The role of communities in environmental sustainability projects: The need for local action

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Abstract

This study explores how community participation contributes to the success of a local environmental sustainability project. In order to avoid approaching sustainability and community participation using the "silo approach," I established an integrated framework of community participation and sustainability based on a review of relevant literature. I established assessment criteria and analyzed the Green Living DC case study against these criteria in order to answer my primary and secondary research questions. As a case study, Green Living DC uses community participation to complete environmental sustainability projects. Primarily, I used the case study methods research to address theories in practice. I collected secondary quantitative data about the community demographics and local environmental quality. I collected qualitative data about local environmental sustainability projects though semi-structured individual interviews with members of Green Living DC.

I put forth recommendations based on a synthesis of the research findings with the theoretical framework of sustainability and community participation. My research findings indicate that community participation should be a requirement of environmental sustainability projects. Although no two projects are exactly the same, optimum participation should be decided on within each project framework. Communities should define their own idea of "success," suitable for their specific context. I also put forth recommendations for NGOs implementing environmental sustainability projects. Ultimately, NGOs can benefit and serve to bridge the gap between local government and citizens in implementing environmental sustainability projects.

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Chapter 1: Introduction

1.1 Identifying the Problem Under Investigation

Sustainability is often described as the intersection, rather than the integration, of human, nature and economic interests and initiatives (Gibson, 2006). The main issue with this is the "silo approach" to sustainability and community participation that informs policy making. The "silo approach" describes communities as "a collection of institutions and programs operating near one another by not overlapping or touching" (Block, 2008, 2, see Chapter 2). This approach to sustainability promotes individuality and independence *over* interdependence.

Gibson (2006) identifies the "three pillars" of sustainability as human, nature and economic pillars. Addressing the "three pillars" of sustainability separately in itself is problematic, and it is only made worse by the training of experts in three generally separate fields – the social, economic and ecological silos (Gibson, 2006). The problem is exacerbated by a clear absence of integrative expertise and data, especially when translated from theory into practice. Society tends to ignore the interdependence of these factors when developing environmental sustainability projects (Gibson, 2006). Integration of these pillars is necessary in both theory and practice, because solutions to environmental problems require all "three pillars" of sustainability.

1.2 Purpose of this Study

This study explores how community participation contributes to the success of a local environmental sustainability project. It concentrates on environmental sustainability projects, specifically the Green Living DC case study, that uses community participation to varying degrees. By examining these projects and identifying the successes and challenges within Green Living DC case study, I explore how community participation contributes to the success of a local environmental sustainability project.

The purpose of exploring this case study is to answer the primary research question of this study: *How does community participation contribute to the success of a local sustainability project*? Chapter 2 introduces secondary research questions.

In the next section I establish the structure of this study and how I aim to assess the case study.

1.3 Structure of this Study

I organized this study into five chapters. Chapter 2 reviews the relevant literature and establishes an integrated framework of sustainability and community participation. I draw on arguments from theorists and experts in the fields of urban planning, environmental management, economics and social anthropology. The review of relevant literature concerning sustainability and community participation enables the establishment of assessment criteria. These assessment criteria are used in Chapter 4 to analyze the Green Living DC case study; the same criteria inform the conclusion and recommendations in Chapter 5. I also draw on lessons learned from other case examples spanning different cultures, locations, and contexts to corroborate the established assessment criteria presented in Chapter 2. I identify secondary research questions, which are derived from the integrated framework of sustainability and community participation, in Chapter 2.

Chapter 3 identifies the research methods and analytic tools I use to undertake this research, specifically: mixed methods; case studies; and oral history. These methods inform specific research techniques, which include secondary data collection, semi-structured individual interviews, and storytelling. This chapter also explains sampling techniques and the specific data analysis procedures used in this study. Chapter 3 includes a discussion of the ethical considerations of this study and departs from the theoretical framework in order to establish how I answer the primary and secondary research questions posed in Chapter 2.

Chapter 4 analyzes the data collected using the assessment criteria established in Chapter 2 to evaluate the Green Living DC case study directly. The aim of Chapter 4 is to introduce the research findings of this study.

Chapter 5 is devoted to the conclusion and recommendations based on the culmination of this study. I answer the primary and secondary research questions posed in Chapters

1 and 2 and in doing so, I synthesize the research findings with the theoretical framework of sustainability and community participation. I put forth recommendations based on the integrated framework of sustainability and community participation, citing examples in practice from the Green Living DC case study and proposed "solutions" by experts cited in Chapter 2.

The remainder of this Chapter provides contextualization of this study, a brief background on the Green Living DC case study, and why it was an appropriate choice for this study.

1.4 Contextualization of this study

Sustainability is a concept often addressed on the international and national levels, despite the long-standing recognition of cities role in advancing sustainability (Daley, et al., 2013). Within this study, I adopt a "definition" of sustainability, which calls for its adaption depending on the context. Therefore, sustainability must be made operational in any given context, at an appropriate scale relevant for its achievement (Heinen, 1994, 21 in Bell and Morse, 2008, see Chapter 2). I believe that traditional definitions of sustainability are no longer relevant today. Instead, defining and adapting environmental sustainability goals and projects on the local level, will lead to the integration of the "three pillars" of sustainability. I draw on the research of Daley, et al. (2013), which claims that those interested in advancing urban sustainability should not neglect community support.

In order to link my viewpoint on sustainability to the case study selection, it is necessary to paint the picture of DC in 2009, at the time of the case study's inception. Washington, DC had recognized the effects of climate change regionally. For instance the Chesapeake Bay, the city's regional watershed, continues to face warming waters and pollutants that threaten its ecosystem (DC Office of Planning and AECom, 2010b). In 2009, DC faced a rise in average temperatures by more than 3 degrees since the turn of the 20th century. At that time, Mayor Fenty addressed these problems during Earth Day on April 22, 2009. He released the Green DC Agenda, which was designed as a roadmap to make the District of Columbia one of the world's most sustainable cities. The case study, detailed

in the next section, was designed and funded as a project to address the key aspects of Mayor Fenty's Green DC Agenda (DC Office of Planning and AECom, 2010b).

1.5 Case Study

Green Living DC is a volunteer-led community organization, committed to "connecting people and resources for a more sustainable community" (Green Living DC, 2013). The pilot project, Neighborhood Sustainability Indicators Project (NSIP), initially targeted the ANC 3F neighborhood, which included North Cleveland Park, Forest Hills, and Tenleytown areas of Ward 3 in Washington, DC. Figure 1.1 is a map of Washington, DC highlighting the Ward boundaries. The case study boundaries are within Ward 3 specifically. Figure 1.2 is a map of Washington, DC, highlighting a more detailed breakdown of each ward via the Advisory Neighborhood Commission (ANC). The case study boundaries are ANC 3F specifically. Subsequent chapters provide further maps of the Green Living DC case study, and these maps provide the neighborhood's context within the wider metropolitan boundaries of Washington, DC.

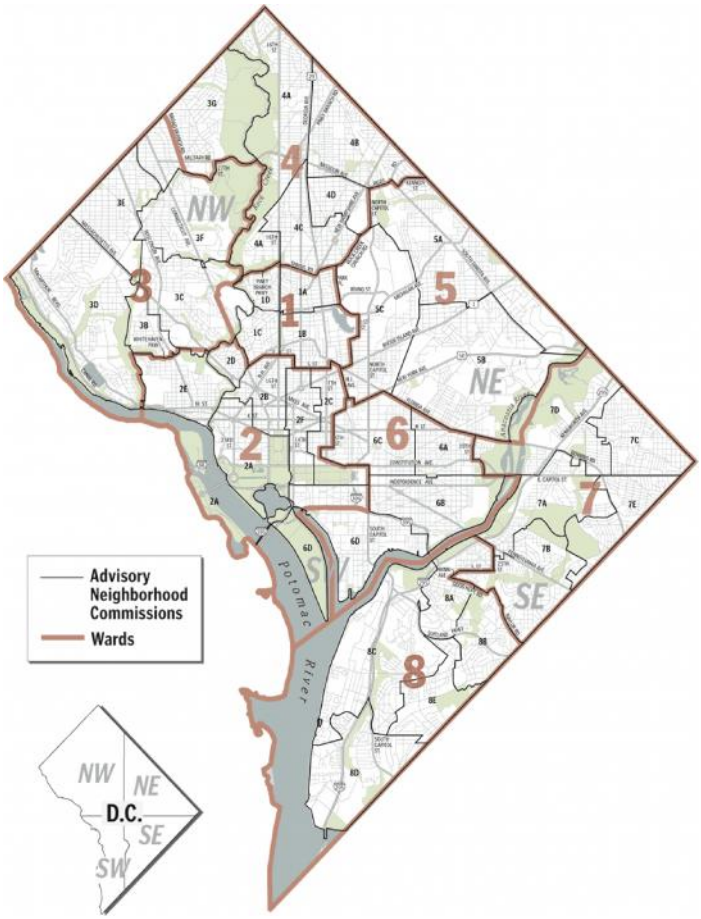


Figure 1.1 DC Map Indicating Ward 3
(Abagond, 2013)

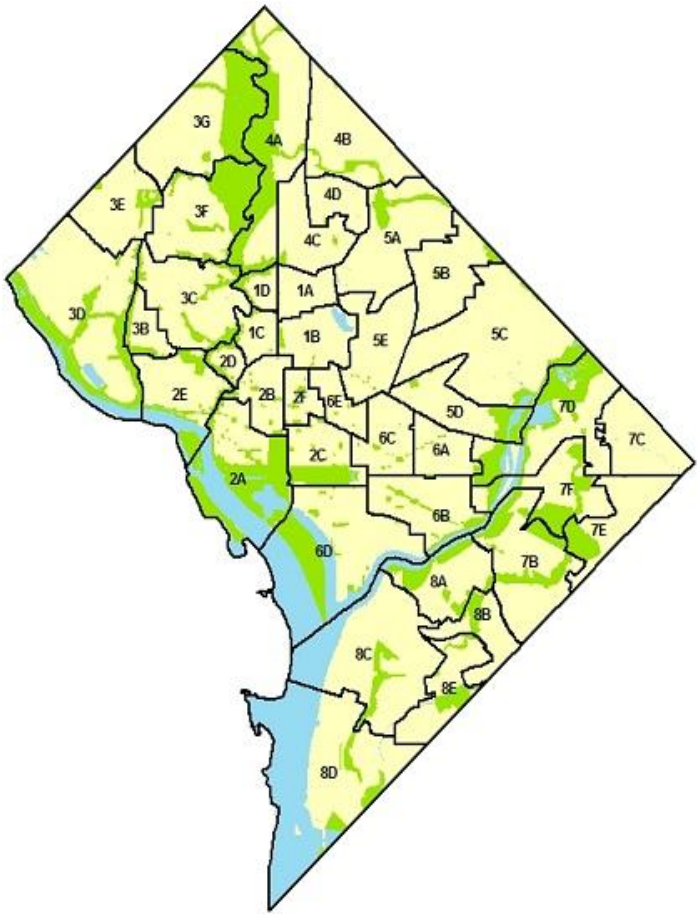


Figure 1.2 DC Map Indicating ANC 3F
(Neighborhood Info DC, 2012)

The Neighborhood Sustainability Indicators Project officially began on September 12, 2009 and ended in November 2010. It was an innovative, community-based, grassroots effort to engage neighborhood residents, businesses, and institutions to define their vision, goals, and targets for sustainability at the local level, and to take specific actions towards meeting these goals. Examples of locally identified neighborhood goals included increasing the following: energy conservation; production of renewable energy; environmental management of buildings; water conservation; water quality in neighborhood streams; restored/enhanced/protected tree canopy; use of greener modes of transportation;, increased number/quality of green businesses; expansion of the community's green social capital.

Green Living DC grew out of NSIP and has expanded beyond the ANC 3F neighborhood boundaries and now organizes larger events for the purpose of connecting citizens with resources locally. This organization is currently crafting events that bring communities together around a variety of related issues, for example, the Green Living DC Expo at the University of the District of Columbia (UDC) and the Soapstone River Cleanup (Green Living DC, 2013). The aim of this study and the selection of this case study in particular, is to explore how community participation contributes to the success of a local environmental sustainability project. As a case study, Green Living DC uses community participation to complete environmental sustainability projects. It speaks directly to the aim of my research and is an appropriate selection for my study.

I chose this case study to answer the primary and secondary research questions. The secondary research question raised as a result of exploration of the Green Living DC case study is: *What may we learn from the Green Living DC case study for future practices?*

The next chapter reviews the relevant literature to lay the foundation for an integrated framework of sustainability and community participation. This review of the literature then enables the establishment of assessment criteria and additional secondary research questions in Chapter 2 that, in turn, I use to analyze the Green Living DC case study in subsequent chapters.

Chapter 2: Literature Review

2.1 Introduction

This chapter reviews the relevant literature in a systematic manner. I identify an integrated framework of sustainability and community participation based on the literature and the associated assessment criteria to analyze the case study in Chapter 4. The assessment criteria of sustainability include locality; human, nature. and economic interdependence; and sustainability indicators. The assessment criteria of community participation include empowerment, partnerships, social capital, and volunteerism, which I will elaborate on in further detail. Within the integrated framework, I explicitly identify definitions and relevant ideas associated with the literature throughout this chapter.

I examine case examples to draw on lessons learned in various contexts to corroborate the established assessment criteria within this Chapter. The specific case examples in this chapter use multiple assessment criteria identified within this study. This chapter will also provide a brief history of the Green Living DC case study. Last, Table 2.8 will summarize subsidiary research questions and assessment criteria.

Abundant literature exists surrounding sustainability and community participation. Yet, research addressing an integrated framework for assessing how community participation contributes to the success of local environmental sustainability projects is lacking in this specific capactiy. This study moves away from approaching sustainability and community participation in traditional silos. Rather, it aims to address these ideas holistically through the integrated framework established in this chapter.

2.2 Sustainability

Sustainability has no single, agreed-upon definition in environmental discourse. Various definitions of the term discuss similar ideas. For instance, the United Nations describes sustainability as establishing a decent standard of living in today's world without compromising the needs of future generations (United Nations, 2012). While this definition encompasses general elements of sustainability, it has become

increasingly clear that "sustainability must be made operational in each specific context, at scales relevant for its achievement, and appropriate methods must be designed for its long-term measurement" (Heinen, 1994, 21 in Bell and Morse, 2008). Within the Green Living DC case study, participants defined their vision of sustainability within their own community, as subsequent chapters will discuss in greater length.

Mazmanian and Kraft (2009) suggest sustainability requires a "community of communities." However, a truly "sustainable" community has yet to exist. Roseland (2007) introduces a traditional and commonly shared definition of a *sustainable community*:

> [A] community that uses its resources to meet current needs while ensuring that adequate resources are available for future generations. A sustainable community seeks a better quality of life for all its residents while maintaining nature's ability to function over time by minimizing waste, preventing pollution, promoting efficiency and developing local resources to revitalize the local economy. Decision-making in a sustainable community stems from a rich civic life and shared information among community members. A sustainable community resembles a living system in which human, natural and economic elements are interdependent and draw strength from each other.
>
> (Roseland, 2007, 17)

The Environmental Protection Agency (EPA) in the United States advocates for community-based *sustainable projects,* which they identify as projects with community-based partnerships that continue to improve the local environment with no forseeable end date. Essentially, sustainable projects should be designed in innovative ways and institutionalized to address environmental risks and continue their work long after initial funding for the project expires (EPA, 2010).

The idea of a sustainable project is a relatively new concept. Traditionally the concept of a project is limited in time. Universally, projects require coordination of various, unique activities and actors, and are oriented to a specific task. Khan (2005) describes the scope of any given project from small and simple to huge and complex endeavors involving many actors. Khan (2005) explores the importance of local context-specific factors in

both the planning and management of environmental projects. Khan (2005) describes the *project-specific process*:

> The project-specific process consists, on the one hand, of a technical side where the aim is to optimize the facility according to technical, economic and environmental criteria. On the other hand, the project-specific process involves an interaction between those actors who are directly involved in the project. Cooperation and negotiations are central parts of this interaction and discussions will cover issues such as the nature of the project, the roles of the actors and their relations to each other.
>
> (Kahn, 2005, 5)

Gould and Hosey (2007) put forth a strong argument as to why sustainability matters. The authors argue sustainability is the primary issue our current generation faces. Gould and Hosey (2007) believe the way sustainability currently exists in practice is for the rich. However, a movement is underway to democratize it and make it accessible to the wider population. Gould and Hosey (2007) argue that the majority of the world views it as a tool to prevent cities from developing. The authors, by contrast, paint an optimistic picture of the way in which views of sustainability are changing: "we have the opportunity to draw attention to what we're losing and what the new ecological conditions are – and then to tie that to our actions as a species" (Gould and Hosey, 2007, 45). Gould and Hosey (2007) claim that no community simply becomes something. Rather, communities are made. If residents of a community feel empowered by a sustainability project, and if they participate in the project, the community becomes the key to the success of the project, as the following sections will demonstrate.

To assess the sustainability of Green Living DC's projects, I have identified three criteria (based upon the review of relevant literature): locality; human, nature, and economic interdependence; and sustainability indicators. The remainder of this section will elaborate on the criteria and later chapters will use them to analyze Green Living DC's local environmental sustainability projects.

2.2.1 Locality

Newman and Jennings (2008) contribute ideas about how to achieve sustainability within communities, as described by Roseland. They argue that the answer lies in sustainable local communities; local government is better equipped to handle the environmental problems of a community because it is closest to the problem. The authors make the case that cities and towns are the key players in the process of shifting lifestyles, production, consumption, and spatial patterns (Newman and Jennings, 2008). Roseland (2012) describes this relationship between citizens and environmental problems:

> We are convinced that sustainable human life on this globe cannot be achieved without sustainable local communities. Local government is close to where environmental problems are perceived and closest to the citizens and shares responsibility with governments at all levels for the wellbeing of human kind and nature. Therefore cities and towns are key players in the process of changing lifestyles, production, consumption and spatial patterns.
>
> (Roseland, 2012, 184)

Hawken (2007) describes the difference between the bottom-up movements currently underway around the world and established ideologies. The environmental movement develops its ideas based on observations versus ideologies, which act on belief or theory. The current movement encourages smallness of locality: individuals start where they stand and make the road by walking. Hawken (2007) argues the environmental movement is critical to our survival. However, because the movement consists of pieces does not mean it can only work in piecemeal. Mazmanian and Kraft (2009) introduce the concept of *glocal* thinking, which they determine as the need to connect global and local policy making.

Agenda 21 is one of the most importance outcomes of the Earth Summit held in Rio de Janeiro in 1992 (Neves, 2007). It highlights the need to "think globally, act locally," and it encourages the local communities to address problems and solutions (Neves, 2007). The spirit of Agenda 21 prioritizes local involvement at the forefront of any planning process, and challenges policy makers to allow local communities to define sustainability

for themselves (Reed, et al., 2006). Rydin and Pennington (2000) maintain environmental governance and decision-making should be rooted in the local arena. The authors suggest certain modes of environmental planning are suited for specific policy tasks but not transferable within the broader domain of environmental planning.

> Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development.
>
> (UN 1992 in Neves, 2007, 21)

Agenda 21 describes the way human, nature, and economic interdependence play a vital role in addressing environmental problems and solutions. The importance of locality for sustainable projects is critical to their success. Subsequent chapters will examine locality to assess how Green Living DC's project achieved environmental sustainability.

