Individuals that have a Bachelor's degree had the highest perception of the park overall and those with less than a Bachelor's degree had the lowest SOC. Women had a more positive perception of the overall park than men. People with a higher SOC had a Bachelor's degree or higher. With respect to age, the only significant difference between age groups and perceived benefits from people in their 30s and people who are 60+, with 60+ year-olds perceiving the least benefits from parks. Additionally, people < 30 years old are different from all other age groups in terms of SOC, with < 30-year-olds having the least amount of SOC. Access to the park differed significantly between lower, middle, and higher income groups. Middle income groups perceived less access to parks on average.

Implications

Findings from this study allude to several implications for practitioners and academics. A discussion of each follows.

Implications for practitioners. Park administrators should consider looking at neighborhood parks as opportunities for building communities. Even though 43.7% of the sample never or hardly ever use the park, SOC benefits are being accrued generally, and specifically in shared emotional connection through overall impressions of the park and proximity. According to Harnik (2006), proximity plays a role in the efficacy of the park on its surrounding neighborhood. Proximity is used in studies as a way of measuring service areas (Lund, 2003). Careful planning and design of proximal parks within a neighborhood that facilitate use of, or appreciation for, a neighborhood park is associated with a stronger sense of community. Practitioners can capitalize on informal social contacts sought out at the neighborhood park by creating recreation programming that focuses on bringing out the community to the park and encouraging them to stay longer. The programming should be more intentional and serve as a community ice breaker and turn the focus from a "just" a recreation space to more of a neighborhood common space. Community gatherings, farmer's markets, special events, and block parties are just a few examples of types of intentional programming.

In this study, people under the age of 30 were found to have the least amount of SOC in the neighborhoods. Taking these findings into account, increased programming and marketing can be targeted to this age group. If that age group is just starting to build a sense of community in the neighborhood, practitioners can incorporate them into the programming to continue their involvement for future years, which will enhance their

levels of SOC. This study also found that people who are 60 years and older have the lowest perceived benefits from parks. Seniors are a group that can benefit from relaxing in a park or some light exercise. Practitioners can create unique opportunities for senior citizens by allowing them to have direct input on what they might like to see in their neighborhood parks. They can benefit from parks socially and physically and it would create value within the community.

Similar to Wolch et al.'s (2010) study, no differences were found between gender and race in terms of park use. However, women were found to perceive greater benefits derived from parks than men, indicating more active measures to involve men in community park initiatives. Aside from perceived benefits, there seems to be adequate gender equity/parity based on no differences in park use, access, perceived quality, proximity, SOC, or length of stay and gender.

There were two areas where non-whites were significantly different from their white counterparts, alluding to possible social or environmental inequities (Dahmen et al., 2005). For example, non-whites had, on average, longer times (in minutes) to get to a park than non-whites, and generally perceived lower access than whites to their neighborhood park. Creating greenways through neighborhoods that connect non-adjacent streets (perhaps through easements) in predominantly non-white neighborhoods could facilitate greater access (ease of getting to the park) as well as decrease the time to get to the park. Access is an important area that needs further research. Studies have shown that parks must remain accessible and inclusive for urban residents to feel a sense of community (Ellis and Schwartz, 2016; Oldenburg, 1989; Kaplan, 1995; Peters, Elands, & Buijs, 2010). The results of this study indicated that more research needs to be done on

how some neighborhoods and groups of people have low perceptions of access and what can be done to eliminate that.

When looking at the neighborhood analysis, the differences were much more noticeable between Titustown – the predominantly non-white, less affluent neighborhood, and Edgewater – the predominantly white, more affluent neighborhood. Titustown residents, as compared to the other neighborhood residents, perceived the least access/convenience to parks; however, when Titustown residents did use the parks, they stayed at the parks significantly longer than residents from the other two neighborhoods. Additionally, the lowest income group (which Titustown had the highest percentage) had stayed the longest at the parks. Edgewater residents perceived their neighborhood park to be of higher quality than the other neighborhood residents and reported the shortest amount of time to get to the park. These findings allude to socio-environmental inequity, but a more precise analysis using neighborhood-level variables (e.g., percent non-white in neighborhood, crime rates, homeownership) would be needed to help better inform decision-making.

The most significant impact on SOC came from the perceived quality of the park on SOC. The perceived quality of the neighborhood park had a stronger impact than proximity, length of stay, and perceived benefits. When practitioners are thinking about the return on investment related to why a park needs to be kept and maintained, the strongest argument to make (based on this study's findings) is that keeping up with green space and neighborhood parks has the highest impact on creating sense of community in the neighborhoods. Because the relationship is a positive relationship, it also means that

if the perceived quality of the green space goes down, so does the residents' perception of their neighborhood and consequently, so does their SOC.

10-minute walk to a park revisited. As noted earlier, there is a national campaign for 10-minutes to a Park, with NRPA and others. The findings from the current study may help support this initiative. Proximity to a park plays a role in neighborhood SOC, and the closer one lives to a park the stronger the SOC, with park users experiencing a higher SOC than non-users. The findings from this study could support the 10-minutes to a park initiative by demonstrating that even when the perceived distance is similar between user/non-users, non-users need more than having a park close to them. In this study, there was no difference between users and non-users of the parks with respect to their reported minutes to get to the park. However, for park users, the SOC was higher and the perceived benefits were also higher. An aspect of the findings for practitioners in this study is to not only focus on the time it takes to get to a park, but to also include the community and personal benefits derived from the park itself as part of the marketing campaign.

Implication for academicians. As noted in Hypothesis 1, a direct relationship between park use and SOC was hypothesized; however, although support for this relationship was found (correlation), park use as a direct predictor of SOC (regression) was not supported. The notion of access and overall perception of the park need to be further explored. Overall perceptions of the park (aesthetics) and proximity are important for neighborhood sense of community. As such, future studies should consider more contextual aspects of park surroundings. Additionally, it is unsure whether the implied suggestion of a direct relationship between park use and SOC is a part of our

conditioning as recreation researchers, but more research is needed to see if there is a direct connection between park use and SOC, or if simply having a park visible and proximal is enough to have an impact.

In the Gómez et al. (2015) study, they had a predominantly white (74%) neighborhood, and in the current study the total sample was predominantly white (67.6%). The inclusion of more ethnically diverse neighborhoods could allow researchers to control for percentage of race in the neighborhood as a variable to include in the analysis. Additionally, recreation researchers when looking at "use" of a park tend to focus on frequency. Two additional types of use are suggested: longevity and length of stay. The former was not measured in this study. Longevity would measure how long a resident has been using the park. So, in addition to how often, researchers should also look at how long (months, years, decades). This type of use also gets at the residents' connection to the park. Length of stay would measure how long a resident remains at the park when he or she uses the park. This was a significant variable and predictor of SOC in the current study.