2.2.2 Human, Nature, and Economic Interdependence

As discussed in Chapter 1, Gibson (2006) argues for the integration of what he refers to as the "three pillars" of sustainability or human, nature and economic pillars. His argument boils down to the fact that sustainability problems should not be addressed in silos:

> This makes the three pillars approach a poor fit with intertwined sustainability problems, which by definition do not fit tidily into any one of the three pillars and which demand responses that seek multiple, mutually reinforcing contributions to a positive shift in practice.
>
> (Gibson, 2006, 263)

When communities address issues, they necessitate integrated solutions. For instance, bottom-up public issue identification and priority setting processes within a community often identify priorities such as: safety, health, new opportunities and choice, vibrant and attractive communities. Gibson (2006) argues none of these priorities can be categorized as strictly social (human), economic or ecological (nature). Ultimately, the results of integrating the pillars become more valuable than each pillar operating in a silo. Gibson (2006) effectively argues that the whole is greater than the sum of its parts:

> The integrative understanding that underlies the sustainability concept recognizes also that overall results will rarely be simple sums of anticipated direct effects. Because of the interconnections, secondary effects and multiple feedbacks, adding up the predications separately calculated in separate pillars will not provide a reliable total of effects, or a sense of the resulting whole.
>
> (Gibson, 2006, 266)

Hawken (2007) defines terms commonly addressed when discussing sustainability. *Ecology* is the way living organisms interact with one another. *Human ecology* examines the relationship between human systems and their environment. Hawken (2007) describes the interdependence within human ecology, citing "concerns about worker health, living wages, equity, education and basic human rights are inseparable from concerns about water, climate, soil and biodiversity" (Hawken, 2007, 67).

Newman and Jennings (2008) discuss the idea of cities as *sustainable ecosystems*. Characteristics of this idea include diversity, adaptability, interconnectedness, resilience, regenerative capacity, and symbiosis. The authors highlight the importance of focusing on the relationship and process, complexity of living systems, and context because parts of an ecosystem cannot be studied in isolation. Newman and Jennings (2008) draw upon Bossel's systems model of sustainability, which highlights characteristics of sustainable ecosystems as healthy, zero waste, self-regulating, resilient, and flexible.

Roseland (2012) offers a critique of the way people currently use the term "sustainable" as surviving, staying afloat, essentially maintaining status quo instead of integrating economic, social, and environmental objectives. Mazmanian and Kraft (2009) argue the symbol of sustainability is sufficiently ambiguous yet coherent enough to inspire

movement in an upward direction. Roseland (2012) argues that rules can vary, providing less or more incentives to promote ecologically sound practices in our communities. However, transforming these patterns rests on bringing awareness of these impacts on human communities and ecosystems. Ultimately changing consumption patterns of wealthy nations requires shifting urban values to reflect sustainability concerns.

Hawken (2007) describes environmentalism as a response to immediate conditions and thus has little or no history or lineage. Brugmann (2009) builds upon this idea, describing the way we currently shape cities through trial and error, re-designing them to mimic nature. According to Brugmann (2009), the past gives us little direction to the environmental conditions we currently face. However, his position is to focus on what is going right on the planet, because focusing on what is wrong is both a repetitive and addictive story. Hawken (2007) argues that focusing on what is going right is where the heart of the movement lives:

> The as yet undelivered promise of this movement is a network of organizations that offer solutions to disentangle what appear to be insoluble dilemmas: poverty, global climate change, terrorism, ecological degradation, polarization of income, loss of culture, terrorism, and many more. The world seems to be looking for the big solution, which is itself part of the problem, since the most effective solutions are both local and systematic.
>
> (Hawken, 2007, 20)

The UN promoted the responsibilities of *environmental citizenship* in 1992. This role is comprised of three components: environmental conservation as part of citizenship, government informs citizens of their environmental rights, cooperation and collaboration between government and citizens (Newman and Jennings, 2008). The essential building blocks of environmental citizenship are informed citizenry, enabling government, and partnerships (Newman and Jennings, 2008).

Mazmanian and Kraft (2009) pose pertinent questions surrounding sustainability. For example, they question the idea of "needs" within a community, specifically addressing how to define needs and how to meet them. They discuss issues surrounding

environmental citizenship. For example, should citizens be coaxed or compelled to act a certain way? Should noncompliance be punished? Should education be required or behavior changes required by law? The authors advocate for *bioregionalism,* defined in this context as a less science-based ecosystem orientation, where ordinary citizens understand ecological interdependence and rely more on insights of deep ecology versus scientific research. This concept intertwines with the *tenant of the earth* concept that challenges citizens to become "dwellers of the land" (Mazmanian and Kraft, 2009).

Human, nature and economic interdependence play a vital role in addressing both environmental problems and solutions. Measuring progress while communities transition from environmental problems to solutions has become an integral part of some sustainability projects, including the projects facilitated by Green Living DC (see Chapter 4). Still, measuring progress also necessitates the establishment of sustainability indicators. I offer examples of these in the following section and use them in Chapter 4 to evaluate Green Living's projects.

2.2.3 Sustainability Indicators

In order to create a more sustainable society, we need tools that can measure and facilitate progress towards human, nature, and economic goals (Reed et al., 2006). In this context *sustainability indicators* measure progress towards, or away from, social and community involvement as the basis for improving environmental monitoring and management (Fraser et al., 2006). Sustainability indicators have thus become an integral part of international and US policy in recent years.

Nevertheless, Reed et al. (2006) introduce a shared critique of sustainability indicators. They argue that sustainability indicators are often of limited benefit to local users, because indicators usually rest on top-down definitions of sustainability developed by national governments. This form of developing sustainability indicators misses critical issues on the local level and fails to measure what is of importance to local communities. An example of this critique is the widely quoted environmental sustainability index, in which American academics choose indicators based on their definition of sustainability. In practice, this is contrary to the spirit of Agenda 21 that prioritizes local involvement in the planning process and encourages communities to create their own definitions of

sustainability. Thus it is becoming more widely understood and agreed that local communities need to be involved in all stages of a sustainability project, including the development of local and relevant indicators (Reed et al., 2006).

Reed et al. (2006) discuss top down versus bottom up paradigms based upon empirical research world-wide that supports the benefits of engaging local communities in sustainability monitoring. The top-down paradigm is traditionally defined by indicators collected rigorously, scrutinized, and assessed using expert tools. These indicators often uncover trends. However, this paradigm often fails to engage the local community. In contrast, the bottom-up paradigm understands local contexts and residents' diverse perceptions of local environments. However, a drawback of this method lies in the danger that indicators developed by participatory processes may not have the capacity to monitor sustainability accurately. Reed et al. (2006) argue for a hybrid between the two paradigms, but no consensus has emerged on how to develop this integration.

Aside from epistemological differences between the top-down versus bottom-up paradigms, a framework for sustainability indicators should accomplish the same steps. The framework should establish: a human/environmental context; set goals/strategies; identify/ evaluate/select indicators; and foster community application of indicators (Reed et al., 2006). The authors argue for combining qualitative and quantitative approaches to enhance learning by both researchers and community members. Adopting an adaptive learning process, which integrates both top-down and bottom-up paradigms into a single framework, by combining the best practices from different methods, will guide any local sustainability assessment. Reed et al. (2006) advocate for an integrated approach to build on the strengths of each, because often indicators developed by communities are as accurate as those developed by experts and expert skills can in turn augment local knowledge. Therefore, a more holistic approach integrating both paradigms may better serve communities in sustainability indicator development and application. By means of the Green Living DC case study, I aim to evaluate Reed et al.'s (2006) claims, since an integrated approach informed some of the projects Green Living implemented (see Chapter 4).

Fraser et al. (2006) examine three case examples in Western Canada, Botswana, and the UK, with the belief that top-down environmental management has been failing in

sustainability indicator development and application. The three primary conclusions included:

- Identifying and collecting sustainability indicators is valuable for databases and decision-making while empowering people;
- Multi-stakeholder processes must formally feed into decision-making to ensure everyone views the project as beneficial;
- Connections and flexibility in decision-making is necessary, because ecological/legal boundaries rarely match.

(Fraser et al., 2006)

The authors also concluded that community participation can be successful within this process. However, it must both directly and quickly feed into the formal planning process. The benefits ultimately bring together experts and community members to measure progress towards sustainability (Fraser et al., 2006).

I will use sustainability indicators as an assessment criterion of Green Living DC's sustainability projects. In subsequent chapters, I will analyze how these were developed within the case study and how they contributed to the success of the sustainability projects. The first subsidiary research question raised as a result of a review of the relevant literature is: *How does a project achieve environmental sustainability?* The next section continues to build upon the integrated framework established thus far by exploring the relevant literature on community participation.

2.3 Community Participation

Prior to delving into community participation for the purpose of my study, it is essential to introduce some of the different typologies of participation discussed in the literature. Typologies are a useful starting point in navigating degrees and kinds of participation. Historically, many typologies and "ladders" of participation focus on the intentions of participation, the approach to participation, and those who initiate participation (Cornwall, 2008). Arnstein's (1969) Ladder of Participation (see Figure 2.1) is one of the most well known typologies. This ladder is comprised of eight rungs: two levels of non-participation (therapy and manipulation), three degrees of tokenism (placation,

consultation, informing) and three degrees of citizen power (citizen control, delegated power and partnership).

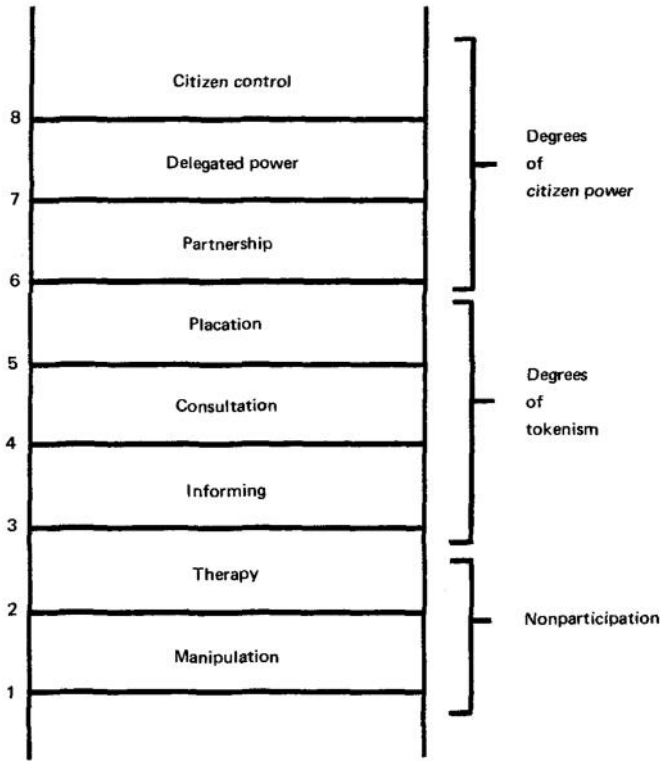


Figure 2.1 Ladder of Citizen Participation (Arnstein, 1969, 217)

Arnstein (1969) introduces citizen participation as the cornerstone of democracy in theory while also acknowledging the simplification of outlining participation in eight "tidy" categories. She recognized that her scheme was not without limitations. For example, citizen power is not distributed neatly; roadblocks were omitted such as racism, resistance, and disorganization of low-income communities. In reality, people and programs may require hundreds of rungs to accurately portray levels of citizen participation (Connor, 1988). Additionally, this ladder of citizen participation does not suggest a logical progression from one level to the next, or the ranges of participation that exist in practice (Connor, 1998).

Arnstein's (1969) approach to participation is primarily concerned with power. "Nonparticipation" entails a lack of genuine participation, all the way up the ladder to "citizen control," meaning citizens can govern programs or institutions while protecting

themselves from "outsiders." Cornwall (2008) argues that Arnstein's ladder looks at participation from those on the receiving end, versus other typologies developed that speak more to the user of participatory approaches.

Ultimately, the takeaway from Arnstein's ladder is a typology for citizen participation as a clear and unambiguous starting point. However, blurring of lines is a product of engagement and participation becomes much more complex when put into practice. Cornwall (2008) believes that we need to start thinking in terms of *optimum participation* by seeking to balance depth with inclusion. I will use this approach to assess participation in Green Living's projects and establish recommendations for future practices (see Chapters 4 and 5, respectively).

In the context of this study, a *community* is defined as "people who live in close proximity, share public services and private institutions, and interact socially with one another" (Daniels and Daniels, 2003). A community is often thought of as village, city, or neighborhood. The authors argue that planning for environmental quality begins at a community level. Daniels and Daniels (2003) believe it is essential to take action to protect and sustain a community's environmental assets because they intertwine with quality of life.

The traditional view of planning is historically a centralized, bureaucratic activity implemented by planning authorities, offices, and stakeholders executed via top-down methods. However, a recent paradigm shift towards community involvement within participatory planning is underway (Krek, 2005). The collaboration between planners and residents allows communities to co-design processes that synchronize their values and needs. Community-based planning furthers the goal of both social learning and deliberative practice (Forester, 1999 in Umemoto, 2001). Community participation in planning is becoming more prevalent:

> Community-led planning processes make it easier to overcome otherness by shifting the locus of power (at least at the micro-level) to members of those communities. Community-led planning has a capability of mobilizing members by tapping the power of the "we" voice that does not resonate in the otherness of the "you" voice. This power can elicit meaningful thoughts and feelings from

> groups who are sensitive to the language of marginalization and can be transformative in a way that an imposed process can never be.
>
> (Umemoto, 2001, 28)

Krek (2005) defines *participation* as something positive - implying that someone is cooperating and working with others to achieve a common goal. Florin and Wandersman (1990, 43) define *citizen participation* as "a process in which individuals take part in decision making in the institutions, programs and environments that affect them." Umemoto (2001) elaborates on the concept of *community-based planning*, defined as, "facilitating participatory planning at the community or neighborhood level (Friedmann, 1992 in Umemoto, 2001, 27).

Roseland (2012) describes the traditional approach to citizen participation with the acronym DEAD: decide, education, announce, defend. However, the process for shared-decision making requires planning *with* stakeholders, not *for* them. The author discusses a chronological process for community sustainability including "a widely shared vision, develop plans, engage government, develop resources, strategy for communicating, evaluate regularly" (Roseland, 2012, 196). Research findings, presented in Chapter 4, demonstrate how Green Living DC aims to enable such an approach to community participation. Nevertheless, an important element of this process is developing sustainability indicators, as discussed in the previous section. The author argues that what gets measured ultimately tends to get done.

Lee and Field (2005) argue the locus of control for environmental management is shifting from large, centralized public and private organizations to networks of interacting communities. The authors claim that state control is declining and community control is rising. They outline three dimensions of community: locality (human settlement with a fixed local territory), local social system (interrelationships among people living in the same geographic area – focuses on patterns not the content or quality of relationships), localized society as a "community field" (may be more than one community field based on common interests thus creating non-territorial communities). Lee and Field (2005) maintain identity is a critical factor and argue there are hazards of defining "community" as a fixed entity rather than a dynamic, social, and political process involving human interactions over space and time.

Stoecker (2005) discusses various research methods for community change. He describes what is required for successful community change:

> For success at the implementation stage requires community involvement, whether that means bodies at demonstrations, testimony at hearings, donations of time, or whatever. There is no real community change without community participation. Those who go it alone, regardless of how good their research is and how deep their commitment may be, will be unsuccessful.
>
> (Stoecker, 2005, 174)

Manzo and Perkins (2006) argue planning literature has largely neglected how place meaning attachment can play a pivotal role in the planning process. The authors suggest place attachments can influence individual and group behaviors and affect the larger community:

> We need a more integrated view of community life that recognizes the value of personal experience, attachments and meaning on one hand and larger political-economic forces on the other. It is only through a holistic, ecological perspective that we can develop or foster effective planning and community development strategies.
>
> (Manzo and Perkins, 2006, 340)

Corburn (2003) argues for co-production where all publics are potential contributors to every aspect of environmental decision-making. Local knowledge within communities provides both political and technical insights often overlooked by professionals. Geertz (1983) defines *local knowledge* as collective, practical, and strongly rooted in a particular place (Corburn, 2003). Planners seeking to improve communities experiencing the greatest risks should never ignore local knowledge. Essentially community participation in environmental decision-making puts pressure on planners to fuse science with local knowledge. Corburn (2003) outlines four ways local knowledge can ultimately improve planning: epistemology (adding to the knowledge base of environmental policy), procedural democracy (including silenced voices), effectiveness (low-cost policy solutions), distributive justice (inequitable distribution of environmental burdens).

Block (2008) describes the challenge of transforming isolation and self-interest into connectedness and caring for the whole. The author argues for bringing together knowledge and accepting the importance of social capital to the life of the community, which I will discuss later in this chapter. Mazmanian and Kraft (2009) claim their 2007 research suggests homogenous populations are more likely to develop sustainable communities than diverse ones, ultimately challenging the very goal of a sustainable community. Block (2008) describes the challenges Western communities face:

> Our communities are separated into silos; they are a collection of institutions and programs operating near one another but not overlapping or touching. This is important to understand because it is this dividedness that makes it so difficult to create a more positive or alternative future – especially in a culture that is much more interested in individuality and independence that in interdependence. The work is to overcome this fragmentation.
>
> (Block, 2008, 2)

However, the author offers a cautionary message, because we cannot import the social fabric of successful communities elsewhere. Modeling one city after another does not aid in shifting fundamentals within a community. We need an exploration of how authentic community occurs and what fundamental shifts are involved in this transformation. Block (2008) describes the challenge as thinking broadly enough to develop powerful theories and methodologies to generate results, while remaining clear, simple, and accessible to anyone who wants to undertake these challenges within a community.

Block (2008) argues conversations that build relatedness often occur through associational life – citizens showing up by choice rather than by obligation. Conversations that focus on the past limit community; conversations focusing on the future restore community. The author describes "urban problems" as symptoms of breakdowns within a community. Block (2008) outlines principle strategies for community transformation: social fabric (care and accountability create a healthy community), associational life (creating connectedness becomes an end and a means), shift in thought and action (crucial for citizens even more than institutions and leaders), small groups (operating on a small scale with speed is important for the unit), transformation is linguistic (equates community to conversation).

Rydin and Pennington (2000) argue community participation in environmental planning is not always the best option. It is not always clear how expanding the scope of public involvement might lead to improvements in policy. The authors are interested in the ways community participation can aid in "better" policy outcomes or at least outcomes more in tune with society's values and preferences. They introduce the concept *public choice theory,* which identifies factors influencing the nature and scale of community participation: costs of participation, direct benefits of participation, costs of non-participation, likelihood of participation influencing policy outcome, expected distribution of costs/benefits associated with the policy outcome, and level of knowledge of the policy issue and process.

Rydin and Pennington (2000) argue local communities often supply their own mechanisms to overcome collective action problems, one example being institution building. Rydin and Pennington (2000) suggest altering the incentive structure for participation: reducing costs to participate; increasing direct benefits; penalizing non-participation; making the impact of participation on policy decisions more explicit; altering perceptions of policy outcomes; and offering education programs.

Wates (2000) advocates for community-based planning, envisioning a future where every community will have their own neighborhood and human settlement planning offices and an architecture center with universal access to aid. In the meantime, the author claims planning is evolving at a rapid rate, facilitating the international exchange of good practices. Wates (2000) argues for community participation for a variety of reasons, including the way it contributes additional resources (such as volunteer time) because governments rarely have sufficient means to solve all problems in an area. Community-based planning has democratic credibility; people see it as their right to participate in decisions that affect their lives. Wates (2000) maintains that community participation is often a statutory requirement and mandatory via legislation. Mazmanian and Kraft (2009) argue that management failure and political gridlock at the national level in the planning processes throughout history have actually "stimulated considerable policy innovation at the state and local level" (Mazmanian and Kraft, 2009, 4). Wates (2000) echoes voices in the field – local citizens are often the best source of knowledge, which leads to more appropriate results reflecting what the community needs and wants.

To assess community participation within Green Living DC's projects, four criteria were identified in the literature as common themes: empowerment, partnerships, social capital, and volunteerism. The remainder of this section will elaborate on these criteria and later chapters will use them to analyze Green Living DC's sustainability projects.

2.3.1 Empowerment

Newman and Jennings (2008) examine the notion of empowerment within community participation, a widely discussed element within the community-based planning realm. *Empowerment* in this context is defined as giving a voice to all and "a mechanism by which people, organizations and communities gain mastery over their affairs" (Florin and Wandersman, 1990, 44). Newman and Jennings (2008) discuss citizens' responsibility to generate changes they want within their own communities. Indicators of empowerment include: the self-confidence of community members; the capacity of a community to self-organize; understand and reflect on the current living environment; set goals, develop and implement plans; the ability to create networks; communicate effectively; and evaluate outcomes of activities (Lopes and Rakodi, 2002 in Newman and Jennings, 2008).

Manzo and Perkins (2006) argue that empowerment illustrates the connection between place attachments, social capital, and action. The authors claim a holistic, ecological perspective will strengthen the current division between research and practice. Empowerment and social capital are crucial to community participation and planning:

> Place attachments, place identity and sense of community can provide a greater understanding of how neighborhood spaces can motivate ordinary residents to act collectively to preserve, protect, or improve their community and participate in local planning processes.
>
> (Manzo and Perkins, 2006, 347)

Manzo and Perkins (2006) introduce the ideas of proactive versus reactive empowerment. The authors argue environmental problems are often an enabling response in communities.

Block (2008) draws upon arguments from theorists. For example, John McKnight suggests that communities focus on gifts – what people *can* do versus cannot do -- and draw upon the collective strength. He advocates for asset-based community planning and associational life where groups of people voluntarily come together to do good. Blumenauer (2009) discusses the idea of green communities, and argues they can be created "regardless of community size, location, diversity, demographics or economics" (Blumenauer, 2009, 157). The author highlights the power of effective public participation and observes that citizens as equal partners produce better projects. Although this may take more time during the planning phase of projects, this model ultimately speeds up the development process and usually ensures long-term success (Blumenauer, 2009).

Kahn (2010) elaborates on community participation within projects and the various types of leadership he has encountered through his work in the field. If grassroots leadership directs a community-organizing project, culture is central to the project. In this context, organizers are at the crossroads of activism and culture. In these types of projects, everyone involved must be vigilant about recognizing and confronting issues of race, class, gender, sexual orientation, and power. Kahn (2010) offers a word of advice that he draws from his personal community organizing experiences:

> Be absolutely certain that the people you work with truly understand the risks they're taking, the things that could go wrong, the losses they might suffer, before they make the decision to act, individually or together.
>
> (Kahn, 2010, 194)

McKnight in Block (2008) believes the power is in our hands; citizens have the ability to identify and solve problems for themselves and the most sustainable improvements occur when citizens discover the power to act. The author suggests the act of power is present in most stories of lasting community improvement and change.

Fainstein (2000) discusses both substantive and procedural democracy inherent in citizen participation. The opportunity for citizens to participate in collective governance structures allows various stakeholders to operate in a decision-making capacity (Fainstein, 2000). Participation by less powerful groups in the decision-making process

is valued. However, democracy in practice has the potential to result in negative outcomes on any scale, from local to nationwide scales. Still, this process also provides the greatest opportunities for individuals to influence the outcomes of planning within their own neighborhoods (Fainstein, 2000). In exercising the democratic process, empowerment develops as long as stakeholders have an equal say in the decision-making process.

Empowerment is an essential component of successful community participation efforts. Subsequent chapters will apply the concept of empowerment to assess community participation within Green Living DC's projects. The next section elaborates upon partnerships, the second community participation criterion established under community participation.

2.3.2 Partnerships

Newman and Jennings (2008) argue partnerships are essential in the survival of cities as sustainable ecosystems. Within partnerships, cities are able to share learning with other cities and benefit from the power of cooperation. *Cooperative partnerships* have the following characteristics: sharing of power; trust; effective communication; shared/complementary visions and goals; symbiosis; and adequate resources. These partnerships can exist on a variety of levels including government, business, community, bioregional, research, or intercity. However, the true challenge is to form partnerships *between* businesses, government, and community; few partnerships are able to achieve success with the model they outlined. If they do succeed, it is often because partnerships have overcome professional silos. Funding for this model is often an incentive for all groups to build a partnership. Newman and Jennings (2008) argue partnerships are ultimately vital to sustainability. In Chapter 4, I assess the Green Living DC case study against the characteristics of cooperative partnerships established by Newman and Jennings (2008).

Corburn (2003) discusses the partnership model between local knowledge and science. He finds evidence affirming that local knowledge can offer valuable insight into environmental problem solving. However, professionals often treat community members as ignorant of scientific hazards. The author argues that the success of the

model rests on science being dependent on the natural world, historical events, social practices, material resources, and institutions. Corburn (2003) makes the case for residents operating as *citizen scientists* working *with* scientists, *not* in place of them. The author addresses a common critique regarding which group holds the "true" knowledge, the local knowledge base versus the professional knowledge base. He poses that no absolute "truth" emanates from any one perspective. Corburn (2003) also addresses a critique of local knowledge:

> Studies of local knowledge and community-based practices, particularly in environmental politics, are often challenged for romanticizing local culture and practice and overlooking the structural and global dimensions of problem solving.
>
> (Corburn, 2003, 427)

Nevertheless, the partnership model between local knowledge and science works to solve problems on a larger scale (Corburn, 2003).

Sorensen (2010) elaborates on the power of a network. The author describes a *network* as the following:

> It's a symbiotic relationship. The network offers us a sustainable platform for change, but we must in turn sustain it. The network's capacity to build, develop and leverage these relationships enables it to take on a life of its own and perpetuate its growth – there are always new needs, interests, and connections to be made.
>
> (Sorensen, 2010, 3)

A network can unite the world's access to resources while coordinating sustainable consumption habits and delivering new applications. Sorensen (2010) suggests that using a network will help de-materialize the way we currently operate. Said differently, citizens will be more efficient at gathering and distributing data. Essentially, the network will assist in diminishing the collective carbon footprint and lead to more productive partnerships.

Sorensen (2010) addresses misconceptions surrounding the network. The author argues that it is false to say a network (or partnership) is "green" technology in and of itself. It is a technology with environmental benefits that can support more environmental sustainable practice, but it is not "green" as a single entity. The author believes society is experiencing "greenwashing," an overhyped term that has lost its meaning; the issues society faces are complex and interdependent. Real solutions stem from small changes, new ideas, and many pieces working in concert, hence the network is a platform for change (Sorensen, 2010).

Corbett and Corbett (2000) recommend proceeding with caution when planning with partnerships to avoid *piecemeal planning*, or the tendency to deal with problems as if they exist in a vacuum. They draw upon examples such as the development of suburbs, which exemplifies a neglect of the whole picture. Many new problems are ultimately caused by solutions. Corbett and Corbett (2000) claim the prevailing pattern of neighborhood planning is undermining people's sense of community. As an alternative, they introduce their own case example, which I will discuss in greater detail within section 2.4.

Partnerships are an essential component of successful community participation integration in local sustainability projects. Subsequent chapters will use partnerships to assess community participation within the Green Living DC case study. The following section elaborates on social capital as the third assessment criterion of community participation.

2.3.3 Social Capital

The concept of social capital first appeared in public discourse pertaining to education in the early nineteenth century. While it is not a new concept, it has become more prevalent in discussions on its success in bridging the orthodox divides among scholars, practitioners, and policy makers (Woolcock and Narayan, 2000). *Social capital* is defined as "norms and networks that enable people to act collectively" (Woolcock and Narayan, 2000, 2). Robert Putnam (1995) introduced social capital in the context of civic participation and institutional performance and argues it is integrated primarily in nine fields: (1) families and youth behavior problems, (2) schooling and education, (3)

community life, (4) work and organizations, (5) democracy and governance, (6) general cases of collective action problems, (7) public health and environmental issues, (8) crime and violence, and (9) economic development (Woolcock and Narayan, 2000). Through the evolution of social capital research, four distinct approaches have been identified and will be elaborated upon within this section: the communitarian view, the networks view, the institutional view, and the synergy view.

The *communitarian view* equates social capital with local level organizations such as associations, clubs, and civic organizations. The driving force behind this view is "more is better," therefore a higher volume of these groups automatically benefits communities. However, a critique of this perspective is it implicitly assumes that communities are homogeneous entities that automatically include and benefit all members; this view does not acknowledge that outcomes often stem from community pressure (Woolcock and Narayan, 2000).

The *networks view* attempts to account for both "upsides" and "downsides." This view stresses the importance of vertical and horizontal associations between people and relations within and among organizational entities, including community groups and firms. A critique of this perspective recognizes it as a double-edged sword. While the networks view provides valuable services for community members, it also comes at a cost, often isolating or dividing members when successes are achieved at the expense of another group within the community (Woolcock and Narayan, 2000).

The *institutional view* recognizes the vitality of community networks and civil society is largely the product of the political, legal, and instructional environments. While the communitarian and network views treat social capital as an independent variable, this perspective treats social capital as a dependent variable. This view argues that the capacity of social groups to act depends on the quality of formal institutions under which they reside:

> A number of empirical and methodological questions can be raised about these studies, but in aggregate their message is becoming clearer and louder. Rampant corruption, frustrating bureaucratic delays, suppressed civil liberties, vast inequality, divisive ethnic tensions, and failure to safeguard property rights (to

> the extent they exist at all) are being increasingly recognized as major impediments to generally greater prosperity.
>
> (Woolcock and Narayan, 12, 2000)

The *synergy view* acknowledges dynamic professional alliances and relationships between and within state bureaucracies and various civil society actors. Woolcock and Narayan (2000) argue this perspective rests on complementarity and embeddedness. In this context, *complementarity* refers to mutually supportive relations between public and private sectors and builds on frameworks of rules and laws that facilitate exchanges between community associations. In this context, *embeddedness* refers to the nature and extent of the ties connecting citizens and public officials. This framework captures the dynamic aspects of state and society relations and recommends different interventions for different combinations of government and community relations to bridge social capital in groups. This perspective diverges from the dependent versus independent variable debate discussed above; arguing that social capital is a mediating variable shaped by public, society, and private institutions. For the synergy view to be successful, those involved need to identify the nature and extent of social relations and develop strategies that either support bonding or bridge social capital within the community (Woolcock and Narayan, 2000).

Essentially, the authors argue that the synergy view is the best approach to integrating social capital within communities. Social capital does not exist in a vacuum, and social relations are key in mobilizing other growth exchanging resources. This perspective has the greatest empirical support as well as comprehensive and coherent policy prescriptions (Woolcock and Narayan, 2000).

Falk and Kilpatrick (2000) draw connections surrounding social capital, suggesting economic capital is in people's bank accounts, human capital is inside people's heads, and social capital is born through the structure of these relationships. Connections between micro-level social interactions have the potential to be agents of change. Connections between social capital, including micro-social interactions, often incorporate learning. Social capital contributes to the production of socio-economic outcomes, which cannot be measured in the traditional sense of either economic or social

measures (Faulk and Kilpatrick, 2000). What is both unique and powerful about the outcomes of social capital is that the whole is greater than the sum of its parts:

> It would be a mistake, however, to assume that to produce desirable social, civic and economic outcomes, all that is needed is to provide the right ingredients. In fact, it is on this false premise that much of socio-economic policy is presently based. To be sure, the quality and quantity of the prevailing social and economic conditions help, but they are not sufficient by themselves to achieve such outcomes. Human agency, exerted through social interactions, creates the processes of learning and change which produce economic outcomes.
>
> (Falk and Kilpatrick, 5, 2000)

The central insight surrounding social capital is that it holds real value both for the people in those networks "as well as for bystanders" (Block, 2008, 17). Based upon case study research, both Block and Putnam believe social capital is not dependent upon geography, history, economy, cultural inheritance, or financial resources.

Social capital is an essential component of successful community participation efforts. In Chapter 4, I use social capital to analyze community participation within the Green Living DC case study. The following section elaborates upon volunteerism as the fourth assessment criterion of community participation.

2.3.4 Volunteerism

Volunteers have made vast improvements in environmental quality over the past three decades (Ryan et al., 2001). We can define *volunteerism* as "long-term, planned, prosocial behaviors that benefit strangers and occur within an organizational setting" (Penner, 2002, 448). Environmental organizations of all shapes and sizes often do not have the funding or resources to hire staff to carry out the work. Volunteers further the cause of protecting and restoring the environment by providing labor at no cost. Retaining volunteers becomes essential, and dedicated volunteers can train and recruit others to join the cause. Understanding motivations for long-term volunteering is valuable for those looking to build and maintain volunteer resources (Ryan et al., 2001).

Penner (2002) identifies four salient attributes of volunteerism: longevity; planfulness; nonobligatory helping; and an organizational context. These attributes will be used in Chapter 4 to assess volunteerism within the Green Living DC case study. Penner (2002) describes volunteering as a relatively long-term behavior, citing a recent national survey indicating 50 percent of people who volunteer in the United States do so on a regular versus one-time basis. Volunteering also tends to be a thoughtful and planned action, and, typically, there is careful consideration of both the costs and benefits of engaging in this action (Penner, 2002). Nonobligatory helping is an attribute of volunteerism; the recipients of a volunteer's generosity are often strangers. Because volunteers serve an organization, they are not motivated by a sense of obligation to one person in particular (Penner, 2002).

Understanding motivations is important in retaining long-term volunteers within environmental projects. Ryan et al. (2001) indicate that the most important motivation is undertaking something worthwhile. Educational experiences motivate volunteers by providing opportunities to learn more about the natural world. Being part of a decision-making process enhances commitment and lessens the likelihood of dropping out. More self-interested motivations such as social interactions, friendships, or desire to make new friends become more important for continued participation in volunteer efforts (Ryan et al., 2001). Ultimately, social and spiritual motivations are less important factors to volunteer commitment. Ryan et al. (2009) argue that having volunteers who have personally experienced the transformation of a landscape is especially helpful.

Ryan et al. (2001) discuss the structure of the organization or program in relation to volunteerism. Disorganized programs may discourage volunteers from continuing their efforts. Conversely, well-organized programs allow volunteers to become involved in decision-making and host more frequent work opportunities, which in turn may be more appealing to volunteers. Ryan et al. (2001) found that poor organization was a major reason for volunteer dropout. It is critical to respect volunteers as people with a deep commitment to their work who will continue to dedicate their time if their needs are fulfilled. Ryan et al. (2001) tied their results to the importance of the preservation of local natural areas:

> These results show that volunteer stewardship activities have an impact on participants' appreciation of advocacy for local natural areas. This is an important finding, because efforts to preserve local natural areas often get overshadowed by more 'glamorous' efforts to protect the rainforest and other distant, endangered landscapes.
>
> (Ryan et al., 2001, 641)

Community based monitoring (CBM) is defined as:

> A process where concerned citizens, government agencies, industry, academia, community groups and local institutions collaborate to monitor, track and respond to issues of common community concern.
>
> (Whitelaw et al. in Sharpe and Conrad, 2006, 410)

This process offers numerous benefits. For instance, CBM gives community the lead in collecting and using data to promote informed decision-making. Community based monitoring benefits government agencies through extension of monitoring networks, cost savings, promotion of public participation to achieve goals and detection of early warning signs of environmental threats. It also benefits NGOs and communities through engagement of individuals in local environmental issues, social capital, and input into natural resource management (Sharpe and Conrad, 2006).

Sharpe and Conrad (2006) describe challenges in implementing CBM: volunteer burnout; lack of participant objectivity; inconsistent funding that causes data fragmentation; and accuracy of data collection. Community groups must have adequate resources for equipment and regular training of staff and volunteers. However, securing funding for community groups presents and ongoing challenge. As responsibilities of monitoring have shifted from government agencies to NGOs, more stewardship groups have emerged, thus creating even more competition for funding (Sharpe and Conrad, 2006).

Sharpe and Conrad (2006) summarized their findings of the characteristics groups shared that were successful in establishing long-term CBM. The common features included:

- Management by a steering committee composed of members from the community, academia, government agencies, and the private sector;
- Adequate long-term funding;
- Access to scientific expertise in data collection and interpretation procedures;
- A strong program to communicate the results of monitoring activities to both the community and to those volunteers actually collecting the data;
- Engagement of politicians and decision makers by the volunteers (as opposed to employees being paid to run the program.

(Sharpe and Conrad, 2006, 406)

Based upon their findings, the authors also recommend establishing a formalized network between groups engaging in CBM. A mentoring program for new groups undertaking efforts is also encouraged to establish a network, build trust, and engage in dialogue and formal collaboration. The authors also reiterate the need for provision of financial and material resources to community-based groups where they fulfill environmental monitoring functions. Core support must also be provided as community groups cannot be expected to bear the full weight of government downloading (Sharpe and Conrad, 2006).

I will use volunteerism as an assessment criterion of Green Living DC's sustainability projects. The subsequent chapters will analyze how volunteerism was encouraged and maintained within the case study, and how it contributed to the success of the sustainability projects.

The second subsidiary research question raised as a result of a review literature surrounding community participation is: *How does a project integrate community participation?* The following section provides case examples that exhibit one or more of the assessment criteria. These case examples spotlight these themes in practice and corroborate the established assessment criteria, as well as the integrated framework of sustainability and community participation I will use to evaluate Green Living's projects.

2.4 Case Examples

Corbett and Corbett (2000) offer a primary account of a case example in Davis, California. The authors were part of a team of citizens who developed the first successful village home model in 1970. The primary goals included: building a sense of community; including low income housing; incorporating a student cooperative; integrating public and private components; and creating a sustainable village home model. The village home model aimed to build a sense of community while challenging traditional conservation practices (Corbett and Corbett, 2000). The team of citizens designed the community with nature in mind, orienting houses with sunlight, giving priority to common spaces, developing natural drainage systems, and producing their own food (see Figure 2.2). This model followed the principle that a community that meets its needs locally and regionally is ultimately more stable and efficient. Corbett and Corbett (2000) advocate for more dependence on the community level, with less reliance on importing outside products. This model was revolutionary in its time, shifting the focus of responsibility to citizens on a local level to achieve their own goals.

Figure 2.2 Village Home Design (PM Press, 2014)

Once the basic needs of the community were met through the inclusive design process, the authors analyzed its successful elements. Corbett and Corbett (2000) advocated for ownership within the village home design, which organically led to increased invested interest among residents. The partnership between citizens, government, and NGOs was crucial to the success of this model. The authors believe their community was successful and the key to developing sustainable communities is through regional plans. These plans should outline growth sites for new development; local plans must specify the actual design with a hierarchy allowing those closest to the site to operate in a decision-making capacity. Another key to the success is education about the environment early on in this process.

Figure 2.3 Village Home Photo (PM Press, 2014)

Corbett and Corbett (2000) also address various challenges they experienced as residents of the village home. The paramount problem is fragmentation of power and authority over the planning process. This challenge affected all stages of their plans – no unified planning authority existed and demanding designs integrated a variety of needs and goals. For instance, when the community developed the natural storm water drainage system, the local government challenged them until they were able to prove

that their system was healthier and more effective than those implemented by the government itself. Another noteworthy challenge they addressed was diversity within communities. Historically in the United States, many communities are not afraid of low-income housing but afraid of the intrusion of federal programs within communities. The village home model suggested that mixed income housing within the community had no negative effects within the community or on the value of homes. The authors attribute their success to diversity and experimentation and describe the only alternative as maintaining the status quo (Corbett and Corbett, 2000).

The village home model case used the assessment criteria discussed within the integrated framework of sustainability and community participation. **Locality** was a key factor in this project, involving the community and relying on resources produced in close proximity to the village homes. Integration of the **human, nature, and economic interdependence** factors was exhibited through goals set to involve the community, while reducing the environmental impacts of the village and providing an affordable living environment for the community. **Sustainability indicators** tracked progress against the goals of designing this village with nature to reduce environmental impacts while providing affordable homes. **Empowerment** was exhibited, as citizens with varied incomes were able to purchase these homes, which led to a more invested and diverse community. **Partnerships** were formed between the community, government and NGOs to implement the village home project. **Social capital** was developed through education, enabling citizens to make informed decisions in this sustainability project, and in turn educate the government on aspects of the village home model.