Lastly, two scales were confirmed in the current study. Future studies should further the use of these two scales. This study found support for McMillan and Chavis' (1986) 4-factor theoretical framework. Each factor and the overall scale was found to be reliable. Additionally, the factor loadings were adequate (all above .40). Similarly, this study provided additional literature for Gómez' (1999; 2006) 7-item Perceived Benefits of Municipal Parks (PBMP) Scale. The findings indicated that the PBMP Scale is also a reliable scale. Both scales should be used in future studies looking at community recreation research.

Limitations

Although initial limitations were given at the outset of this study, it is important to address limitations related to the study after it has been completed. One such limitation is the data collection period. Data were collected in late December of 2018 and January of 2019 – arguably the time of the year where people are using the parks the least due to the weather. As such, there could be recall bias related to their use. Additionally, the data collection was limited to a shorter time period due to time and financial constraints. Allowing the data collection to be ongoing for a year to collect during all four seasons would have allowed for more variety in the data and the neighborhoods.

The sample is overly white, which does not reflect general population figures for Norfolk, nor does the racial make-up reflected in the sample match the population of Norfolk, which is closer to 50% white/non-white. Every effort was made to vary data collection times and weekdays and weekends to get a better representative sample. The neighborhoods that were sampled represented the closest neighborhood parks nearest the university, which is why there may be a higher than normal educated group of folks, especially in Edgewater, which abuts the university. Having noted this the sample was adequate to run CFA/SEM and to perform between neighborhood analyses.

Another limitation is that that the neighborhood respondents were fairly affluent. Results might be very different if looking at neighborhoods with less affluence or education. Having noted that, it is still important for future research to continue to reach populations with less means. The literature notes that most parks are found in more affluent neighborhoods or that the creation of the park may lead to gentrification, which

could displace residents (need citations here). Historical information on the neighborhood related to these matters were not readily available.

Future Research

Modern-day parks are designed to serve diverse communities with wide-ranging recreational needs, and although U.S. cities have increased the supply of green spaces, the distribution of green spaces disproportionately benefit predominantly white and affluent communities (Byrne & Sipe, 2010; Wolch et al., 2014). As such, it is important to explore demographic differences. While researchers have noted gender and ethnic/racial differences in perceptions of urban parks (Coutts & Miles, 2011), our study found no such differences related to park use, perceived park benefits, and perceived park quality. The current study had a more diverse neighborhood than the Gómez et al. (2015) study. As communities continue to grow and diversify in urban areas of the U.S., it is important to understand how a neighborhood's demographic makeup can help inform the role of parks and neighborhood SOC.

This study looked at the relationship between three neighborhood parks and sense of community within those neighborhoods. Future studies should consider looking at neighborhood parks in various cities, and addressing comparisons within and between neighborhoods, with respect to SOC, perceived benefits, park use, and perception of the overall park. Additionally, other forms of recreation participation/pursuits may play a role in the neighborhood, as well as contextual factors. Park amenities were not asked about in this study, which is both a limitation and a suggestion for future research. In future research, neighborhoods that have a strong church presence might need to be examined as a possible recreation outlet, or as a competing interest or facilitator to park

use in neighborhoods. Many activities from the church are held in parks, but residents might be using the church-related recreation resources more than the park. The civic league has meetings in the parish hall. There is a possibility that the church, rather than the park, serves as the facilitator of the sense of community for the neighborhood. Future studies should select neighborhoods where churches are not proximal to the park, to minimize the possible influence.

Future studies should consider a pre-post design to discern the impact of a park, if possible. For example, had the research on the neighborhood's SOC been conducted and assessed prior to the parks being built, and then assessed the residents' SOC after the parks were built (perhaps 3-4 years later to let the parks take effect), we may see whether the general SOC in the neighborhood increased before and after the park had been built. It might not need to be a new park, but an addition to a new park, a major renovation, or conversion from a brownfield to a green space or community garden. For example, Gómez et al. (2018) found that dog parks create social bonding opportunities that spill over into the community to create a stronger socially cohesive neighborhood. Given that dog parks are leading the growth in urban parks (Trust for Public Land, 2016), this could be a possibility for future research.

Benefits were specific to parks in the current study, but it would be good to ask about outcomes from participation in the neighborhood park. The current study asked about perceptions related to use, but additional questions can be asked about health outcomes and incorporate both the specific benefits related to a municipal park overall, and the specific benefits related to health outcomes. Perhaps a modified Perceived Health Outcomes of Recreation Scale (PHORS) for an urban park context?

This study found that participants under 30 had the lowest SOC. This finding is important because this age group is the next generation of park users but they have the lowest SOC. Future research should be conducted to examine why. It is possible that they are starting to build a foundation of SOC in the neighborhoods they live in. They might not be homeowners, which might also impact their SOC. One of the benefits of park use is having a place for children to play and interact but this age group might not have children. If a study took place over a longer period of time, it is possible that their SOC would increase as they live in a neighborhood longer and/or start a family. There should be a variable, in future studies, that asks if the respondent has children and what their ages are.

Some other variables should be considered in future studies. Surveys should have more open-ended questions that allow respondents to answer some why questions. If a respondent does not use their neighborhood park, an open-ended question would allow the researchers to ask why. The findings would help the researchers understand some factors that might not be considered. Qualitative data would increase the narrative of park use and SOC in neighborhoods. Another question that should be added to the survey instrument would be military affiliation. Norfolk, VA has a large military presence and the military is known for moving members and their families around the world. There is a possibility that this will decrease attachment to neighborhoods, time spent in parks, relations with neighbors, given deployments and the high mobility of this population.

In future studies, other methodological approaches can be used to receive feedback from hard to reach populations. Quota sampling should be considered to have a representative sample. Researchers also want to consider different approaches to data

collection. Going door to door might not be the most efficient way to gather data. Using online resources such as Qualtrics or Survey Monkey can be time and cost effective for future research.

Lastly, this study did not look at length of residency because the study was particularly focused on park related variables impacting SOC. The focus of this study was primarily on individual-level variables. Future studies could look at neighborhood-level variables and its impact on community. For example, the literature (Francis et al., 2012; Gómez et al., 2015; Hartnagel, 1979; Perkins et al., 1990) says that safety/crime impacts both park use and SOC; however, this is not examined in the current study. Future studies could incorporate neighborhood-level information such as crime rates, percent white/non-white in the neighborhood, or percentage of rental properties to look at the role these neighborhood-related variables play in either park use or SOC. Perhaps the inclusion of leisure constraints, or the development of a neighborhood park and SOC model.