Kellert et al. (2000) introduce a second case example, which discusses the goals and objectives of community natural resource management (CNRM) versus the reality of the outcomes. Examples of CNRM of empowered communities include social/community forestry, community wildlife management, cooperative buffer zone management, and multipurpose community projects. These types of CNRM projects share certain characteristics: commitment to involving community members in conservation management of natural resources; devolving power from state to local institutions; linking or reconciling objectives of socioeconomic development and environmental conservation; and defending or legitimizing resources and property rights; placing value

in traditions and ecological knowledge in modern resource management. The compelling aspect of CNRM includes achieving conservation goals through economic and social incentives. Community natural resource management is a blend of local, national, and sometimes international interests and institutions (Kellert et al., 2000).

Kellert et al. (2000) examines case examples in Nepal, Kenya, and the United States, all of which shared two goals: alleviation of rural poverty and conservation of biological diversity. The authors determined the criteria to assess the case examples: equity, empowerment, conflict resolution, knowledge and awareness, biodiversity protection, and sustainable use. The findings from these case examples suggest that most successes were socioeconomic and most failures were meeting conservation or biodiversity protection goals. Kellert et al. (2000) argue that CNRM is important, but in reality does not meet all of the intended goals. The authors recommend the following CNRM assumptions: interest/stakeholder conflict is the norm rather than an exceptional condition; varied interests/demographic differences should be expected; institution building is necessary; disparities between the needs of people and ecosystems/species exist; and educational efforts are necessary. Perhaps each goal is better served by establishing independent yet parallel methodologies and infrastructures within CNRM (Kellert et al., 2000).

The CNRM case example exhibited numerous assessment criteria established within the integrated framework of sustainability and community participation. **Locality** was a factor within the CNRM projects, by transitioning power from state to local institutions while involving community members for a change. **Empowerment** emerged through community participation as equal stakeholders in projects. **Sustainability indicators** developed within the project to track progress against goals; while the project succeeded in the socioeconomic arena it failed in many of its conservation goals.

Yarnal et al. (2009) introduce a third case, which examines the human-environment regional observatory project (HERO). The aim of this project is to develop sustainable communities with the essential component of monitoring global change in local places. The project is concerned with building infrastructure using complex systems, interdisciplinary research, usable knowledge/science, and transdisciplinarity. Yarnal et al. (2009) highlight the importance of monitoring within the HERO model, paying

attention to vulnerability or abuses to nature, ways to diminish or eliminate the problem, and whether the community goals are reached.

What makes the HERO model unique is the coordinated monitoring effort instead of the current piecemeal strategy. To develop the prototype of the HERO model, three strategies were initially defined: develop research protocols to study and monitor cross-sites; collaborate and share findings from around the world to answer common research questions; and test the above ideas at four research sites to investigate land use - induced vulnerability to hydroclimactic variation and change (Yarnal et al., 2009). The authors argue that human and natural systems are intimately coupled and it is necessary to adopt a *vulnerability perspective* that demands investigation of biophysical, cognitive, and social dimensions of human-environment interactions (Yarnal et al., 2009)

The HERO model is the first to go beyond sharing resources to sharing understanding of these resources:

> Why is infrastructure necessary? Local actions have global impacts and global changes have local effects. Understanding the full complexity of environmental problems depends on the ability of researchers, students, decision-makers, and stakeholders to work across the continuum of scales that characterizes the causes of and responses to environmental change.
>
> (Yarnal et al., 2009, 34)

The human-environment regional observatory project implemented practices across the board at their four research sites: sharing information in real-time with a "virtual notebook," conducting vulnerability assessments often with limited resources, and involving stakeholders, NGO and communities within this model. Yarnal et al. (2009) describe the six elements to building a successful collaborative network: (1) good architecture, (2) strong leadership, (3) effective management, (4) flexible participants, (5) establishing and building a shared knowledge and social base, and (6) sufficient time. The HERO model experienced success through "teaching" research that is beneficial and multi-generational.

After implementing the HERO model in four regions of the United States, Yarnal et al. (2009) describe the challenges faced and lessons learned. The first challenge is collaboration over time – often it was successful in the present time but difficult to sustain on a long-term scale. Funding is key, not only monetarily but in investment of time, and people. Yarnal et al. (2009) put forth the recommendation that HERO should grow into a network of "HEROs" that expands in geographic range because researchers need tools and grassroots efforts to understand local context, involvement of stakeholders in the work, and interdisciplinary collaborative networks that take time to develop organically. The authors recognize that providing tools for such projects as the HERO model does not ensure that the collaboration will be successful. Vulnerability is an extremely complex and often contested idea (Yarnal et al., 2009).

The HERO case example exhibited numerous assessment criteria established within the integrated framework of sustainability and community participation. **Locality** was a factor within the HERO projects; the project monitored global change in local places. **Partnerships** initially formed between students, scientists, stakeholders, NGOs, and the wider community in later stages to monitor sustainability efforts and share the findings with a wider audience. **Sustainability indicators** developed within the project to track progress against goals; while many of the goals were achieved, the authors expressed concern surrounding successful implementation over long-term scale.

These case examples build upon the integrated framework of sustainability and community participation. Each case example used numerous assessment criteria in practice, that were previously identified in the relevant literature. The three case examples are only a snapshot of the types of projects implemented around the world in various scales. They serve as contextual examples of the assessment criteria identified within the integrated framework. The following section summarizes the assessment criteria and the primary and secondary research questions in a concise manner as part of the integrated framework of sustainability and community participation.

2.5 Assessment Criteria

Based upon the review of relevant literature and the integrated framework of sustainability and community participation, I identified assessment criteria throughout

the previous sections in order to analyze the Green Living DC case study in Chapter 4. I explore the primary research question throughout the remaining chapters of this study: *How does community participation contribute to the success of a local sustainability project*? I use the following assessment criteria to evaluate the Green Living DC case study: locality; human, nature, and economic interdependence; sustainability indicators; empowerment; partnerships; social capital; and volunteerism.

Subsidiary research questions based upon the integrated framework of sustainability and community participation, case examples, and the Green Living DC case study are:

- How does a project achieve environmental sustainability?
- How does a project integrate community participation?
- What may we learn from the Green Living DC case study for future practices?

Chapters 4 and 5 will answer these questions.

2.6 Conclusion

The aim of this chapter was to identify assessment criteria based on an integrated framework of sustainability and community participation. The assessment criteria of sustainability include locality; human, nature, and economic interdependence; and sustainability indicators. The assessment criteria of community participation include empowerment, partnerships, social capital, and volunteerism. Case examples within this chapter to gave context to the identified assessment criteria within projects of varying contexts world-wide. The table in section 2.7 summarizes the integrated framework, secondary research questions, and assessment criteria.

These criteria will be used in Chapter 4 to analyze the case study and present findings. In turn, Chapter 5 will present conclusions and recommendations based upon these findings. The following chapter will elaborate upon research methods and analytic tools and associated ethical considerations used in this study.

2.7 Summary Table

Integrated Framework	Secondary Research Questions	Assessment Criteria
Sustainability	How does a project achieve environmental sustainability?	• Locality • Human, nature and economic interdependence • Sustainability indicators
Community Participation	How does a project integrate community participation?	• Empowerment • Partnerships • Social capital • Volunteerism
	What may we learn from the Green Living DC case study for future practices?	• Green Living DC case study

Chapter 3: Research Methods

3.1 Introduction

This chapter provides a detailed outline of the research design applicable to this study. The previous chapter introduced the primary and secondary research questions. I describe the specific research methods and associated research techniques as part of the data collection phase of this study. I also address the limitations of each research method and technique and provide rationale as to why each is the optimum choice for this study. Subsequently, I identify ethical considerations and describe the data analysis phase of this study.

The research methods include mixed methods, case study, and oral history. The research techniques implemented include secondary data collection, semi-structured individual interviews, and storytelling. This chapter will also explain the sampling and specific data analysis procedures used in this study.

3.2 Research Methods

This section outlines the research methods implemented during the data collection phase of this study. These methods inform specific research techniques. I chose these specific research methods to answer the primary and secondary research questions. Mixed methods research was a starting point, while case study research methods and oral history research methods were consistently practiced throughout the data collection phase of this study.

3.2.1 Mixed Methods Research

Mixed methods research is one of three research paradigms, alongside qualitative and quantitative research. This research method respects the wisdom of both traditional viewpoints and offers a third powerful choice incorporating the most informative, complete, balanced, and useful research results (Johnson and Onwuegbuzie, 2004).

Mixed methods research is "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson and Onwuegbuzie, 2004, 17).

Mixed methods research was fundamental to this study, cross-referencing both quantitative and qualitative data for a more thorough assessment of the case study. Initially, I collected quantitative data to gain a better understanding of the demographics within ANC 3F. Later sections of this chapter will identify the population of the neighborhood by race, age, and gender ratio. I collected additional quantitative data on the baseline existing conditions of the neighborhood such as acreage, built structures, transportation, and mobility, to name a few. I collected qualitative data to understand and verify the various "layers" of the case study beyond what was published in NSIP reports and provided on the Green Living DC website. I also sought additional quantitative data pertaining to the case study, specifically measurements of sustainability indicators progress towards goals.

Johnson and Onwuegbuzie (2004) give four reasons to use methodological pluralism: for verification purposes; to provide a basis for estimating possible error in underlying measures; to facilitate the monitoring of data collected; and to provide a data set to determine its meaning. A limitation of choosing to collect either qualitative or quantitative data is that the dividing lines between paradigms are often blurred in practice and not nearly as "logical" and distinct as frequently suggested. Therefore, by using mixed methods, a more synthesized approach to data collection is possible compared to the traditional qualitative or quantitative methods (Johnson and Onwuegbuzie, 2004).

Throughout this particular study, I emphasize qualitative research findings. However, quantitative research findings are used for verification purposes, specifically in regards to sustainability indicator measures, which will be used to analyze the overall sustainability of NSIP projects. Therefore, the research method is not classified strictly as "mixed methods" because quantitative and qualitative data collection was not completely equal. However, data collection used principles of mixed methods research.

The following section explores the case study research method, which is one of the primary research methods employed in this study. I will clearly define the case study method, address limitations and offer the rationale as to why Green Living DC was the appropriate case study of choice.

3.2.2 Case Study Methods Research

The *case study method* is "the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances" (Stake, 1995, xi). Using the case study research method allows investigators to examine real life events, including the holistic and meaningful characteristics of the particular event. Case studies are generally comprised of both qualitative and quantitative data sources and allow the investigator to gain an understanding of additional characteristics surrounding the event such as individual life cycles, neighborhood change, organizational and managerial processes, international relations, and the maturation of industries. This form of research has a distinctive place in research through the all-encompassing method, incorporating such elements as logic of design, data collection techniques, and specific approaches to data analysis (Yin, 2003).

I chose to examine the Green Living DC case study, which grew out of NSIP, based on numerous factors. The complexity of this case is apparent in its evolution from NSIP, as a pilot project funded by the local government, into the volunteer-led community group, Green Living DC. The overarching factor is the case's relevance to the integrated framework of sustainability and community participation outlined in the previous chapter.

Yin (2003) describes the five applications, which comprise the case study research method: explain; describe; illustrate; explore; and meta-evaluation. Each specific case has unique variations in timetables and features distinct to a specific time, place, and focus (Mazmanian and Kraft, 2009). I use *intensive research* to examine the Green Living DC case study striving for detail and depth of analysis. The aim is to draw underlying lessons and commonalities within various local sustainability projects (Stoecker, 2005). Although this was a pilot project in DC, lessons learned are applicable to other environmental sustainability projects.

Flyvbjerg (2006) confronts five common misunderstandings surrounding the case study methods research:

- Useful for generating hypothesis, not testing or building theories.
- Value placed on theoretical knowledge over practical knowledge.
- Unable to make contributions to scientific development.
- Bias towards verification.
- Difficult to summarize and develop general propositions and theories from specific cases.

(Flyvbjerg, 2006)

The "misunderstandings" Flyvbjerg identified are all common criticisms cited among scholars. For instance, Mazmanian and Kraft (2009) describe a limitation of this research method, arguing that case studies and analytic narratives are inherently limited in terms of generalization to other cases.

Flyvbjerg (2006) argues case studies can test theories just as well as any other method. According to Eckstein (1975):

> Aiming at the disciplined application of theories to cases forces one to state theories more rigorously than might otherwise be done – provided that the application is truly "disciplined" i.e., designed to show that valid theory compels a particular case interpretation and rules out others. As already stated, this, unfortunately is rare (if it occurs at all) in political study. One reason is the lack of compelling theories.
>
> (Eckstein, 1975 in Flyvbjerg, 2006, 227)

The case study method has its own rigor, which is different but no less strict than the rigor of quantitative methods. An advantage of this method is that it can "close in" on real life situations and test views directly in relation to phenomenon as they unfold in practice (Flyvbjerg, 2006). Simply building an integrated framework of environmental sustainability and community participation does not address these concepts in practice. Thus, the examination of the case study and qualitative and quantitative data collection, gives tangible meaning to the phenomenon under investigation.

The case study method often contains a substantial element of narrative that highlights both the complexities and contradictions of real life situations (Flyvbjerg, 2006). Stake (1995) argues qualitative case research tries to preserve the *multiple realities*, the various and even contradictory views of what is happening. This makes it difficult to "check boxes," like a neat scientific formula, or to generalize propositions and theories. Critics often see this as a drawback of the research method. However, Flyvbjerg (2006) argues that generalizing and summarizing is not always beneficial within a study:

> It is simply that the very value of the case study, the contextual and interpenetrating nature of forces, is lost when one tries to sum up in large and mutually exclusive concepts.
>
> (Peattle, 2001 in Flyvbjerg, 2006, 238)

Flyvbjerg (2006) argues for a hybrid approach, achieving breadth of study in large random samples, entire populations, questionnaires, and surveys. To achieve depth in studies, qualitative analysis via case study method is necessary for sound development of social science. Flyvbjerg (2006) suggests a combination of qualitative and quantitative approaches are necessary, which is fortunate because there is a current general relaxation in the old and unproductive separation of qualitative and quantitative methods.

The Green Living DC case study, by nature, contained a substantial element of narrative. Because NSIP eventually concluded as a formally funded project and Green Living DC officially formed as a result, the history of this project is often described with a linear storyline. Thus, I used the oral history method to understand the historical timeline of the project's evolution. The following section will elaborate on the oral history method.

3.2.3 Oral History Methods Research

The oral history method draws upon memory and testimony to gain a more complete and multi-faceted understanding of a past experience both individually and collectively (Bornat, 2004). *Oral history* is defined as "the interviewing of eye-witness participants in the events of the past for the purposes of historical reconstruction" (Grele, 1996, 63).

This method is valuable in the opportunity it provides to take wider socio-economic and historical contexts into consideration.

Bornat (2004) argues that this method works best when coupled in multidisciplinary modes. Dunaway (1996) echoes this argument and believes oral history has experienced a surge of interest in subjectivity and non-traditional sources. He argues that each field relies on oral testimony and uses the information in a unique way depending upon the discipline. There is been a gradual shift from presenting facts as received wisdom to presenting theoretical analyses as specific to a given time and place in society – and oral history has played a vital role in this transformation (Dunaway, 1996). Oral history is not simply a tool or method but rather a theory of history.

Critics of this method often question the reliability and validity of data collected (Hoffman, 1996, 88). Because this method does not take the form of a written document, it contains freshness and candor more typical of a conversation. Hoffman (1996) explains that this method is advantageous, citing oral history interviews leading to the preservation of stories and life experiences told by a specific person that would not necessarily be relayed otherwise.

Although extensive formal documentation, both qualitative and quantitative, exists about NSIP, it was written by an outside contractor hired by the DC Office of Planning. The office itself did not have the bandwidth to both implement the project in tandem with the community, lead the sustainability indicator measures, and produce the necessary reports. Therefore, portions of the workload were allocated to the consulting company, AECom (Limauro, personal correspondence, April 10, 2014). While the reports provide a thorough synopsis of the project and the measured progress toward goals, it does not provide detailed insight surrounding community participation and the specific viewpoints of community members. Thus implementing the oral history research methods is beneficial to uncovering pieces of the project's story not explicitly stated in published reports.

Essentially a balanced approach is necessary so that no one emphasis is predominant. The oral history methods research opens up possibilities for work across discipline boundaries, creates linkages between the past and the present, and acknowledges

situated subjectivities (Bornat, 2004). For instance, the subjects interviewed within the case study relayed personal stories and viewpoints of NSIP and Green Living DC, as well as sharing their private motivations for remaining active (or inactive) within the group. Their stories created linkages, as many of the subjects were more actively involved in NSIP, Green Living DC, or stakeholder groups since 2009. Often when a piece of information was missing from historical accounts, another subject was able to pick up the story where the other left off. Subsequent sections of this chapter will describe the individual interview process and storytelling research techniques.

The following section outlines the research techniques implemented under the umbrella of mixed methods research, case study research methods, and oral history research methods. This chapter now shifts to the specific data collection phase of the study.

3.3 Research Techniques

This section outlines the research techniques implemented during the data collection phase of this study. These techniques inform specific data analysis practices that this chapter will further describe. I chose these specific research techniques to answer the primary and secondary research questions. Secondary data collection was the initial starting point for the data collection phase of the study, and it expanded to include semi-structured individual interviews and storytelling.

3.3.1 Secondary Data Collection

Quantitative information provides both context and background regarding the chosen case study. The information is necessary as it facilitates a formalized, quantifiable, public, and transparent evaluation of what already exists (Cockburn, 2000). This case study provides a formal evaluation of data because the project concluded in 2010. Therefore, the secondary quantitative data provides relevant demographics of the neighborhood profile at the time of NSIP's implementation. Additional secondary data relevant to this study was also published, including baseline data pertinent to environmental projects.

3.3.2 Demographics

DC Office of Planning and AECom co-published relevant quantitative data such as this breakdown of demographics of ANC 3F in 2009:

> Population: 15,815
> Jobs: 5,700
> Student Population: 5,000
> Households: 9,247
> Family Households: 28%
> Single Households: 61%
> Average Family Household Size: 5
> Homeowner Households: 36%
> Renting Households: 64%.
>
> (DC Office of Planning and AECom, 2010b, 25)

A few significant statistics of the demographics include the relatively high proportion of single occupancy homes, high percentage of rental homes, and the presence of a student population. Additional demographics of the ANC 3F population presented by DC Office of Planning and AECom include:

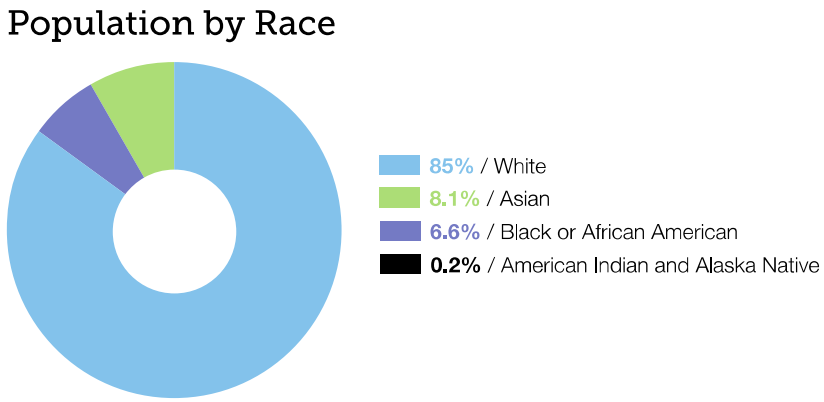


Figure 3.1 ANC 3F Population by Race Graph (DC Office of Planning and AECom, 2010b, 25)

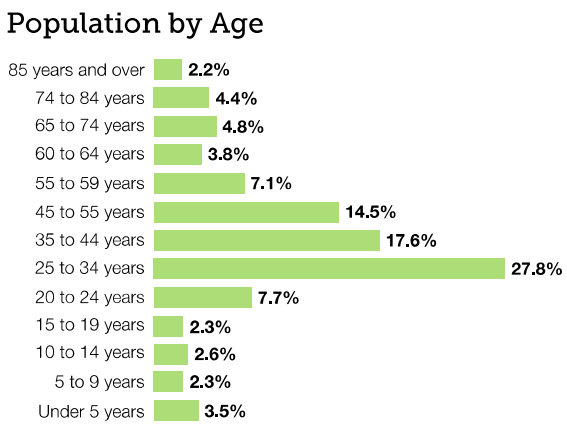


Figure 3.2 ANC 3F Population by Age Graph (DC Office of Planning and AECom, 2010b, 25)

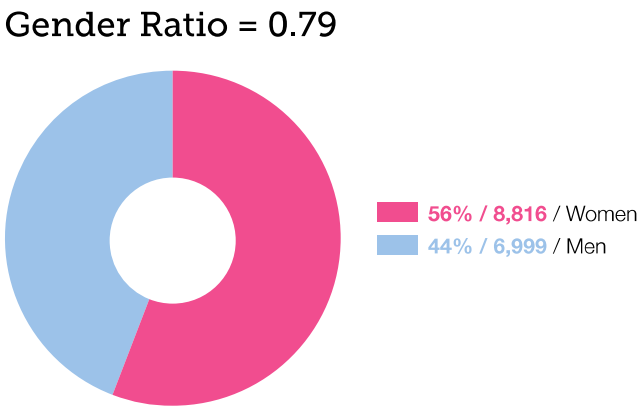


Figure 3.3 ANC 3F Population by Gender Graph (DC Office of Planning and AECom, 2010b, 25)

A few significant statistics of the demographics include the high proportion of white residents, between the ages of 25 to 34 years old. Chapter 4 will discuss this information within the context of this study's findings. The next section of this chapter presents the community baseline data collected in 2009 and co-published by DC Office of Planning and AECom.

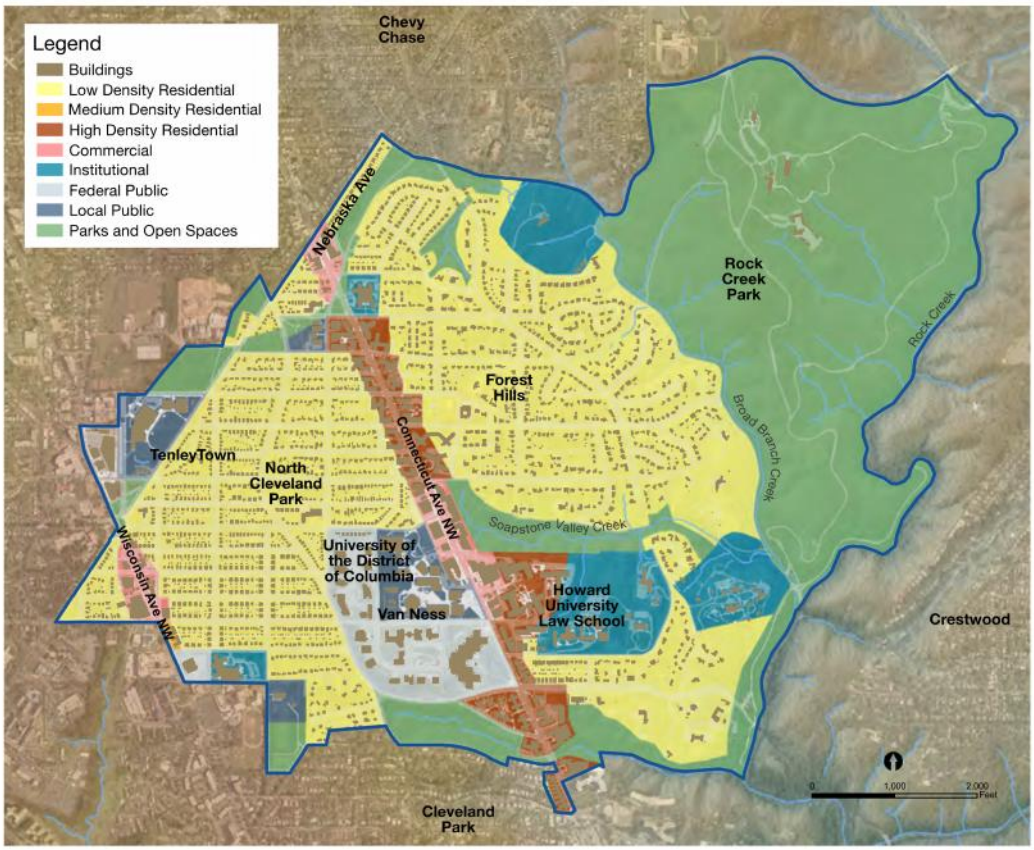
3.3.3 Community Baseline Data

DC Office of Planning and AECom co-published the following relevant quantitative data, including significant community baseline data of ANC 3F in 2009:

> Built Structures: 3,033
> Age of Buildings: 36% between 25-50 years; 54% older than 50 years
> Streets and Roadways: 51 miles
> Tree Canopy: 65%
> Public Transportation: 80% of residents are within a 10-minute walk to Metro.
>
> (DC Office of Planning and AECom, 2010b, 9)

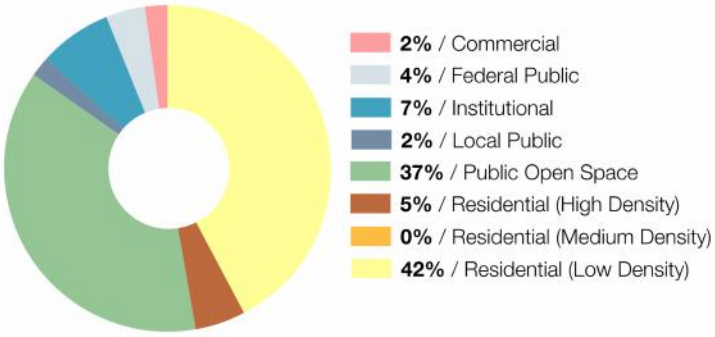
DC Office of Planning and AECom presented some of the community baseline data visually through graphs and maps. Figure 3.4 shows the land uses within the ANC 3F boundaries:

Land Use



Source: OP DC GIS

Total Area: 1,350 Acres



Average Residential Density: 25 DU/ac
North Cleveland Park: 4.8 DU/ac
Forest Hills: 2.2 DU/ac

Figure 3.4 ANC 3F Land Use Map and Graph (DC Office of Planning and AECom, 2010b, 26)

A few noteworthy statistics of the land use data include the high proportion of public space, the high percentage of residential (low density) land use, and the low proportion of commercial buildings concentrated within the Connecticut Avenue corridor. Additional baseline community data of the ANC 3F neighborhood presented by DC Office of Planning and AECom include:

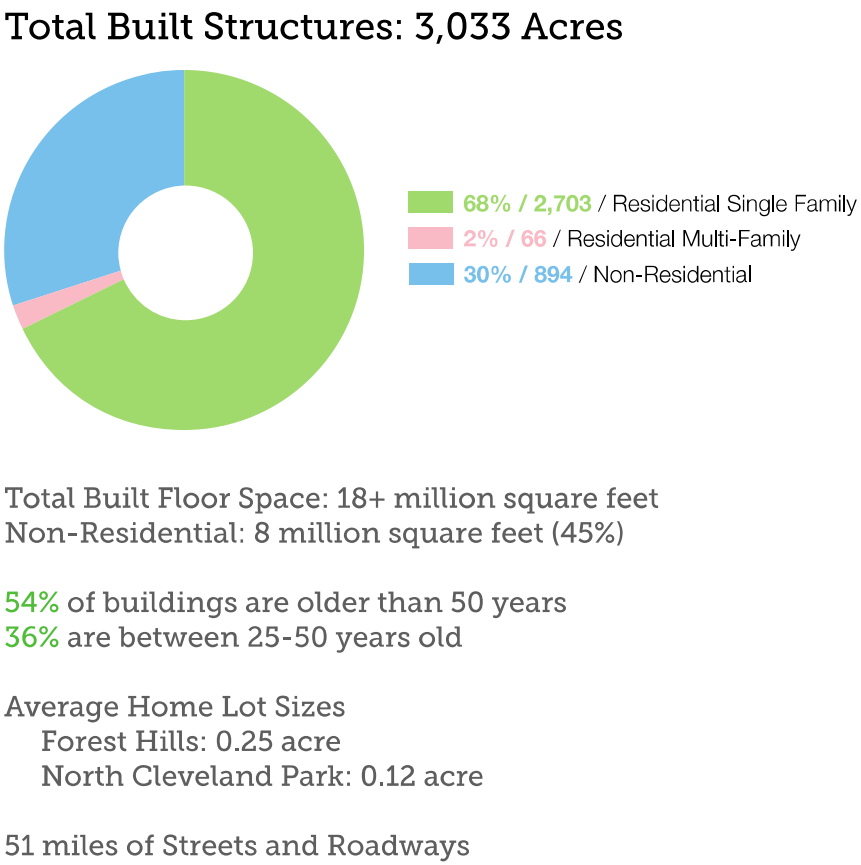
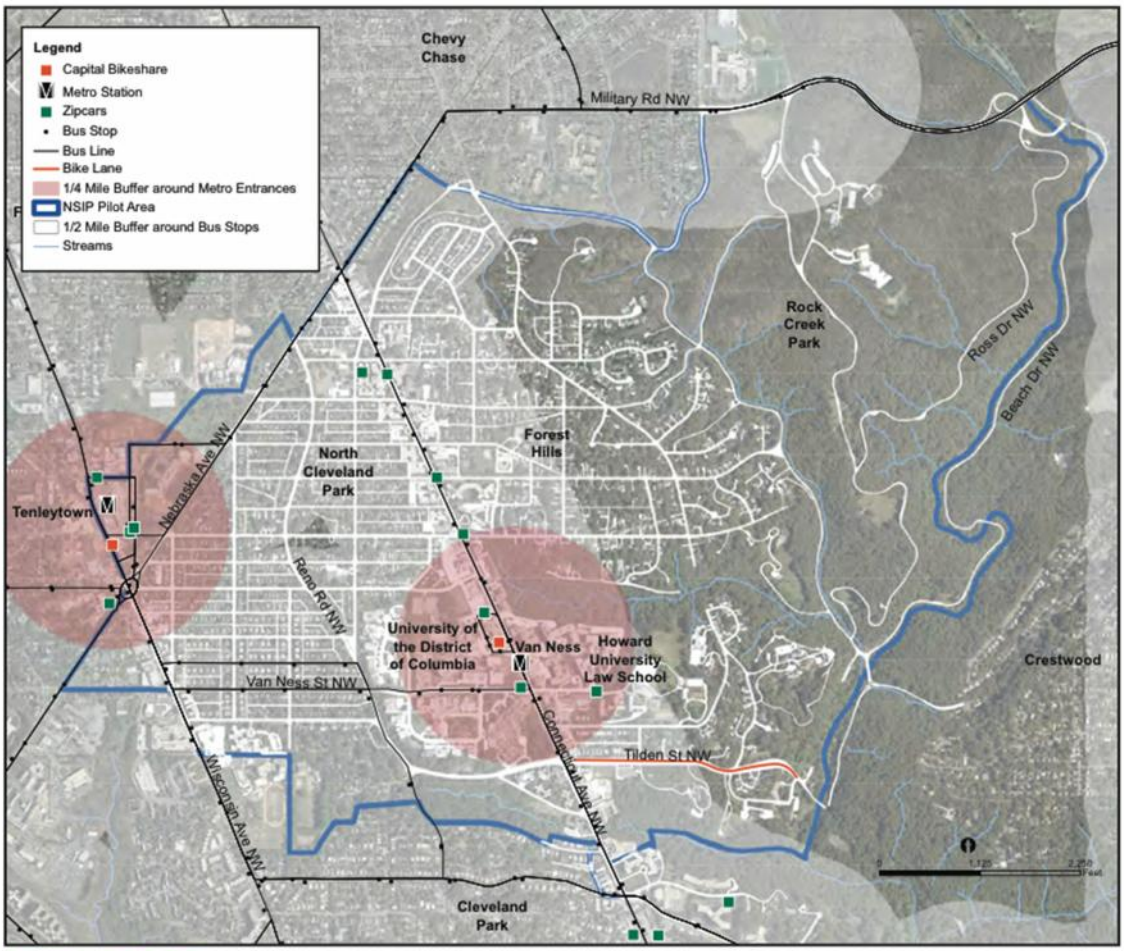


Figure 3.5 ANC 3F Built Structures Graph (DC Office of Planning and AECom, 2010b, 27)

The graph in Figure 3.5 shows the types of built structures within the 3,033 acres of the neighborhood. The transportation and mobility access within the neighborhood is significant piece of baseline data as well, represented visually in Figure 3.6:

Transportation & Mobility



Source: OP DC GIS

High Accessibility

30% of residents are within a 10 minute walk to Metro
88% of residents are within a 10 minute (1/4th mile) of public transit
40% residents are within 1/4th mile to an off-street park trail
All residents are within 1/4th mile to a signed bike lane

Figure 3.6 ANC 3F Transportation and Mobility Map (DC Office of Planning and AECom, 2010b, 28)

The map in Figure 3.6 highlights the neighborhoods' high accessibility to multiple modes of mobility. The neighborhoods of Tenleytown and North Cleveland Park are "very walkable" according to Google, with a walk score of 85 out of 100 (DC Office of Planning and AECom, 2010b). However, areas of Forest Hills lack sidewalks and are generally

considered “car dependent,” with a walk score of 45 out of 100. Although the ANC 3F neighborhood has ample access to public transportation, it not considered one of the most walkable neighborhoods in DC (DC Office of Planning and AECom, 2010b). Additional baseline community data of the ANC 3F neighborhood presented by DC Office of Planning and AECom include:

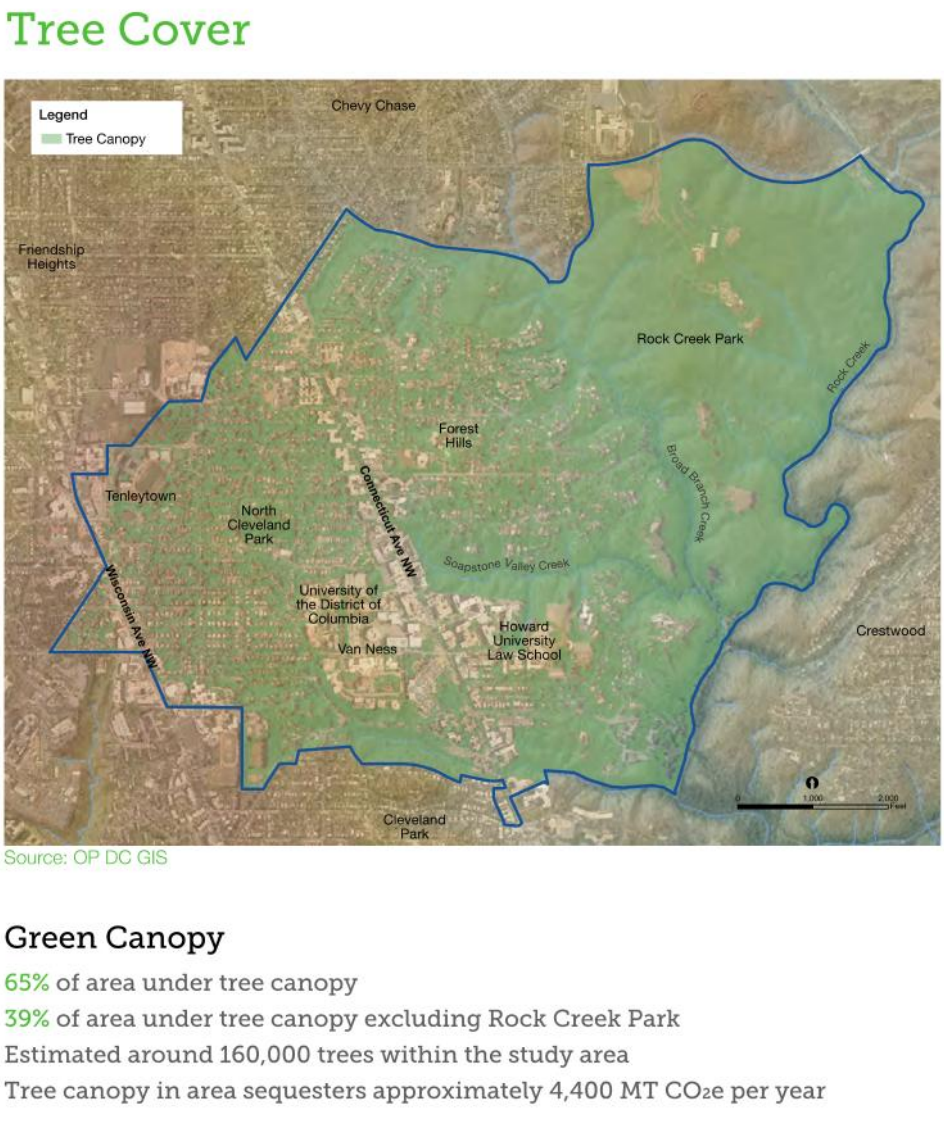


Figure 3.7 ANC 3F Green Canopy Map (DC Office of Planning and AECom, 2010b, 28)

The map in Figure 3.7 highlights the high density of green canopy within the neighborhood. DC Office of Planning and AECom collected this information in 2009 as a baseline for green initiatives in the neighborhood.

This data is imperative to this study, as it not only provides internal aspects of the case but a holistic picture of the community at specific time and place in history. I implemented historical research techniques such as accessing the secondary sources of NSIP meeting minutes, official documentation of the project, archives from NSIP's website, and recording second-hand accounts of events, as will be described in the following section.

3.3.4 Semi-structured Individual Interviews

The aim of a semi-structured individual interview is to seek understanding of "how" and "why" questions versus "fact finding" or quantitative data collection. This method allows the interviewer to establish general topics for investigation while also allowing the freedom to explore emergent ideas and themes as they arise in the interview setting (ESDS, 2006). This method generally revolves around pre-determined and open-ended questions, followed by subsequent questions that emerge naturally from the dialogue (Dicicco-Bloom and Crabtree, 2006). This research technique allows for exploration of perceptions, opinions, inconsistencies, and clarifications about complex and often sensitive issues pertaining to the case study (Barriball and While, 1994). This is a simple and self-evident method that draws upon the everyday practice of asking and answering questions.

As part of this study, I conducted five in-depth and open-ended interviews. I met the majority of the subjects by attending a Green Living DC meeting and requesting individual interviews thereafter. Fortunately, subjects were also willing to make introductions to other group members (or former group members) via email. I selected each subject based upon their involvement in NSIP, Green Living DC or both groups. Throughout this process, I took an ethical research approach by allowing the subjects to remain anonymous. Examples of open-ended questions asked during the semi-structured individual interviews include:

- How did you first become involved with the NSIP project?
- How did you develop partnerships and involve stakeholders in the beginning stages of NSIP?
- What was gained or what was the most successful outcome(s) of NSIP?