Conclusion

The purpose of this study was to explore the relationship between neighborhood sense of community (SOC) in three Norfolk, Virginia neighborhoods, perceived recreation benefits from neighborhood parks, and park use by residents that live within a ¼ to ½ mile radius of their neighborhood park. The neighborhoods include Barraud Park, Colonial Place, and Edgewater. A discussion of the findings, conclusions, and recommendations for further research are included. There have been numerous studies that focused on physical health benefits of urban parks, but few studies have examined how park use influences a neighborhood's sense of community (Chiesura, 2004; Francis, Giles-Corti, Wood, & Knuiman, 2012; Gómez, Baur, & Malega, 2018). Additionally,

perceived individual/social recreation benefits derived from parks have never been explored as a variable relating to, or predicting, SOC. The study sought answers to five research questions. In finding the answers to those research questions, the current research has made several contributions.

First, this study confirmed the SCI-2 instrument used to measure sense of community and it confirmed a previously used benefits scale, the PBMP (Gómez, 1999), by extending its rationale. Parks have generally been found to increase SOC by the very nature as a space that facilitates public socialization; however, previous studies have not intentionally tested the relationship between perceived park benefits and SOC. Second, the study has introduced an alternative theoretical framework for studying neighborhood parks. Sense of community can be measured by using the SCI-2 and it can determine if park quality has an impact on sense of community in neighborhood. The argument made here is that SOC theory should continue to be explored within a community recreation context. The researcher found direct connections between having a park (even if it is not being used) in a neighborhood, the perception of benefits, and the perception of quality of the park as having direct impacts on neighborhood SOC, has implications for the field. Lastly, the findings support the idea that having parks does create stronger communities. However, simply having the park is not enough. The park quality (and maintenance) is important to SOC in neighborhoods, as is the perception of benefits derived from a park and having a park proximal to one's home. This speaks to the broader notion of creating "livable" cities. In closing, this study fills a gap in current recreation and parks literature and how it relates to sense of community, perceived benefits of neighborhood parks, and park use.

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APPENDICES

Appendix A – Urban Park Typology

Pleasure grounds/gardens. American life began to change by 1840 because of industrialization and urbanization. Cities were growing at a pace such that it made traveling outside the city almost impossible. Leisure time and relaxation were not a part of the working- class lifestyle because factory production and work were time consuming (Scribner, 2018). During the period of 1850-1900, the pleasure ground/garden was the park type that offered a solution for industrializing cities by providing visually pleasing landscapes inside a city that reminded people of rural beauty and nature, which was believed to help refresh the mind (Cranz, 1980; Sadeghian & Vardanyan, 2015; Scribner, 2018; Ward, 2008). During this time, transcendentalists were seeking spiritual experiences and believed that natural areas are places where spiritual truths were most pronounced. Taylor (1999) noted the following:

The urban park advocates, with their emphasis on rural recreation in the city, adopted a more Emersonian view of wildness and rural beauty than leading Romantics and Transcendentalists. As part of the social construction of urban parks, landscape architects adopted a muted form of Transcendentalism which [was referred to] as pastoral Transcendentalism to distinguish it from the more 'purist' form of wilderness Transcendentalism practiced by Muir and his followers. Pastoral Transcendentalism attributed virtues to natural things like trees, meadows, and brooks that could be replicated in urban park like settings thereby justifying the need for parks and laying the foundation for park design theory (see also Cranz, 1982). (p. 426)

Transcendentalists believed that people were good, but they were corrupted by society. A solution to this problem was to create open, green pleasure gardens to provide people a natural setting for relief or escape from their everyday jobs.

Pleasure gardens were heavily influenced from the 18th century England parks, which included curvilinear picturesque lawns, fountains, trees and foliage and a focus on aesthetics (Green, 2011; Laird, 1999; Scribner, 2018). The pleasure garden park had an extensive landscape of trees, meadows, hills, and various waterways. Initially, the pleasure gardens were located outside of the city because land was less expensive (Taylor, 1999). There were no buildings, sculptures, or flower beds in these urban-proximate/periphery parks. The land was on the edge of the city to get away from the stresses of city living. The pleasure gardens were vast and there were thousands of acres, so the gardens gave the illusion of being away from the city (Cranz, 1980; Sadeghian & Vardanyan, 2015; Ward, 2008). However, in the move from the outskirts of the city to the center of the city, pleasure gardens still had curvilinear landscaping, but it also included a well-positioned mansion-house and conservatory on the park grounds (Smith, 1852). The social goal of pleasure gardens was public health and social reform, with the intention to benefit all city dwellers, but it really benefitted the upper middle class because the poorest of people lived in the inner cities. (Cranz & Boland, 2004; Scribner, 2018; Tuason, 1997).

Frederick Law Olmsted was the quintessential park designer during this era and he felt that exposure to wilderness was the solution to many of the problems in the city. Olmsted was also a contemporary and acquaintance of Ralph Waldo Emerson and was greatly influenced by Emerson's transcendentalist writings (Taylor, 1999). To provide

relief from the city, Olmsted designed landscapes that followed the pleasure garden type (Fulton, 2012; Sadeghian & Vardanyan, 2015). The park grounds consisted of massive amounts of trees and rolling hills to create a picturesque landscape. Curved paths were a distinct element of the pleasure garden. Central Park was the first pleasure garden in the U.S., which, like many pleasure gardens, was set in stark contrast to the city (Cranz & Boland, 2004). New York's Central Park, designed by Olmsted, uses circulation paths to separate traffic and pedestrian traffic. At the time, this was an innovative idea that became a part of urban planning (Cranz, 1980; Scribner, 2018).

The pleasure gardens were designed to take people away from the city, so each element had a purpose. The meadows allowed families and other groups to gather for social events. Waterways allowed people to experience a pleasing and relaxing environment while performing activities such as boating (Scribner, 2018; Young, 1995). The pathways allowed people to stroll along while encouraging them to interact. The family unit was the focus for designers as they created landscapes to bring them together. Designers wanted to provide a place to strengthen families that lived in an urban setting. Another social concern during the era was class differences. Urban park designers wanted pleasure gardens to be a place where people from all classes could interact (Cranz, 1980; Sadeghian & Vardanyan, 2015; Young, 1995).

Reform park. The reform park was the prominent park type from 1900-1930 and changed the focus to active play and social organization. Around 1900, the reform park type was established when the need for playgrounds and local parks became focal points for reform which included public health, prosperity, social coherence, and democratic equality (Young, 1995). Park advocates believed that the presence of parks would help

society become healthier, wealthier, have no crime, and be more democratic (Cranz & Boland, 2004; Williams, 2011; Young, 1995). Reform parks were reflective of the Progressive Era in the U.S. and were also known as “neighborhood parks” that were “widely distributed throughout the built-up areas of the inner city” in order to be accessible to people who lived in congested residential districts (Tuason, 1997, p. 134).

The split between the park movement and the recreation movement happened during the reform park era. Some cities had different departments for parks and for recreation. Supervised activities were provided by recreation departments, so families were no longer expected to be as engaged as before. The reform park era was the beginning of the debate between passive and active recreation (Cranz, 1978; Sadeghian & Vardanyan, 2015; Stormann, 1991; Williams, 2011).

Due to industrialization, parks were (a) developed near working-class residents, (b) generally smaller and (c) located along city blocks, rather than larger centralized parks. There was minimal appreciation for nature and aesthetics (Cranz, 1980; Sadeghian & Vardanyan, 2015; Stormann, 1991). During this time frame, there was an emphasis on playgrounds to try and combat juvenile delinquency in the urban areas. According to Tuason (1997), “[municipalities] established this type of park … in response to conditions of overcrowding and the hazards of street life for children in working-class residential districts” (p. 124).

The reform park era focused on the working class, and the parks were located in tenement areas. Neighborhood parks were normally a square block surrounded by housing. The details of the park were straight with no curves. The structures in the parks were similar to the buildings that were located close to the park. This era is responsible

for a new structure known as the field house (Cranz, 1980; Sadeghian & Vardanyan, 2015; Young, 1996). They were buildings that provided people showers, multi-purpose rooms, and a gym. The reform park did not have the pleasant aesthetics of the pleasure garden. Grass was scarce because structures, sand, and blacktop were used instead.

Recreation facility. The recreation facility was popular from 1930-1965 (Cranz, 1980; Sadeghian & Vardanyan, 2015; Stormann, 1991; Young, 1996). This park typology is grounded in the idea that recreation was recognized as an essential municipal resource on its own without being a solution to problems in society. During this time urban planners knew that parks were needed for balanced cities (Barth, 2016; Cranz, 1980).

The recreation facility era was the time that parks were no longer needed to create social reforms. During this time, recreation was viewed as a function of municipalities and valuable on its own. The recreation facility time period provided recreation for all, not just for children. This major shift was a distinct element moving from the reform park to the recreation facility models (Barth, 2016; Cranz, 1980; Sadeghian & Vardanyan, 2015; Williams, 2011).

As sports like football, baseball, and basketball became popular, new construction was underway to provide facilities for residents. The most popular facility during this era was the swimming pool. The YMCA was a recreation facility that had a campaign to teach every male in the United States how to swim (Hopkins, 1951; Johnson, 1979). The middle class was expanding and during this time the focus of parks and recreation was to serve the community. Serving the community was a priority so these parks started to order the same kind of equipment and many of them were designed the same (Barth, 2016; Cranz, 1980; Sadeghian & Vardanyan, 2015; Williams, 2011). Urban parks in the

city needed to be large enough to provide gathering facilities and sports fields. Urban parks were designed for a practical use for the community that surrounded it and they were not designed with beauty or nature in mind.

Open-space system. The fourth type is considered the open-space system. From 1965 to the present, urban parks have returned to the idea that they can solve problems in society while being aesthetically pleasing and can benefit individuals and the community (Barth, 2016; Cranz, 1980; Sadeghian & Vardanyan, 2015; Williams, 2011). During this timeframe, the ideas about open and green space started to flourish. There was a belief that any area that was underdeveloped had the potential of being an escape from urban life and city living. Park planning in this era moved away from playgrounds and various exercise equipment to open environments and play structures made from wood and cement (Barth, 2016; Cranz, 1980; Sadeghian & Vardanyan, 2015; Williams, 2011). Many of the play structures were sturdy and not very mobile. They were inexpensive to produce. Another trend was the small pocket parks that created a little piece of nature that tried to create relief from city living. It was a much smaller version of Olmstead's vision.

There were three types of parks during this time. The tot lot, adventure playground, and urban plazas were developed with the idea that play should not be structure but rather freeform, so the areas provided should be free form as well. Free form play involves structures with no defined rules or purpose. They are designed for unstructured play and to encourage kids to be creative and use their imaginations. There were also areas provided for business people to rest and relax during their breaks from their jobs in the city.

The idea of open space began when the inner city was believed to be declining. These parks and open spaces were a part of selective revitalization. Cities needed something to make them more attractive to residents so the idea behind these parks was to provide the community with an escape from the city and the return of nature in the big city.

Sustainable Park. In 2004, Cranz and Boland expanded the urban park typology to include a fifth park type: the sustainable park. From 1990 to the present there were traits that were found that did not appear in other types of parks. Sustainable parks increased the ecological value of parks. Some of the new characteristics included use of native plants, the restoration of small bodies of water, wildlife habitat, recycling, and other sustainable practices (Cranz & Boland, 2004). Cranz and Boland (2004) analyzed 125 park designs published in landscape journals between 1982 and 2002. They found that open space parks were the predominant park type, but ecological parks were the second most popular type of park (Barth, 2016; Gobster, 2007). The majority of the ecological parks that were identified had been established since 1991. Examining past trends, Cranz and Boland (2004) predicted that urban ecological parks would continue to develop.

Planning for sustainable parks requires developers to anticipate social and environmental changes. Urban parks can respond quickly to social changes, but the environmental and climate changes take more time. Heat, cold, precipitation, and wildlife have to be taken into consideration when planning takes place. Visitor use and patterns also need to be considered because those factors might change considering the climate of

the area (Chiesura, 2004; Cranz & Boland, 2004; Drlik, Muhar, Licka, 2009; Smetana & Crittenden, 2014).