Ultimately, the goal of this method is to uncover what is normally hidden from ordinary view and to gain a more reflective understanding about the nature of the experience (Rapley, 2004). Face-to-face interviews are unique in that they enable special insight into subjectivity, voice, and lived experiences of subjects (Rapley, 2004). In-depth interviews are the most common and allow the interviewer to delve deeply into the case study and associated social and personal matters surrounding the subject matter (Dicicco-Bloom and Crabtree, 2006). The semi-structured nature allows the interviewer choice in wording of each question but allows for probing, which Barriball and While (1994) argue is an essential freedom in this process:

> Questions that are not effective at eliciting the necessary information can be dropped and new ones added. Furthermore the interviewer should be prepared to depart from the planned itinerary during the interview because digressions can be very productive as they follow the interviewee's interest and knowledge.
>
> (Dicicco-Bloom and Crabtree, 2006, 316)

Often throughout the interview process, subjects would discuss NSIP and Green Living DC without specifying when Green Living DC was officially established. Frequently questions were added during the interview to seek clarification about specific projects and whether NSIP or Green Living DC initiated them. For example, I asked: *How did the evolution occur from NSIP to Green Living DC?* Appendix A provides the complete summary of the interview questions and answers emerging from each semi-structured individual interview.

Typically, in the semi-structured individual interview the interviewer's role is engaged and encouraging but not personally involved (ESDS, 2006). The semi-structured individual interview involves a greater involvement of the interviewer, disclosing aspects of "self" to build a relationship with the subject is an optimal practice (Rapley, 2004). Traditionally, the structure of in-depth interviews dictates that the interviewer maintains control over the interaction with the subjects' cooperation. To achieve this structure, it is necessary to develop rapport and positive relationships with the subjects. Rapport involves trust and mutual respect. It is, therefore, necessary to couple this with a safe and comfortable interview environment for sharing the subjects' personal experiences. Dicicco-Bloom and Crabtree (2006) highlight the stages of rapport between the

interviewer and subjects (in chronological order): apprehension, exploration, cooperation, and participation.

To build positive rapport with subjects of Green Living DC who were previously involved in NSIP, I attended a Green Living DC meeting in December 2013. In this setting, I was able to engage with members of the group as an outsider interested in their work. In the small group setting, mutual trust emerged through storytelling, discussing shared environmental interests, and open respect of their work as members of Green Living DC. The goal was not only to learn more about their work, but also to ease the "apprehension" stage of rapport, so that members would be receptive to participating in semi-structured individual interviews about NSIP and Green Living DC. As a researcher requesting a voluntary interview with current and former members of Green Living DC, the subjects were encouraged to choose the interview location to ensure they felt comfortable during the session. The majority of subjects chose local restaurants or coffee shops located in the neighborhood for the interviews.

Typical techniques for data collection during the interview process include audio recording, video recording, and note taking (Dicicco-Bloom and Crabtree, 2006). I chose note taking as the primary form of transcribing questions and answers during the Green Living DC interviews. I selected this method over the alternative forms of data collection to ensure subjects felt at ease and shared their honest accounts of the case study. Many of the subjects volunteered themselves as a resource, with standing invitations for follow-up questions via email. Later sections of this chapter will discuss the relevant sampling techniques and data analysis in greater detail.

A valid critique of the semi-structured individual interview method concerns issues of validity and reliability, and whether the interviewer can be certain what subjects say is accurate or true. However, this method of data collection is not merely concerned with facts but also with the subjects' perceptions of their version of the "story" and what they consider to be "true" (ESDS, 2006). I used *triangulation* or use of multiple methods to examine the same dimension of a research problem. This technique involves crosschecking for internal consistency or reliability between qualitative and quantitative data (Jick, 2006).

Dicicco-Bloom and Crabtree (2006) describe an integral part of the qualitative research interview as the point in the process of data collection and analysis where no new categories or themes emerge. This phase of data collection and analysis is called "saturation" and signals data collection is complete. Analyzing the Green Living DC case study using a holistic method is imperative, understanding both the narrative as well as hard facts such as project measures and data collected during or after the project's implementation phase (ESDS, 2006). The next section elaborates on the narrative in the data collection phase of the research and it will discuss storytelling as a research technique.

3.3.5 Storytelling

Sandercock (2003) describes the power of storytelling within the planning realm. Collecting written and oral stories is important on a variety of levels. Communities narrowly focus on local issues, so they may be unaware that a similar problem has occurred previously or within close proximity in which a successful resolution emerged. Storytelling conveys underlying plot themes familiar across a multitude of contexts so as to provide insight to moral ordering and values of a community. Stoecker (2005) described the research process within a community context, often shifting from deep theoretical questions to storytelling.

Sandercock (2003) discusses limitations of storytelling, arguing it often succeeds in the local and regional context but scales involving conflicts between nations may not find the value in this tool. Sandercock (2003) also acknowledges the power storytelling holds but cautions that it must not replace planning tools. Storytelling must complement these tools. In the context of the Green Living DC case study, storytelling was a useful tool due to the size and scope of the project. Each subject interviewed was able to contribute their viewpoint on the project and it was my objective to make sense of these individual stories:

> In other words, in storytelling the role of the listener is as important as that of the teller – in some sense it is a process of co-construction (or co-discovery) of meaning.
>
> (Wilkins, 2000, 146)

During the interview process, often subjects shared viewpoints they had never discussed openly with other group members. By remaining anonymous, the subjects felt comfortable sharing their intimate views surrounding NSIP and Green Living DC.

After discussion on the various research techniques used within this study, the following section will explain the sampling techniques practiced. It will describe purposive sampling and key informant techniques in greater detail and provide the context for this study.

3.4 Sampling Techniques

This study will use *purposive sampling*, which is "a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts within" (Tongco, 2007, 147). Essentially, researchers practice this technique to decide whom to interview and seek people willing to provide information by virtue of their knowledge base and experience. Purposive sampling exists in both qualitative and quantitative research techniques (Tongco, 2007).

Purposive sampling is a common tool used in case study research methods, particularly when the population is too small for a random sample. This technique is fundamental to the quality of data gathered and contributes to the internal validity of the study. Within this study, it is important to acknowledge the inherent bias of this sampling technique. However, purposive sampling can lead to robust data in an efficient manner. This sampling technique specifically involves choosing subjects based upon their involvement in NSIP or Green Living DC. This often proved to be a challenge; it was not easy to secure interviews with specific subjects, as they were often busy with their professional careers and families with little free time to offer beyond these responsibilities.

This study will also use the *key informant* technique, where one or few individuals serve as guides to a culture (Tongco, 2007). These subjects are knowledgeable about the population and culture and are willing to share this knowledge. The key informant technique is especially useful in documenting events that not everyone has witnessed or attended; it can open the door to a population that was previously unreachable. Tongco

(2007) argues that reliability and competency are key traits needed in subjects chosen to participate in purposive sampling. *Reliability* refers to how honest and truthful the subject is. *Competency* refers to how qualified the person is to answer questions about the domain the researcher is studying (Tongco, 2007).

I identified a key informant in early stages of this study. I interviewed her initially and she served as a liaison to the rest of the Green Living DC members. Once this subject facilitated introductions to other group members, we developed relationships and the key informant was no longer needed to serve in this capacity. Eventually, I interviewed one female and four males individually in addition to attending a Green Living DC meeting. The subjects chosen for interviews represented varied professional, educational, and personal histories of the sample group and were identified because of their varied roles in NSIP and Green Living DC.

According to Tongco (2007), there is no cap in place dictating how many subjects should comprise a purposive sample. As long as the information sought is obtained, the scope of sampling remains at the discretion of the researcher:

> Based on both the question and the community of study, the expert purposive sampler will intuitively know if purposive sampling is applicable, how to find informants, how many informants are needed, and how to correctly assess reliability and credibility of an informant.
>
> (Tongco, 2007, 155)

The following section identifies the ethical considerations practiced while conducting research. I will briefly highlight a few specific ethical considerations that were pertinent to this study.

3.5 Ethical Considerations

The researcher brings to the table experience and a theoretical standpoint that guides interests and research. However, engaging in ethical research requires an open mind and Stoecker (2005) suggests that an essential element of the research process is not becoming too attached to the research questions at the very early stages. Stoecker

(2005) suggests the review of relevant literature, examination of case examples and case studies, and the experience as a whole, will lead to recommendations not originally anticipated.

When conducting qualitative interviews throughout this study, building trust with the subject is critical. I obtained voluntary informed consent for individual interviews and respected the subjects' request for confidentiality or anonymity. Through email, I provided potential subjects with information on my educational background and relevant information about the study in a manner they could to understand. Potential participants could then authorize their participation or choose to be left alone. All of the subjects gave consent to participate in individual interviews.

When engaging in research, it is important to respect the cultural norms that exist within the population of the study. It was appropriate and beneficial to attend a Green Living DC meeting prior to request individual meetings with subjects. As the researcher, I developed personal relationships with many of the subjects. Consequently, I shared findings with subjects who expressed interest in continued communication. For example, the majority of subjects encouraged me to reach out via email should I come across questions during another phase of the study. Many subjects also offered to introduce me to other community members not only for research purposes but also for volunteer opportunities.

The following section discusses the steps of the data analysis phase of study. I outline the five steps practiced in qualitative data analysis as well as quantitative secondary data analysis practices to answer the research questions posed in Chapter 2.

3.6 Data Analysis

The qualitative data analysis phase of this study is categorized in the following five steps: (1) tidying up, (2) finding items, (3) creating a stable set of items, (4) creating patterns, and (5) assembling structure (Lecompte, 2000). This section is primarily concerned with the steps of analysis implemented to make sense of the data collected.

Step one of this process is the "tidying up" process, which is necessary to coding and analyzing the data collected. This includes recording and organizing field notes, reviewing the research questions based on data collected, identifying holes or missing data chunks, and returning to the field if necessary. I coded the research findings based upon the assessment criteria established in Chapter 2. Pieces of data collected may be rendered unnecessary during this phase of the study, which is to be expected (Lecompte, 2000).

Step two is the "finding items" part of the research process, where researchers code, count, and generally assemble specific pieces of the data set into research results. Sifting and sorting of the data is necessary, as is repeated readings of notes and data to identify anything relevant to the research questions. The researcher must look for frequency, omissions, and declarations within the data. *Frequency* in this instance means multiple occurrences of data. *Omissions* refer to items identified because they never appear in the data even though the researcher initially believed they would. *Declaration* refers to significant items identified because subjects within the study explicitly tell the researcher they exist (Lecompte, 2000).

Step three involves "creating a stable set of items." Once items are identified, researchers must organize them into groups or categories by comparing and contrasting them, or mixing and matching them. Essentially this involves clumping items together and creating subcategories (Lecompte, 2000).

Step four is the "creating patterns" part of the process, which involves assembling patterns by looking for characteristics used to identify items. Examples of this practice include identifying similarity, co-occurrence, sequence, corroboration, hypothesizing or looking for patterns that researchers *think* should exist (Lecompte, 2000).

Finally, step five of this process is "assembling structures," or groups of patterns assembled into structures or linked patterns that build a description of the project being studied. If the data and analysis is good, it can ultimately help the researcher assess effectiveness and develop theories or make improvements based upon the data. This is the part of the process where I sought to describe or explain the phenomenon identified in the theoretical framework in Chapter 2.

Lecompte (2000) argues that creating meaningful results requires *validity*. It is necessary that findings are both accurate and reasonable. Essentially, Lecompte (2000) argues that it does not matter how well designed a study is if researcher's results lack validity. Thus, researchers must continually ask themselves: *Did I really "get it right"?*

The quantitative *secondary data analysis* phase of this research can be defined as the re-analysis of data to answer new questions (Glass, 1977). The author stresses the importance of preserving the original data within a new study (Glass, 1977). Within this study, I collected and re-analyzed NSIP and Green Living DC material to answer the research questions posed in Chapter 2.

3.7 Conclusion

This chapter provided an outline of the research design applicable to this study. The primary and secondary research questions were introduced in the previous chapter and thus the aim of this chapter was to introduce the research design implemented to answer these questions.

The research methods, which were identified and outlined in this chapter, included mixed methods, case study, and oral history. The research techniques implemented include secondary data collection, semi-structured individual interviews, and storytelling. I outlined the sampling procedures and specific data analysis procedures. Finally, I addressed the limitations and ethical considerations of this study. The following chapter will present the research findings in this study. It will address the research questions via assessment criteria outlined in Chapter 2.

Chapter 4: Findings and Analysis

4.1 Introduction

The research findings outlined in this chapter stem from subjects' perceptions as group members of Green Living DC after the conclusion of NSIP. I used additional data sources to cross reference accounts and corroborate quantitative and qualitative data. I analyzed the findings using the criteria established in Chapter 2. Each section within this chapter aims to follow the historical time line of the group's evolution and present the research findings. I will establish links between the integrated framework of sustainability and community participation outlined in Chapter 2 and examples from the Green Living DC case study. The chapter is grouped into two broad sections, sustainability and community participation, and highlights the associated assessment criteria within each. The final sections of the chapter will address typologies of participation and conclude with a summary of findings.

4.2 Sustainability

The established criteria of sustainability based upon the literature includes: locality; human, nature, and economic interdependence; and sustainability indicators. I chose Green Living DC as the case study to answer the primary research question: *How does community participation contribute to the success of a local sustainability project?* The case study also helped answer the secondary research questions: *How does a project achieve environmental sustainability?* and *What may we learn from the Green Living DC case study for future practices?* Chapter 4 will present the answers to these questions and address how environmental sustainability was achieved. Each section will follow the historical timeline of Green Living DC, with a broad focus on NSIP that transitions to Green Living DC activities since the formal conclusion of NSIP.

4.2.1 Locality

Locality is the first assessment criterion of environmental sustainability within this study. This section outlines the area under study within the Green Living DC case study. It also provides rationale as to why DC Office of Planning chose this neighborhood in

particular for the NSIP Pilot Project. I will assess the locality of the project to answer the secondary research question: *How does a project achieve environmental sustainability?*

The boundaries of the neighborhood follow those of DC's Advisory Neighborhood Commission (ANC). The ANCs that comprise DC are the body of government with the closest official ties to the citizens who live in each neighborhood respectively (District of Columbia Office Government, 2014). The NSIP Pilot Project study area officially includes the ANC 3F neighborhood comprised of what citizens refer to as North Cleveland Park, Tenleytown, and Forest Hills. The neighborhood is 1,350 acres and the community is well established and connected to the rest of the city (DC Office of Planning and AECom, 2010b). The map below indicates the boundaries of the study area:

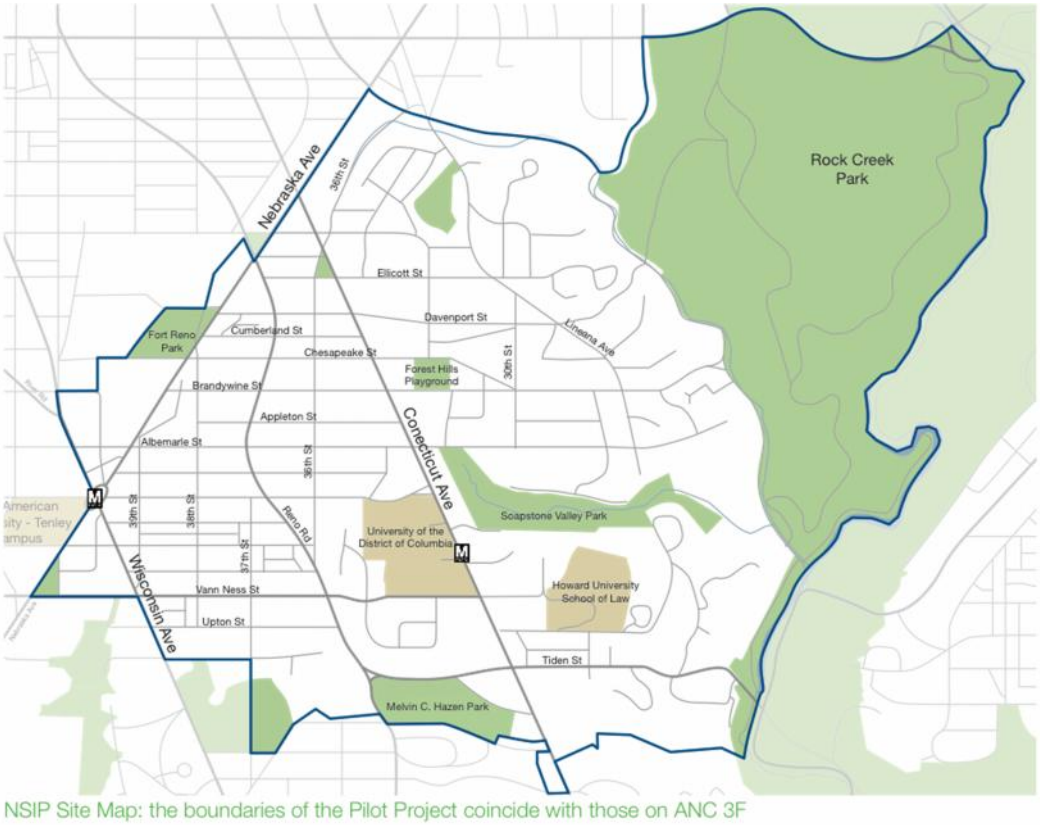


Figure 4.1 NSIP Site Map (DC Office of Planning and AECom, 2010b, 7)

DC Office of Planning cited several factors that led to confirmation of this neighborhood as the choice for the pilot project. Citizen groups and neighborhood associations were pre-established and active within the neighborhood. Upon examination of past sustainability efforts, the community demonstrated commitment to these initiatives. A variety of land uses and tenant groups (i.e. single-family residential, multi-family residential, embassies, formal institutions and businesses, etc.) were present in the neighborhood (DC Office of Planning and AECom, 2010b). DC Office of Planning believed this neighborhood was a representative sample of the variety of groups that comprise DC as a whole. Lastly, DC Office of Planning cited the environmental features of the community as diverse (three creeks and heavily forested park land), which provided an opportunity to test the effectiveness of sustainability actions on various preservation fronts such as river cleaning and forest stewardship (DC Office of Planning and AECom, 2010b).

I expanded the assessment of locality beyond the formal documentation of NSIP through interviews with core members of Green Living DC. Interviews with five core members of Green Living DC revealed only one of the members was an actual resident of ANC 3F. Later sections of this chapter will describe how these citizens became involved with the project. However, for the most part, the citizens participating in the project were residents of the neighborhood.

Mr. Limauro (personal correspondence, April 10, 2014) was the Ward 3 neighborhood planning coordinator at DC Office of Planning in 2009 (ANC 3F is part of Ward 3). He was the lead on this project and shared many of the views expressed on locality from the report cited above. He referred to the neighborhood as a "microcosm" of the larger city, from its environmental diversity of Rock Creek Park, suburban, urban, and natural landscape mixture, as well as its ratio of natural to built environment. Engaged universities were either within the neighborhood boundaries or in close proximity. Many of these universities offered environmental sustainability programs.

ANC 3F was also a good fit for NSIP because this was a neighborhood that could afford upgrades such as solar or energy efficiency to their homes (Limauro, personal correspondence, April 10, 2014). Mr. Limauro also mentioned that the ideas introduced by DC Office of Planning would not be received with backlash here because the

community was already somewhat engaged. For example, preexisting smaller community groups had formed to tackle environmental initiatives such Politics and Prose Climate Action Project and Van Ness Vision Committee (Limauro, personal correspondence, April 10, 2014).

AECom was the only entity of the project not considered local. While they do have physical office locations in Washington, DC, they are a global consultant firm (AECom, 2014). As mentioned in the previous chapter, AECom was hired to collect baseline data on the neighborhood and generate the reports under the direction of DC Office of Planning.

The demographics presented in Chapter 3 are important to give context to the neighborhood chosen for NSIP. A few noteworthy demographics not provided within the NSIP report, found on The District of Columbia website, on 2005-2009 Ward data, include:

- DC Median Household Income: $56,519
- DC Mean Household Income: $90,580
- Ward 3 Median Household Income: $71,875
- Ward 3 Mean Household Income: $156,014.