The Spectacle Park. In response to the 2004 Cranz and Boland article, Lauren Williams from the University of Michigan introduced the spectacle park as the sixth urban park typology. “Since the mid-1990’s, many prominent urban public parks have emerged, each demonstrating such an elevated level of entertainment and self-consciousness that none of Cranz and Boland’s existing five park typologies comfortably apply” (Williams, 2011, p. 49). Spectacle parks include “provocative art installations, highly programmed spaces, rigid circulation patterns, a superficial relationship to nature, stimulation that is constant during day and night and throughout changing seasons, and complex public-private funding arrangements (Williams, 2011, p. 49-50).Examples of a spectacle park typology would be the Millennium Park in Chicago and the Olympic Sculpture Park in Seattle. These parks were developed to serve as the center of urban revitalization. These parks are much smaller than the pleasure ground parks but there are more structured elements in the space of the park (Hongxing, 2015; Pearson, 2007; Williams, 2011).

Appendix B – SCI-2: Permission and Scoring

From: Gomez, Edwin
To: Centers, Kimberly T.
Cc: Hill, Eddie; Usher, Lindsay E.; Reams, Lamar M.
Subject: SCI-2
Date: Monday, November 19, 2018 6:25:00 PM
Attachments: Sense of Community Index-2(SCI-2).doc
Sense of Community Index-2(SCI-2).pdf

Kim, see below. As a dissertation committee member and full time academician, I have obtained permission to use the SCI-2 for research, which means I can use it with any of my students. Please include this e-mail as "permission" to use the SCI-2 as part of your documentation for the dissertation, and for Human Subjects approval/IRB (if needed).
– Dr. Gomez

From: Courte Van Voorhees <cvanvoorhees@communityscience.com>
Sent: Tuesday, July 10, 2018 9:58 AM
To: Gomez, Edwin <GOMEZE17@ECU.EDU>
Subject: SCI-2

Greetings,

Thank you for your continued interest in the Sense of Community instrument. I have recently taken over responsibility for disseminating the SCI-2 and look forward to hearing about your experiences with it. I have reviewed your request form, and you are approved to use the SCI for the research project described. Please find the index attached. Also, with permission to use the index, you can create and disseminate the survey through a digital platform (so long that none of the survey content is changed). Please let me know if you have any questions.

I am also in the process of revising the user survey and will get in touch soon to ask for your participation. This short survey helps us further validate the SCI-2 which, in turn, makes any work you do with it more rigorous. Thank you in advance for your participation. I wish you the best with your research.

Sincerely,

Courte

Courte Van Voorhees, Ph.D.
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www.communityscience.com (Learn more about us)
www.senseofcommunity.com (Resources and discussions on SOC)
Community Science is a group practice of social change professionals who use knowledge to build healthy, just, and equitable communities.

Instructions for Scoring the Revised Sense of Community Index

1. Identifying the Community Referent

The attached scale was developed to be used in many different types of communities. Be sure to specify the type of community the scale is referring to before administering the scale. Do not use "your community" as the referent.

2. Interpreting the Initial Question

The initial question "How important is it to you to feel a sense of community with other community members?" is a validating question that can be used to help you interpret the results. We have found that total sense of community is correlated with this question – but keep in mind this may not be true in every community.

3. Scoring the Scale

For the 24 questions that comprise the revised Sense of Community Index participants:

Not at All = 0, **Somewhat** = 1, **Mostly** = 2, **Completely** = 3

Total Sense of Community Index = Sum of Q1 to Q24

Subscales Reinforcement of Needs = Q1 + Q2 + Q3 + Q4 + Q5 + Q6

Membership = Q7 + Q8 + Q9 + Q10 + Q11 + Q12

Influence = Q13 + Q14 + Q15 + Q16 + Q17 + Q18

Shared Emotional Connection = Q19 + Q20 + Q21 + Q22 + Q23 + Q24

Appendix C – IRB Approval Letter

OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Physical Address
4111 Monarch Way, Suite 203
Norfolk, Virginia 23508
Mailing Address
Office of Research
1 Old Dominion University
Norfolk, Virginia 23529
Phone(757) 683-3460
Fax(757) 683-5902

DATE:	December 18, 2018
TO:	Eddie Hill
FROM:	Old Dominion University Education Human Subjects Review Committee
PROJECT TITLE:	[1355942-1] Psychological Sense of Community and Urban Park Use
REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	December 18, 2018
REVIEW CATEGORY:	Exemption category # *6.2 and 6.4*

Thank you for your submission of New Project materials for this project. The Old Dominion University Education Human Subjects Review Committee has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact Laura Chezan at (757) 683-7055 or lchezan@odu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Old Dominion University Education Human Subjects Review Committee's records.

Appendix D – Survey

A Survey of Norfolk Residents – Sense of Community and Parks
Ms. Kim Centers, Old Dominion University, PRTS Program, email: kcenters@odu.edu.

INSTRUCTIONS

This survey is being conducted as feedback on questions related to your neighborhood and the park closest to your neighborhood. In order to maintain anonymity and confidentiality we ask that you **DO NOT provide your name**. Please take your time answering the questions. The questionnaire should take approximately **10-15 minutes** to complete. We ask that you be as honest as you can, and if at any time you do not feel comfortable answering a question, you may skip it.

SECTION I: GENERAL NEIGHBORHOOD QUESTION

How long have you lived in your neighborhood? _____ Years _____ Months

How important is it to you to feel a sense of community with other community members? **When you see the word "community" below, we are referring to your neighborhood.**

1 ❑	2 ❑	3 ❑	4 ❑	5 ❑	6 ❑
Prefer Not to be Part of This Community	Not Important at All	Not Very Important	Somewhat Important	Important	Very Important

SECTION II: NEIGHBORHOOD QUESTIONS

Directions: *In this section, you will be asked about your neighborhood community. Please indicate the extent to which you relate **(1)** not at all, **(2)** somewhat, **(3)** mostly, or **(4)** completely with the following statements regarding your views on the* **sense of community. When you see the word "community" below, we are referring to your neighborhood. How well do each of the following statements represent how you *feel* about this community?**

	Not at All 0	Somewhat 1	Mostly 2	Completely 3
1. I get important needs of mine met because I am part of this community.	❑	❑	❑	❑
2. Community members and I value the same things.	❑	❑	❑	❑
3. This community has been successful in getting the needs of its members met.	❑	❑	❑	❑
4. Being a member of the community makes me feel good.	❑	❑	❑	❑
5. When I have a problem, I can talk about it with members of this community.	❑	❑	❑	❑
6. People in this community have similar needs, priorities, and goals.	❑	❑	❑	❑

7. I can trust people in this community.	❑	❑	❑	❑
8. I can recognize most of the members of this community.	❑	❑	❑	❑
9. Most community members know me.	❑	❑	❑	❑
10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people recognize	❑	❑	❑	❑
11. I put a lot of time and effort into being part of this community.	❑	❑	❑	❑
12. Being a member of this community is a part of my identity.	❑	❑	❑	❑
13. Fitting into this community is important to me.	❑	❑	❑	❑
14. This community can influence other communities.	❑	❑	❑	❑
15. I care about what other community members think of me.	❑	❑	❑	❑
16. I have influence over what his community is like.	❑	❑	❑	❑
17. If there is a problem in this community, members can get it solved.	❑	❑	❑	❑
18. This community has good leaders.	❑	❑	❑	❑
19. It's very important to me to be a part of this community.	❑	❑	❑	❑
20. I am with other community members a lot and enjoy being with them.	❑	❑	❑	❑
21. I expect to be a part of this community for a long time.	❑	❑	❑	❑
22. Members of this community have shared important events together, such as holidays, celebrations, or disasters.	❑	❑	❑	❑
23. I feel hopeful about the future of this community.	❑	❑	❑	❑
24. Members of this community care about each other.	❑	❑	❑	❑

<u>SECTION III</u>: GENERAL PARK QUESTIONS

In the past year, how often did you use _____ Park? (*Please enter park for resident*.)

5 ❑	4 ❑	3 ❑	2 ❑	1 ❑	0 ❑
Just About Daily	Several Times Per Week	Weekly (4 times a month)	Monthly (1-2 times a month)	Hardly Ever (1-2 times a year)	Never

How long does it take you to **<u>travel</u>** to your neighborhood park? _____ Minutes.
How would you typically get to the park? (**<u>choose one</u>**) ❑Walk or ❑Drive
When you use a park, how long do you tend to stay at the park? _____ Hours
_____Minutes

SECTION IV: PARK QUESTIONS - BENEFITS

Directions: *In this section, you will be asked questions about your neighborhood's park. Please indicate the extent to which you* ***(1)*** *strongly disagree,* ***(2)*** *disagree,* ***(3)*** *neither agree or disagree,* ***(4)*** *agree, or* ***(5)*** *strongly agree with the following statements on your views of the* **benefits of the neighborhood park.**

	Strongly Disagree				**Strongly Agree**
A **benefit** of going to the neighborhood park is that …	1	2	3	4	5
1. Parks offer a place to **enjoy nature**.	❑	❑	❑	❑	❑
2. Parks offer a place to **escape** for a while.	❑	❑	❑	❑	❑
3. Parks offer a place to **socialize**/create personal contacts.	❑	❑	❑	❑	❑
4. Parks offer a place to get some **exercise**.	❑	❑	❑	❑	❑
5. Parks offer a place to spend time with **family/friends**.	❑	❑	❑	❑	❑
6. Parks offer a place with **open green space**.	❑	❑	❑	❑	❑
7. Parks offer a place where **children**/youth can develop.	❑	❑	❑	❑	❑

How would you rate your accessibility (convenience of getting there) to _____ Park? (*Please enter park for resident*.)

6 ❑	5 ❑	4 ❑	3 ❑	2 ❑	1 ❑
Extremely Convenient	Very Convenient	Convenient	Kind of Convenient	Poorly Convenient	Not Convenient

How would you rate _____ Park overall? (*Please enter park for resident.*)

1 ❑	2 ❑	3 ❑	4 ❑	5 ❑
Poor	Fair	Good	Very Good	Excellent

SECTION V: DEMOGRAPHICS

What is your age? _____ Years Old

Are you … ❑Male ❑Female

Are you … ❑White ❑Latino/Hispanic ❑ Black/A-A ❑ Asian ❑ Other _____

Are you … ❑Single ❑Married ❑ Divorced ❑ Separated ❑ Other _____

Are you … ❑Employed ❑Unemployed ❑ Homemaker ❑ Retired ❑ Other _____

What is your **total family/household income** (before taxes)? [Include all adult and children's income.]

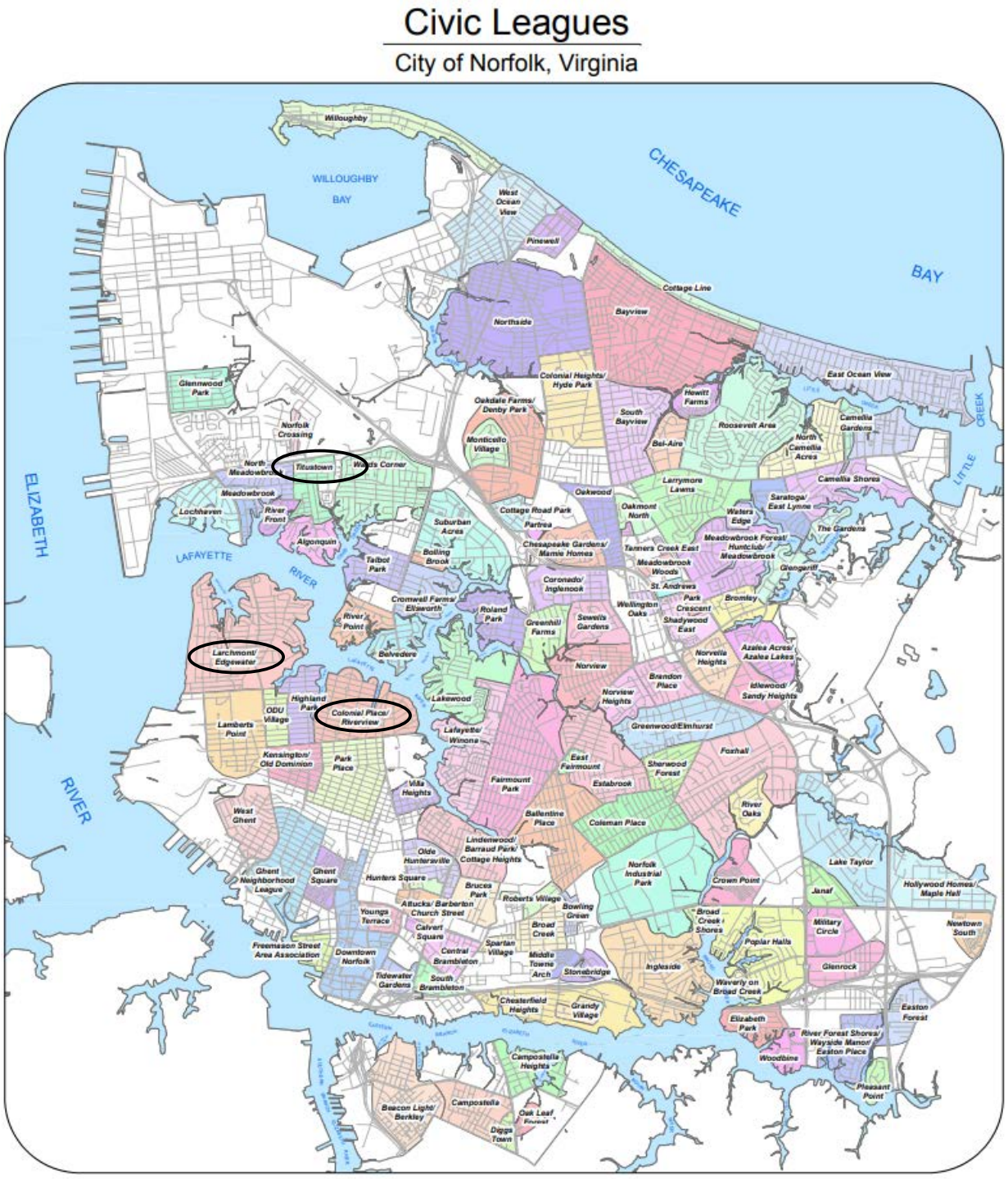
❑$25,000 to $34,999
❑$35,000 to $49,999
❑$50,000 to $75,000
❑ $75,000 to $99,999
❑ $100,000 to $149,000
❑ $150,000 and over