(The District of Columbia Government, 2009)

It is noteworthy that both mean and median household incomes in Ward 3 are significantly higher when compared to the entirety of DC. Ward 3 has the second highest median household income and the highest mean household income compared to all other wards in DC. Another piece of noteworthy data is education rates:

- DC % High school Graduate or Higher: 85.5%
- DC % Bachelor's Degree or Higher: 47.1%
- Ward 3 High school Graduate or Higher: 96.3%
- Ward 3 Bachelor's Degree or Higher: 82.3%.

(The District of Columbia Government, 2009)

This data is significant when compared to DC demographics and each ward respectively. Ward 3 has the highest rates of high school graduates and citizens with bachelor's degrees. Ward 2 has the second highest population percentage of college degrees with 72.7%, which is nearly 10% lower than Ward 3 (The District of Columbia Government, 2009).

Lastly, another significant piece of data is important when contextualizing Ward 3 within DC as a whole. As presented in Chapter 3 (see Figure 3.1), ANC 3F is 85% White, 8.1% Asian, 6.6% Black or African American and 0.2% American Indian and Alaska Native. DC is known for its large African American population, and the 2005-2009 data indicates the DC population as 55.2% Black and 35.9% White (The District of Columbia Government, 2009). Therefore, when a subject referred to ANC 3F as a "microcosm" of the city, it may be as far as environmental diversity is concerned, but it does not represent the DC population in many other respects including income, education level, or race. This information gives context to the ANC 3F population in comparison to DC demographics and those unfamiliar with the case study neighborhood in 2009.

This local approach to a sustainability project was completely new to DC in 2009; what did exist for DC was the Green Action Agenda. Mr. Limauro (personal correspondence, April 10, 2014) explained this as essentially a database for the projects underway in the city. However, they were disjointed and the majority operated in silos. He explained that DC Office of Planning focuses on small neighborhood plans, with an emphasis on community. However, a focus on sustainability was non-existent in 2009. A few legislative wins in the city provided the opportunity to test this pilot project.

Mr. Wickham (personal correspondence, April 2, 2014) suggested this framework for the project worked on a basic level because members of the community recognized and trusted those who were leading the NSIP efforts. They called initial community meetings in familiar, local facilities – specifically the new Woodrow Wilson pool and recreation center offered free of charge to community members. The citizens recognized local elected and volunteer leaders and community members. Mr. Wickham described the project, from its inception, as very promising for all involved.

Addressing locality as an assessment criterion of sustainability – NSIP fulfilled the goal of locality according to both reports and Green Living DC subjects:

> The District is interested in promoting this grassroots-driven sustainability effort to support and inform its overall Green DC Agenda and to make more effective sustainability policies. Cooperatively developed by the DC Office of Planning and DC Department of Environment, the Pilot Project applies the NSIP process to a portion of Ward 3 in Northwest DC that can serve as a model for other neighborhoods in the District to undertake their own sustainability efforts in a coordinated and effective way.
>
> (DC Office of Planning and AECom, 2010b, 3)

However, achieving locality was not without its challenges. Mr. Limauro (personal correspondence, April 10, 2014) explained all of the reasons the neighborhood was originally chosen for the pilot project were not as accurate as he understood at the start of the project. He specifically cited community participation challenges, which this chapter will address later. Mr. Limauro suggested in hindsight he would have chosen an alternate neighborhood for the pilot project.

As discussed in Chapter 2, Newman and Jennings (2008) argue that to achieve sustainable local communities, local government is better equipped to handle the environmental problems of a community because they are closest to the problem. The authors call upon cities and towns to become key players in shifting lifestyles, production, consumption, and spatial patterns. This way of thinking develops ideas based upon observations versus ideologies – citizens have a direct impact in their local community and decisions affecting their immediate environment.

This pilot project was the first attempt in implementing a sustainability project at the DC local government level. The goal was to take lessons learned from NSIP and replicate the project in other Wards of DC. Instead, the government has since introduced the *Sustainable DC* program (Limauro, personal correspondence, April 10, 2014). Although this was not a focus of my study or the Green Living DC case study, the local government has since established a program with the following vision:

> Sustainable DC is a District Government-led plan to make the city the healthiest, greenest and most livable city in the United States. It is a citywide initiative crafted for and by the city's diverse community with the ultimate goal of making DC more socially equitable, environmentally responsive, and economically prosperous.
>
> (The District of Columbia Government, 2014b)

This *Sustainable DC* plan shifted priorities toward sustainability within the local policy arena over a twenty-year period. However, *Sustainable DC* does not outline community participation within this plan – only that it is based on "broad public input." Although the plan is still new, being established in 2011, it seems as if the local government view locality as city-wide (The District of Columbia Government, 2014b). Chapter 5 will address recommendations on locality based upon the integrated framework of sustainability and community participation coupled with findings on locality.

As Green Living DC officially formed once NSIP concluded, it continued to operate on a local community scale. For instance, the program organized the Soapstone River Cleanup in the neighborhood (Boersma, personal correspondence, April 23, 2014). Recently the group has undertaken a smaller project with a focus on energy usage with the goal of assisting businesses and condo building in upgrading to LED lights and other relevant factors (Wickham, personal correspondence, April 2, 2014). These local sustainability projects led to direct impacts within the ANC 3F community. The group has focused on various ANC3F initiatives over the years but their work on the annual Green Living Expo DC has remained a constant throughout the years. The following section will describe the expo as part of human, nature, and economic interdependence within the neighborhood.

4.2.2 Human, Nature, and Economic Interdependence

This section outlines the ways in which the project developed human, nature, and economic interdependence – and how this relationship has evolved over time. To answer the secondary research question: *How does a project achieve environmental sustainability?* The interdependence of these factors within the project will be assessed.

According to DC Office of Planning:

> The 'Green Your Home Expo' at the University of the District of Columbia (UDC) officially kicked-off the public NSIP process. The Expo featured more than 30 green vendors, a farmers market, live jazz music, activities for children, remarks by public officials, and two panel discussions on sustainability and climate change. The expo was attended by more than 200 people.
>
> (DC Office of Planning and AECom, 2010b, 11)

According to Mr. Macgregor (personal correspondence, April 4, 2014) a single subgroup of citizens decided that the expo should kickoff NSIP. The goal was to connect the local government such as DC Office of Planning and Department of Energy with private sector entities interested in selling "green services," NGOs, stakeholders, and local citizens. The expo was held at the UDC campus and anyone in the community or walking by was invited to attend. The overall timeline of NSIP was:

Figure 4.2 NSIP Timeline (DC Office of Planning and AECom, 2010b, 11)

Mr. Boersma (personal correspondence, April 23, 2014) considered tangible deliverables as a necessary part of NSIP and Green Living DC. He described the expo as a successful outcome of NSIP – bringing together the community and economic factors for environmental purposes. The first expo on September 12, 2009 also kicked off the partnership with UDC, which has become integral to Green Living DC's success. Later sections of this chapter will elaborate on this partnership. However the expo overall allowed citizens to connect with green resources locally. Mr. Boersma (personal correspondence, April 23, 2014) indicated that another goal of the expo was to raise

awareness within the community about NSIP and ways to make sustainability part of their everyday lives.

Ms. Davis (personal correspondence, December 5, 2013) discussed the evolution of the expo, although she was not involved in the NSIP process and joined the Green Living DC group once the project had concluded. The expo achieved the interdependence of factors within the community although no two expos were the same. Over the years, students of UDC have spearheaded the expo as well as the organization Live Green. Members of the original NSIP group and Green Living DC have always been involved in various capacities and have led the expo most recently. Essentially the expo provides a platform for any citizen or group to be involved in sustainability efforts within the city.

Figure 4.3 Green Living DC Expo 2009 (DC Office of Planning and AECom, 2010b, 23)

Mr. Boersma (personal correspondence, April 23, 2014) described a small success as part of the expo: volunteers offered tours of their homes to feature examples of household sustainability efforts. He featured his personal rain barrels and wind power upgrades and has offered guidance to households who made these changes to their homes. This is indicative of the interdependence between green initiatives and those businesses participating in the expo and providing services. All of these factors helped facilitate sustainability efforts on a small scale.

Ms. Davis (personal correspondence, December 5, 2013) discussed challenges organizing the expo annually. At times during the expo, attendance was low. The new dean at UDC has integrated coursework curriculum and volunteer requirements for students in planning the expo, which has been a huge victory. However, she believes Green Living DC has become too focused on the expo and has strayed from the original sustainability goals, which are presented in Figure 4.4. Ms. Davis (personal correspondence, December 5, 2013) cites the lack of funding once NSIP ended as one cause – meaning assistance from AECom consultants and DC Office of Planning no longer exists.

Ms. Davis (personal correspondence, December 5, 2013) called a Green Living DC meeting to revisit the original NSIP goals. Within this meeting, members revisited the initial priority items and actions and she prompted the group to narrow the list to three items for implementation. She also scheduled follow-up meetings to encourage group members to track and report on the progress of action items. They voted to re-prioritize the following three goals:

- Organize sessions for businesses and multifamily building managers on benchmarking and energy savings
- Shore up our data collection on NSIP goals
- Track and report on DC government agency projects in neighborhood - submit stories to Forest Hills Connection.

(Davis, personal correspondence, December 7, 2013)

See Appendix B for the complete meeting minutes.

The interdependence of human, nature, and economic factors continues to be an integral part of the group's work. As discussed in Chapter 2, *bioregionalism* promotes citizens' understanding of ecological interdependence and insights of deep ecology versus scientific research (Mazmanian and Kraft, 2009). This concept continues to be practiced. For example, as part of NSIP, the community defined their environmental "needs" and how they would be met through action items (Mazmanian and Kraft, 2009, see Chapter 2). Today, members of Green Living DC recognize the interdependence of educating businesses on environmental initiatives to improve the neighborhoods' energy usage. The group members are not "experts" on topics such as energy usage. Still, they

taught themselves the basics and have continued to collect data within their neighborhood.

Mr. Wickham (personal correspondence, April 2, 2014) described the efforts underway by a few of the group members since the December 5, 2013 Green Living DC meeting. He is working to collect raw data from businesses in ANC 3F to analyze and encourage effective energy usage in buildings. He and a few group members met with DC Sustainable Energy Utility (SEU) to collect energy data and indicators. Now they are filling any missing data gaps themselves. This addresses all "three pillars" in that they present energy saving measures as cost benefits to these local businesses.

Mr. Wickham (personal correspondence, April 2, 2014) described a challenge in this project: reporting fatigue. He practices a 1:1 qualitative to quantitative ratio; achieving greater success when he asks businesses to set their own energy goals and explain what they want versus presenting metrics and asking them to comply with standards that SEU and Green Living DC set. He explained that occasionally they must alter their energy goals for businesses to make progress – often Green Living DC goals are too ambitious. Mr. Macgregor (personal correspondence, April 4, 2014) spoke of the positive aspects of this initiative: building a relationship with SEU has given Green Living DC a link to grant and educational opportunities with local businesses that may not have been previously possible.

As discussed in Chapter 2, Hawken (2007) describes the ways society looks for big solutions to dilemmas such as global climate change, ecological degradation, loss of culture, poverty, and terrorism. However, he describes this as part of the problem, citing the most effective solutions as both local and systematic. To this end, DC local government attempted a pilot project to address problems the city has been facing for decades. Mr. Limauro (personal correspondence, April 10, 2014) affirmed that DC is behind the curve on sustainability projects, especially in comparison to other cities of comparable size. For instance, the city has a huge waste problem paired with low recycling rates. Therefore, adopting *bioregionalism* was a new approach for DC local government in 2009.

As Hawken (2007) describes, environmentalism is often a response to immediate conditions within a neighborhood (see Chapter 2). Brugmann (2009) echoes this idea, describing the way we shape cities through trial and error, re-designing them to mimic nature (see Chapter 2). Green Living DC is experimenting with these ideas, implementing pilot projects and bringing together as many stakeholders and citizens within the community to integrate human, nature, and economic pieces of each project.

The Soapstone River Cleanup is one example, which has evolved over the years. The river cleanup was originally a pilot project initiated by NSIP and has now evolved into an environmental project involving citizens, businesses, and local NGOs. Now this river cleanup is an annual event, sponsored by local businesses, such as Whole Foods, and organized by local high school students with the help of Rock Creek Conservancy (Tenleytown, DC, 2014). The 2014 cleanup removed 50 bags of trash from the river and invasive species along the riverbanks to protect the indigenous plants needed to support the ecosystem. Through water quality testing during NSIP (see section 4.2.3), citizens took immediate action to tackle the water contamination problems within their neighborhood.

Figure 4.4 Wilson High School Students at the Soapstone River Cleanup (Tenleytown, DC, 2014)

Green Living DC has experienced the most success in various initiatives throughout the years when it develops human, nature, and economic interdependence. The way these relationships have developed and their degree of success has varied, but perhaps a

symbolic success of the group is the annual expo executed over the past five years. The annual expo represents the interdependence, with attendance of NSIP members, DC citizens, vendors, NGOs, businesses, and public officials all publically endorsing and educating the community about green initiatives. Overall, the presence of all three factors in initiatives furthered the environmental sustainability goals of each project Green Living DC successfully completed. The following section describes the sustainability indicator process within NSIP and how it has evolved since its conception in 2009.

4.2.3 Sustainability Indicators

Sustainability indicators are the third assessment criterion of this study. This section outlines how the sustainability indicators were developed and the ways in which NSIP community members implemented action items to achieve project goals. To answer the secondary research question: *How does a project achieve environmental sustainability?* I will assess the progress of the sustainability indicators.

Through a participatory and democratic process, the community developed sustainability indicators. The vision of sustainability exemplified the following characteristics (see Figure 4.5):

- Green Energy
- Green Environment
- Mobility
- Green Economics
- Green Social Capital

(DC Office of Planning and AECom, 2010b, 17-20)

These were established in the early stages of NSIP within the Visioning Workshop and were named priorities within ANC 3F (DC Office of Planning and AECom, 2010b).

Two months later, in January 2010, the goals and actions workshop produced a list of action items supporting the neighborhood's sustainability goals (see also Figure 4.5):

- Goal 1: Increase Energy Conservation
- Goal 2: Increase Production of Renewable Energy
- Goal 3: Increase Environmental Management of Buildings
- Goal 4: Increase Water Conservation
- Goal 5: Increase Water Quality in Neighborhood Streams
- Goal 6: Restore, Enhance and Protect Tree Canopy
- Goal 7: Increase Use of Greener Modes of Transportation
- Goal 8: Increase the Number and Quality of Local Green Businesses
- Goal 9: Expand the Communities Green 'Social Capital.'

(DC Office of Planning and AECom, 2010b, 17-20)

The community voted on these goals based on their vision of sustainability for the neighborhood developed in the Visioning Workshop on November 14, 2009. These goals and action items included both individual and community actions. Once the community brainstormed action items, they voted to narrow the list to a maximum of six action items per goal. Examples include creating a condo/business green rating system, facilitating green landscaping workshop, and organizing community tree planting drives (see Figure 4.5 for the full list of action items). From this point, AECom collected baseline data in the community as a starting point. On May 4, 2010, the implementation kick-off meeting began the sustainability projects (DC Office of Planning and AECom, 2010b). A summary of each primary indicator, target, community action, and individual actions is as follows:

Green Energy

Goal 1: Increase Energy Conservation

Primary Indicators	Targets	Community Actions	Individual Actions
Total residential energy use Total non-residential energy use **2009 Baseline (Zip 20008) Residential** 548.4 Gigawatt-hours/year 7,281,410 Therms/year **2009 Baseline (Zip 20008) Non-Residential** 255.9 Gigawatt-hours/year 13,175,528 Therms/year	**2020 Community Target** 22% reduction from 2009 baseline on annual rate of 2%	/ Create energy audit and weatherization drives in the community / Organize "Energy Diet" programs / challenges / Promote a "Lights-Off!" initiative to encourage local institutions / residents to turn off non-essential lights / Conduct energy efficiency drives promoting EnergyStar appliances, CFLs, etc. / Conduct green roof and cool roof drives for local businesses and institutions	/ Participate in energy audit and weatherization drive / Use EnergyStar appliances / Convert to using CFL or LED lights / Consistently follow a practice to turn off non-essential lights / Enroll in 'Energy Diet' / conservation programs / Install a green or cool roof

Goal 2: Increase Production of Renewable Energy

Primary Indicators	Targets	Community Actions	Individual Actions
Total kWh / year of renewable energy produced in NSIP Area: **2010 Baseline (ANC 3F)** Residential: 29 kW installed capacity (5 PV installations) Commercial: 0 kW installed capacity Government: 36.6 kW installed capacity at Wilson Pool Institutional: 2 kW (PV) and 400W (wind) installed capacity at UDC	**2020 Community Target** Achieve 20% energy from renewable sources by 2020	/ Create energy co-ops to buy / install renewable energy solutions in the neighborhood residences and businesses / Organize a "Renewable Energy Sign-Up" drive / Organize and host neighborhood workshops about renewable energy products	/ Participate in energy co-op to install solar panels / other renewable energy sources / Install solar hot water / energy through non-co-op / Sign up to receive / increase renewable energy through clean energy supplier / Participate in neighborhood renewable energy workshops / education opportunities

Goal 3: Increase Environmental Management of Buildings

Primary Indicators	Targets	Community Actions	Individual Actions
Number of buildings that have implemented an Environmental Management Plan and / or adopted a Green Scorecards System Percent of buildings with the highest rating on the Green Scorecard **2010 Baseline (ANC 3F)** 0 EMP programs 0% building that exceed minimum Green Scorecard requirements	**2011 Community Target** Initiate the EMP program in 2010 and recommend two buildings to pilot the EMP program in 2011 100% of participating buildings should exceed minimum Green Scorecard requirements (requirements to be defined by working group)	/ Create a condo / business green rating system / Create an Environmental Management Plan (EMP) for multifamily dwellings, rentals, churches and other institutional anchors / Organize drive to promote local institutions / businesses / condos to adopt an Environmental Management Plan (EMP) that encourages green operations	/ Participate in an Environmental Management Plan (EMP)

Green Environment

Goal 4: Increase Water Conservation

Primary Indicators	Targets	Community Actions	Individual Actions
Total residential potable water usage **Baseline Consumption (ANC 3F)** 9.047 CCF per month	**2020 Community Target** 30% consumption reduction from the 2010 baseline	/ Launch "Stop-the-Drip" campaign to educate residents to repair leaky / wasteful faucets. / Launch "Green Gardeners" program to educate / assist local residents, business owners, and institutions on the fundamentals of green gardening practices and LID / Create a rainwater harvesting / greywater reuse initiative to promote reduced potable water use for irrigation	/ Install a water reuse system (rain-barrel / greywater reuse etc.) in home / business / Reduce turf and increase native plants in garden / lot / Participate in the 'Stop-Drip' campaign / Participate in 'Green Gardeners' program

Goal 5: Increase Water Quality in Neighborhood Streams

Primary Indicators	Targets	Community Actions	Individual Actions
Number of RiverSmart homes in the NSIP Pilot Area Annual load of fecal coliform Annual load of lead Annual load of TSS Annual load of BOD Annual load of phosphorus **2010 Baseline (ANC 3F)** 38 RiverSmart homes **Baseline Avg. Annual Load** 4.76E_07 MPN/100ml of fecal coliform 10.8E+03 mg/L of lead 21,400 mg/L of TSS 12,100 mg/L of BOD 280 mg/L of phosphorus	**2020 Community Targets** Double the number of RiverSmart homes in the study area compared to the 2010 baseline 25% reduction in annual fecal coliform loads on annual rate of 2.5% 36% reduction in annual lead loads on annual rate of 2.8% 25% reduction in annual TSS loads on annual rate of 2.5% 25% reduction in annual BOD loads on annual rate of 2.5% 25% reduction in annual phosphorus loads on annual rate of 2.5%	/ Create a rain garden / LID resource group that promotes and assists residents / institutions with information / installations / Create a "No-Chemicals!" campaign to reduce chemical pesticides / herbicides / fertilizer use / Launch initiative to advocate for water quality and LID issues at local public / design review meetings / Facilitate green landscaping workshops for local landscape firms (SARE Coordination)	/ Practice organic gardening (with no fertilizers and pesticides) / Install a rain garden / other Low Impact Development measure / Reduce pervious surfaces to lower stormwater runoff from property / Control pet waste / Dechlorinate swimming pool discharge / Reduce debris and trash

Goal 6: Restore, Enhance, and Protect Tree Canopy

Primary Indicators	Targets	Community Actions	Individual Actions
Percent of land area under tree canopy Carbon sequestered by trees in the community **2010 Baseline (ANC 3F)** 65% tree canopy cover 39% tree canopy cover (excluding Rock Creek Park) 4,400 MT CO_2e / year sequestered	**Community Target** Maintain existing canopy cover	/ Organize community tree planting drives (CPTs) with Casey Trees / Institute 'Adobt-a-Tree' campaign to promote care and protection of trees / Protect existing trees during the construction process	/ Participate in a community tree planting activity / 'Adopt-a-Tree' / Plant new trees on my property

Mobility

Goal 7: Increase Use of Greener Modes of Transportation

Primary Indicators	Targets	Community Actions	Individual Actions
Percent change in averade week-day entries in May at Van Ness-UDC and Tenleytown-AU Metros Percent change in average monthy Capital Bikeshare ridership **2010 Baseline** Van Ness-UDC, 7,154 average week-day entries in May Tenleytown-AU, 7,091 average week-day entires in May UDC, 422 bikeshare trips in October* Tenleytown, 224 bikeshare trips in October*	**2011 Community Target** 5% increase in WMATA and Capital Bikeshare ridership from 2010 baseline	/ Establish a committee that will review and explore shared shuttle programs with local institutions / From a group that tracks gaps and improvements on local side walks / bikeways and trails / Establish a Facebook page to facilitate car pooling / Conduct aggressive neighborhood promotions for "Bike to Work Day" and other alternate transportation options / Organize and support CAPA and other grassroot community efforts to improve pedestrian safety in the community	/ Use a shared shuttle for daily / occasional commuting / Request local business to install bike racks / Use alternate means of transportation at least once a week / Become a member of a car pool network / Support development initiatives encouraging walking, biking, shopping and working locally / Advocate for Bus Rapid Transit (BRT) and Streetcars

*Baseline data pulls October ridership only due to data availability.