What is the **highest level of education** that you completed in school?

❑ Eighth Grade or Below
❑ Some High School
❑ High School Graduate/GED
❑ Some College, no degree
❑ Associate's Degree
❑ Bachelor's Degree
❑ Some Graduate School
❑ Master's Degree
❑ Doctoral Degree

That completes our survey. Thank you very much for your assistance!

Appendix E – Civic Leagues Representing Neighborhoods in Norfolk, Virginia



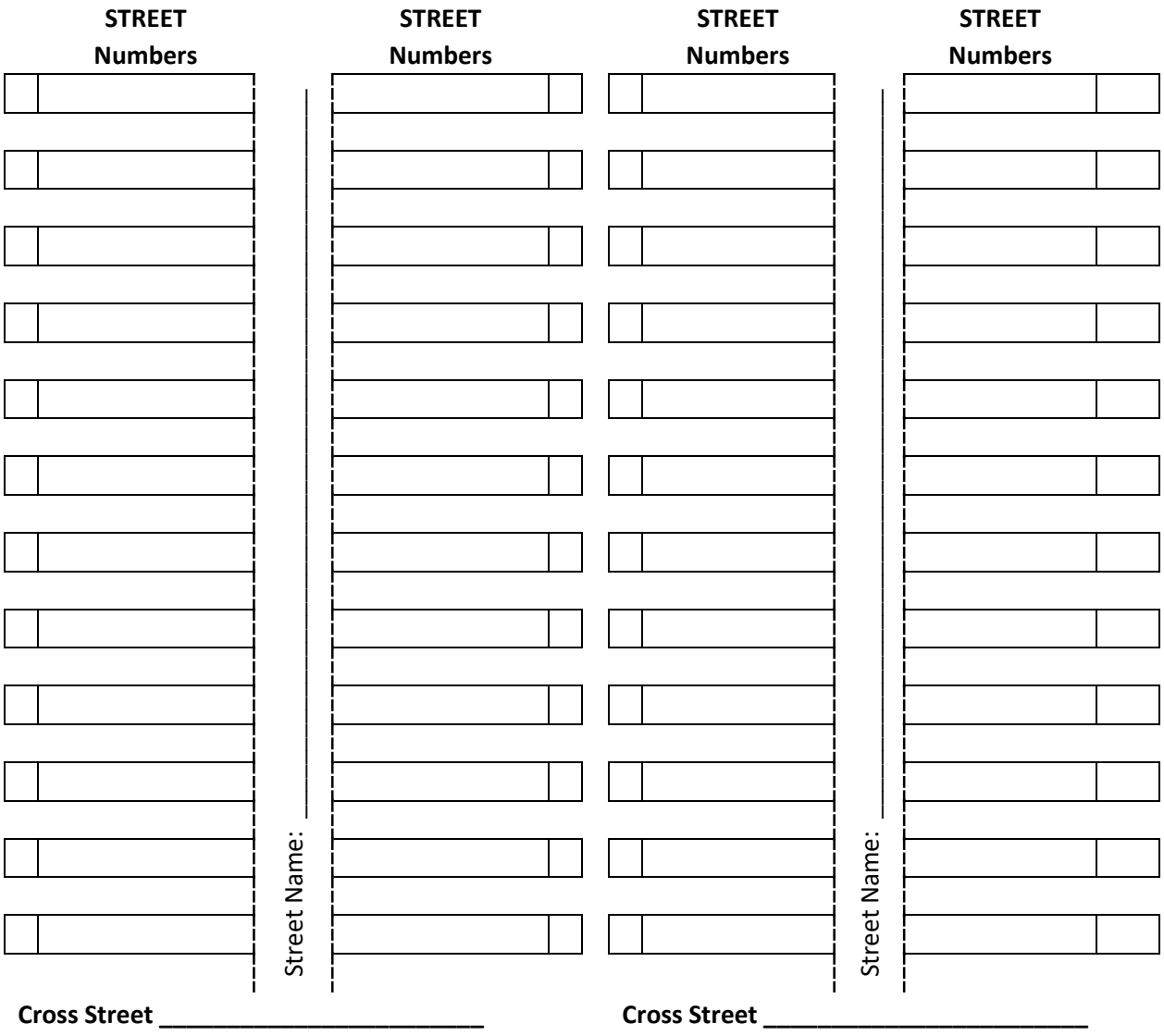
Appendix F – Neighborhood Response Tracking Sheet

CODES: Y = Completed Survey … N = Refused to Take Survey ... X = Not Home/Left Flyer/Survey

CODES: R = Returned Survey … NR = Not Returned Survey … V = Vacant/Empty Home
(Enter Code to left or right of street number)

Name of Neighborhood _____ Date _____

Cross Street _____ **Cross Street _____**



Cross Street _____ **Cross Street _____**

Appendix G – Flyer

Greetings Norfolk Resident,

I am sorry that I missed you. My name is Kim Centers and I am a PhD candidate at Old Dominion University. I am conducting research in your neighborhood. The purpose of this research is to explore the relationship between neighborhood sense of community and urban park use.

Your participation will help park professionals better understand the role that parks play in neighborhoods. Even if you do not use parks, we would like your participation because we are interested in perceptions of the parks by ALL residents, regardless of whether they use parks or not.

I would love for you to fill out a survey for me to help with my data collection. I have left a survey and a self-addressed stamped envelope for your convenience.

I appreciate your time and consideration. If you have any questions please contact me at kcenters@odu.edu or give me a call at 757-447-8801.

Sincerely,

Kimberly T. Centers
Doctoral Student - Human Movement Sciences
Sport & Recreation Management
Old Dominion University
Student Recreation Center #2006
Norfolk, VA 23529
kcenters@odu.edu

Appendix H – Informed Consent Form

INFORMED CONSENT DOCUMENT
OLD DOMINION UNIVERSITY

PROJECT TITLE: Urban Park Use and Psychological Sense of Community (PSOC) .

INTRODUCTION
The purposes of this form are to give you information that may affect your decision whether to say YES or NO to participation in this research, and to record the consent of those who say YES.

RESEARCHERS
Dr. Eddie Hill, CPRP, Associate Professor, Darden College of Education & Professional Studies
Human Movement Sciences Dept., Park, Recreation & Tourism Studies Program

Kimberly T. Centers, Doctoral Candidate, Darden College of Education & Professional Studies
Human Movement Sciences Dept., Sport & Recreation Management

DESCRIPTION OF RESEARCH STUDY
The purpose of the study is to explore the relationship between residents' perceptions of the benefits of neighborhood parks, park usage and sense of community in a neighborhood.

Several studies have been conducted looking into the subject of psychological sense of community (PSOC), but very few studies have considered the role parks play (real or perceived) related to neighborhood PSOC.

The researcher will visit households within a ½ mile radius of a neighborhood urban park in Norfolk, VA to inform residents of the purpose of the study. The questionnaire will be given to one adult (18+) in each household. Residents had to have lived in the neighborhood for at least one month. The researcher will either give flyers directly to residents and ask for their participation, or flyers will be left at residences letting them know that research is being conducted in their neighborhood, the purpose, who's conducting the research, and self-addressed envelopes – if residents are not available at the time of the visit. Upon hearing/reading the purpose of the study, **that will constitute informed consent**, and the resident can at that point choose to participate or not participate in the study (i.e., no informed consent form is needed). Data will be collected via questionnaire (2 pages).

If a resident decides to participate, then his/her participation will last for approximately 10-15 minutes, if self-administered, or 20-30 minutes if administered by the researcher. If residents are home, participants will be given the choice of having the survey administered (interview) or self-administered. The goal is to have at least 100 residents of the neighborhood participating in this study. If participants do not have time to fill out the questionnaire at the time of the visit, they will be given the option of sending the questionnaire in a self-addressed/stamped envelope that will go directly to the researcher.

RISKS AND BENEFITS
RISKS: If you decide to participate in this study, then you may face a risk of loss of confidentiality. The researcher will try to reduce these risks by not asking for personally identifying data. All data will be stored in a password protected file and paper-based answers will remain in a locked filing cabinet when not in use. And, as with any research, there is some possibility that you may be subject to risks that have not yet been identified.

BENEFITS: The main benefit to you for participating in this study is to help Old Dominion University gather data on PSOC and park use, which could help inform future park professionals on the role parks play in neighborhood communities.

COSTS AND PAYMENTS
The researchers are unable to give you any payment for participating in this study.

NEW INFORMATION
If the researchers find additional information during this study that would reasonably change your decision about participating, then they will inform you.

CONFIDENTIALITY
All information obtained about you in this study is strictly confidential unless disclosure is required by law. The results of this study may be used in reports, presentations and publications, but the researcher will not identify you.

WITHDRAWAL PRIVILEGE
It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdraw from the study -- at any time.

COMPENSATION FOR ILLNESS AND INJURY
If you say YES, then your consent in this document does not waive any of your legal rights. However, in the event of harm, injury, or illness arising from this study, neither Old Dominion University nor the researchers can give you any money, insurance coverage, free medical care, or any other compensation for such injury. If you suffer injury because of participation in any research project, you may contact Dr. Eddie Hill at Old Dominion University 757-683-4881, he will be glad to review the matter with you.

VOLUNTARY CONSENT
By signing this form, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. The researchers should have answered any questions you may have had about the research. If you have any questions later on, then the researchers should be able to answer them:

Dr. Eddie Hill	757-683-4881	Kimberly Centers	757-xxx-xxxx

If at any time you feel pressured to participate, or if you have any questions about your rights or this form, then you should contact Dr. Jill Stefaniak, Chair of the Darden College of Education Human Subjects Review Committee, Old Dominion University, at jstefani@odu.edu.

And importantly, by signing below, you are telling the researcher YES, that you agree to participate in this study.

Participant's Printed Name & Signature	**Date**

INVESTIGATOR'S STATEMENT
I certify that I have explained to this participant the nature and purpose of this research, including benefits, risks, costs, and any experimental procedures. I have described the rights and protections afforded to human subjects and have done nothing to pressure, coerce, or falsely entice this subject into participating. I am aware of my obligations under state and federal laws and promise compliance. I have answered the participant's questions and have encouraged him/her to ask additional questions at any time during the course of this study. I have witnessed the above signature(s) on this consent form.

Investigator's Printed Name & Signature	**Date**

VITA

Kimberly Tilford Centers

Home address
1905 Seward Drive
Hampton, VA 23663
757-xxx-xxxx (cell)
kimcenters74@gmail.com

Office Address
4700 Powhatan Avenue
SRC 2016
Norfolk, VA 23529
kcenters@odu.edu

EDUCATION

2019	Ph.D. in Education, Human Movement Sciences Concentration, Sport and Recreation Management Emphasis Old Dominion University Expected Graduation August 2019
2011	M.S. in Physical Education, Recreation and Tourism Concentration Old Dominion University
2007	M.A. in English, Professional Writing Concentration Old Dominion University
2000	B.S. in Recreation and Leisure Studies, Recreation and Park Management Concentration Old Dominion University

EXPERIENCE

Summer 2015 Spring 2018 Summer 2018	Academic/Faculty Internship Supervisor, *PRTS 368*, Internship in PRTS, Old Dominion University, Norfolk, Virginia
2010 – Present	English Composition Instructor, Arts and Sciences Department, ECPI University, Virginia Beach, Virginia
2015 – Present	Adjunct English Composition Instructor, Southern New Hampshire University Online
2016 – 2018	Graduate Teaching Assistant, *PRTS 483W*, Applied Research in Park, Recreation and Tourism – Writing Intensive Lab, Department of Human Movement Sciences, Old Dominion University, Norfolk, Virginia