Green Economics

Goal 8: Increase the Number and Quality of Local Green Businesses

Primary Indicators	Targets	Community Actions	Individual Actions
Number of certified green businesses **2010 Baseline** 0 locally certified businesses	**2011 Community Target** Initiate Green Business Program in 2010 and recommended 2011 certification target of 10	/ Create a list / directory of local green businesses / Create a community award / recognition program for local green businesses	/ Ask local markets to carry local / organic / fair trade food items / Support and shop at locally recognized green businesses / Obtain a local green business certificate

Green Social Capital

Goal 9: Expand the Community's 'Green Social Capital'

Primary Indicators	Targets	Community Actions	Individual Actions
Number of participants in NSIP Pilot activities Number of NSIP Pilot activities conducted **2010 Attendance/ participation** **Total 700 participants*** 400 during the 2009 and 2010 Expos 200 during 4 workshops 100 at the workgroup and TAC meetings **2010 Meetings/Activities** **Total 27 Meetings*** 2 Expos, 4 Workshops, 3 TAC Meetings 18 Workgroup Meetings * as of October 2010 ** attendance can be double counted and is estimated	**2011 Community Target** 100 Participants in workgroup-led activities 20 Workgroup-led meetings	/ Establish a Saturday Swap "Freecycle" facility using temporary urbanism opportunities / Create a resource that summarizes existing and promotes new sustainability curriculum / education opportunities available in neighborhood / Create new and improve existing community gardens / Educate / engage community through green journal / newspaper / website / Organize seminars showcasing community sustainability efforts and best practices / Create and interactive sustainability map to include farmers markets, compost piles etc.	/ Participate in neighborhood 'freecycle' program / Actively participate in the neighborhood community garden program / Subscribe to the NSIP newsletter, follow the Facebook page and keep up with the sustainability news / Become a member of a co-op

Figure 4.5 NSIP Sustainability Goals (DC Office of Planning and AECom, 2010b, 17-20)

During this phase of NSIP, volunteers chose five workgroups based upon their interests in the nine goals and were tasked with the implementation of action items (Limauro, personal correspondence, April 10, 2014). For example, Mr. Macgregor (personal correspondence, April 4, 2014) was specifically interested in energy and water goals. Mr. Boersma (personal correspondence, April 23, 2014) had never been involved with community level project and wanted to learn more; therefore, he chose to be part of the communications and marketing efforts. Mr. Wickham (personal correspondence, April 2, 2014) participated on an *ad hoc* basis when his schedule allowed time.

Mr. Boersma (personal correspondence, April 23, 2014) discussed successes and challenges he encountered during the implementation phase of NSIP. Under the "Green Economics" goal eight, a specific community action was to "create a community award/recognition program for local green businesses" (DC Office of Planning and AECom, 2010b, 19). The workgroup of volunteers began a project to design a badge that companies in ANC 3F could display within their business or on their products to indicate they were leaders in neighborhood energy conservation. This award designation would

offer an incentive over other types of "green labels" that already exist, because it is locally based and awarded. However, the challenge was implementing this and it ultimately came to a halt. He suggested that it was not easy to compare businesses to one another and develop an appropriate rating system without technical expertise.

Mr. Boersma (personal correspondence, April 23, 2014) described another initiative to fulfill the action item of creating a program to recognize local green businesses. The workgroup of volunteers decided to film a video to showcase local green initiatives. In this particular project, the goal was to recognize a condominium building built with progressive design techniques using solar power. This video would provide examples for other large residential buildings or commercial businesses looking to implement energy saving measures. However, the participants involved in creating and filming the video wanted to wait until the results of the project were produced. Despite their best effort, they never completed the production of the movie.

Mr. Boersma (personal correspondence, April 23, 2014) believes one of the most successful and tangible initiatives he produced as a member of a workgroup was the Green Living DC website. Although it was originally geared toward NSIP, the website has evolved into a robust site for community members. The creation of the website fulfilled a few of the community action sustainability indicators, such as "educate/engage community through green journal/newspaper/website" under "Green Social Capital" goal nine and "create a list/directory of local green businesses" under "Green Economics" goal eight. The website fulfilled numerous other goals as they added content to the site. For example, they included a pocket action guide on the website to provide resources to the community for all nine of the NSIP goals. Although the website changed domain names since NSIP evolved into Green Living, content has only be added - not removed. Mr. Boersma (personal correspondence, April 23, 2014) suggested that the website may be a better resource for the community than Green Living DC even realizes, because they have no way of tracking or measuring the success of this project.

Mr. Macgregor (personal correspondence, April 4, 2014) described a challenge the workgroups encountered in this phase of NSIP. He explained that DC Office of Planning expected citizens to take immediate action after the initial meetings to achieve their specific tasked goals. However, many citizens wanted re-zoning or cleanups in areas that

were privately own or operated by separate entities. For example, citizens wanted to build or upgrade existing tree planter boxes along the sidewalks in their neighborhoods. In many cases, the government or private entities own these properties and therefore the process was more complicated than merely installing planters. Essentially, he suggested that many of the ideas they had were not possible to achieve in the allocated time period.

As a full-time Neighborhood Planning Coordinator, Mr. Limauro (personal correspondence, April 10, 2014) knew how much work NSIP would be from the outset. Coordinating NSIP was his full time job in 2009. He believed that the nine goals chosen by the community presented too much work up front for individual volunteers. What is more, the workgroups each received multiple action items, which translated into multiple projects. Each workgroup organized itself around their three or four overlapping interests, so volunteers were able to work on projects that aligned with their interests. He suggested that the groups pare down the goals they originally chose. He suspected the only way the project would succeed is if many volunteers dedicated their time over the long-term and the workload was evenly distributed. He found that it was difficult to keep up momentum throughout the lifespan of NSIP.

As discussed in Chapter 2, Fraser et al. (2006) examined outcomes of an environmental management case study, concluding that in order for community sustainability indicator applications to be successful, they must quickly and formally feed into the planning process. After examining the timeline of NSIP, the development of visions, goals, and actions items was part of the formal planning process. However, the two-month gaps between meetings may have been too much time and ultimately contributed to the difficulty in maintaining momentum among volunteers.

Mr. Limauro (personal correspondence, April 10, 2014) shared another challenge regarding the nine goals and associated action items chosen by the community. Even as a city planner who had previously worked on projects involving similar subject matter, he still had to read technical reports in some of the categories because he was not well versed or professionally trained on the technical information concerning solar power or water quality, for example. He relied on the strong NGO partnerships for both their resources and guidance to the NSIP volunteers. He provided an example regarding goal five “Increase Water Quality in Neighborhood Streams” pertaining to stream

contamination: he wanted to test the water for only one contaminant to lessen the amount of data collection and volunteer time needed. However, he learned that each test was indicative of a larger pollutant so he was vetoed and subgroups tested the stream water for all five indicators.

Mr. Boersma (personal correspondence, April 23, 2014) echoed many of the ideas expressed by Mr. Limauro (personal correspondence, April 10, 2014). As a NSIP volunteer without any experience with these types of projects, he felt that the bar was set too high with the nine goals and associated action items. One subject shared his personal reflection on the groups' accomplishments, that it "was humbling how little the group accomplished over a five-year period." Mr. Boersma (personal correspondence, April 23, 2014) believed the main problem was that participants did not decide on a definition of success at the beginning of the project. Thus he identified tangible items as most successful, for example the website and the expo. He felt that, overall, the amount of NSIP goals the group actually tackled was low.

As Reed et al. (2006) discussed in Chapter 2, a hybrid of top-down and bottom-up paradigms in developing sustainability indicators is ideal. The Neighborhood Sustainability Indicators Project was a hybrid of both top down and bottom up paradigms. However, as Reed et al. (2006) mentioned in Chapter 2, a drawback of this method lies in the danger that indicators developed by participatory processes may not have the capacity to monitor sustainability accurately. In this case study, there were too many goals with insufficient manpower to implement actions and report on progress. Hybrid top-down and bottom-up paradigms should have a framework for sustainability indicators that establishes human and environmental contexts, sets goals and strategies, and selects indicators and indicator application by communities (Reed et al., 2006, see Chapter 2).

It is necessary to assess NSIP's framework according to the sustainability indicators outlined by Reed et al. (2006) in Chapter 2. The Green Your Home Expo in September 2009 established a human/environmental context and facilitated connections between citizens, stakeholders, NGOs, and local government. However, a thorough human/environment context was not developed until the baseline and final NSIP reports were generated in October 2010. These reports provided data on the neighborhood

demographics and environmental qualities of the neighborhood pertinent to the communities' vision of sustainability (see Chapter 3). Setting goals/strategies occurred during the visioning workshop and the goals and actions workshop. Identifying, evaluating, and selecting indicators and indicator application by communities was partially fulfilled during NSIP. The community identified and voted on the indicators, but they did not succeed in applying all the actions to achieve each goal.

NSIP and Green Living DC failed to measure progress continually towards sustainability indicator goals. Although, the subjects described the intentions versus challenges faced, the lack of data collection after October 2010 presents an enormous hurdle in the case study. The only way to understand progress made by the community is through subjects' accounts on Green Living DC activities and initiatives since the conclusion of NSIP. The framework introduced by Reed et al. (2006) was exercised throughout NSIP and community participation formally fed into planning processes, although arguably not quickly enough (Fraser et al., 2006, see Chapter 2).

A democratic process with DC Office of Planning Leadership established sustainability indicators during NSIP. However, because so many goals and action items were identified, the number of projects completed by both NSIP and Green Living DC remains low. Nevertheless, it is important to note that Green Living DC continues their work on both the expo, website, and sustainability initiatives. The following section will transition into the findings and associated discussion of community participation within the Green Living DC case study.

4.3 Community Participation

I will now analyze the Green Living DC case study using the criteria of community participation established in Chapter 2. These criteria include empowerment, partnerships, social capital, and volunteerism. I chose Green Living DC as the case study to answer the primary research question: *How does community participation contribute to the success of a local sustainability project?* as well as the secondary research question: *How does a project integrate community participation?* The next chapter presents answers to these questions and this chapter will address how community participation contributed to the success of the project. Each section will follow the

historical timeline of Green Living DC, with a broad focus on NSIP then transitioning to Green Living DC activities since the formal conclusion of NSIP.

4.3.1 Empowerment

Empowerment is the first assessment criteria of community participation. This section outlines how empowerment developed among community members throughout NSIP and Green Living DC and helps answer the secondary research question: *How does a project integrate community participation?*

Mr. Wickham (personal correspondence, April 2, 2014) described the initial visioning workshop on November 14, 2009 as civic participation working at the highest level. This workshop introduced the NSIP process to the community, including a review of sustainability basics. Residents reviewed existing conditions within the neighborhood and prioritized areas of concern, including green environment, mobility, green economics, and green social capital (DC Office of Planning and AECom, 2010b, 17-20). Through an interactive participation process, community members developed their shared vision of sustainability and initial goals to achieve that vision (DC Office of Planning and AECom, 2010b). Mr. Macgregor (personal correspondence, April 4, 2014) described this meeting as the most valuable piece of the NSIP process, introducing new ideas to community members. However, Mr. Boersma (personal correspondence, April 23, 2014) noted that folks were visibly on parallel tracks: those who were being paid for this work and those who were volunteers.

The goals and actions workshop was held at a local church in the neighborhood, Capital Memorial Church. This meeting presented a review of the vision, introduced the Technical Advisory Committee (TAC), and profiled the NSIP website. After this recap, a democratic process identified community actions that could support the neighborhood's sustainability goals. Residents participated in small group "brainstorming sessions" where they generated these action items (Boersma, personal correspondence, April 23, 2014). Following those sessions, residents reviewed all suggested actions and voted on priority actions (DC Office of Planning and AECom, 2010b). The following is a summary of the votes for each action/indicator:

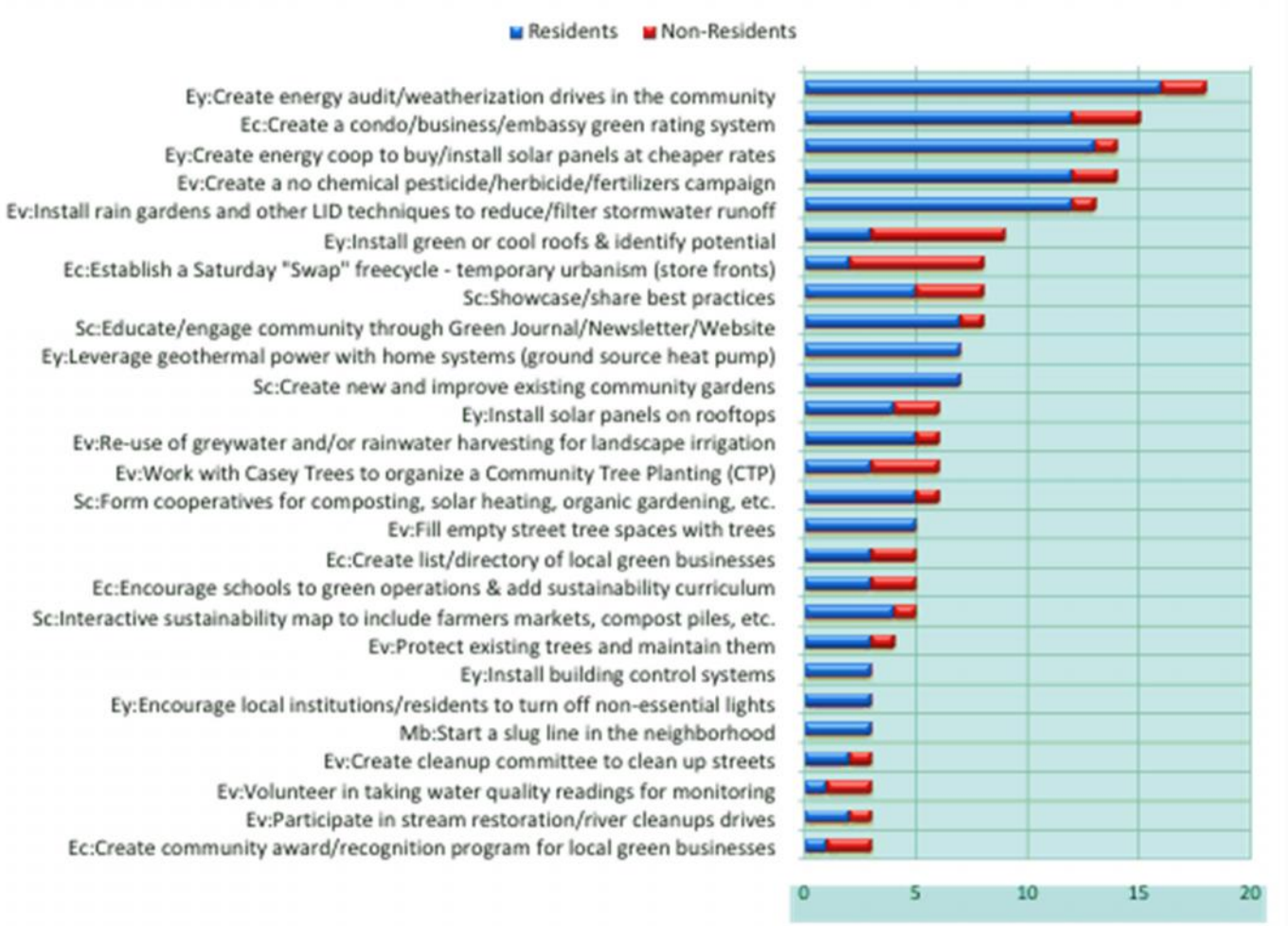


Figure 4.6 Action/Indicator Community Votes

The actions/indicators workshop focused on identifying sustainability indicators for the top actions identified at the previous meeting. The Neighborhood Sustainability Indicators Project offered an online voting exercise to collect additional input from residents who were not able to attend the meetings. The implementation kick-off meeting allowed residents to review the draft report, final indicators chosen, implementation and monitoring strategies. In this meeting, citizens were able to provide

feedback for inclusion in the final report (DC Office of Planning and AECom, 2010b). This meeting signaled the transition point in the project from high-level involvement of DC Office of Planning and stakeholders to residents and volunteers spearheading the sustainability initiatives.

As discussed in Chapter 2, NSIP and Green Living DC enable citizens to participate in a substantive and procedural democracy (Fainstein, 2000). The structure of NSIP allowed citizens to operate in a decision-making capacity (Fainstein, 2000, see Chapter 2). Citizens were able to directly influence outcomes of planning within their own neighborhood, which Fainstein (2000) argues is one of the greatest opportunities the democratic process provides (see Chapter 2). Green Living DC participates in a substantive and procedural democracy as well. For example, I attended a Green Living DC meeting in December 2013 where group members voted upon NSIP action items to tackle in 2014. Different group members take on leadership roles within Green Living DC depending on the time they have.

The Technical Advisory Committee was integral in the planning throughout NSIP and was indicative of the empowerment developed throughout this project. The committee consisted primarily of neighborhood residents, a representative from DC Office of Planning, District Department of the Environment, chairs of NSIP pilot workgroups, representatives from NGOs, and stakeholder/grassroots groups. The roles of the TAC included coordinating and approving the annual progress report, prioritizing sustainability activities in the community, liaising between volunteer citizens and city agencies, providing direction and guidance to NSIP subgroups, and acting as a resource for anyone interested in joining NSIP (DC Office of Planning and AECom, 2010b). The TAC was the driving force behind NSIP. The TAC was supposed to aid the DC Office of Planning in data collection for the NSIP annual progress reports, which were ultimately never created.

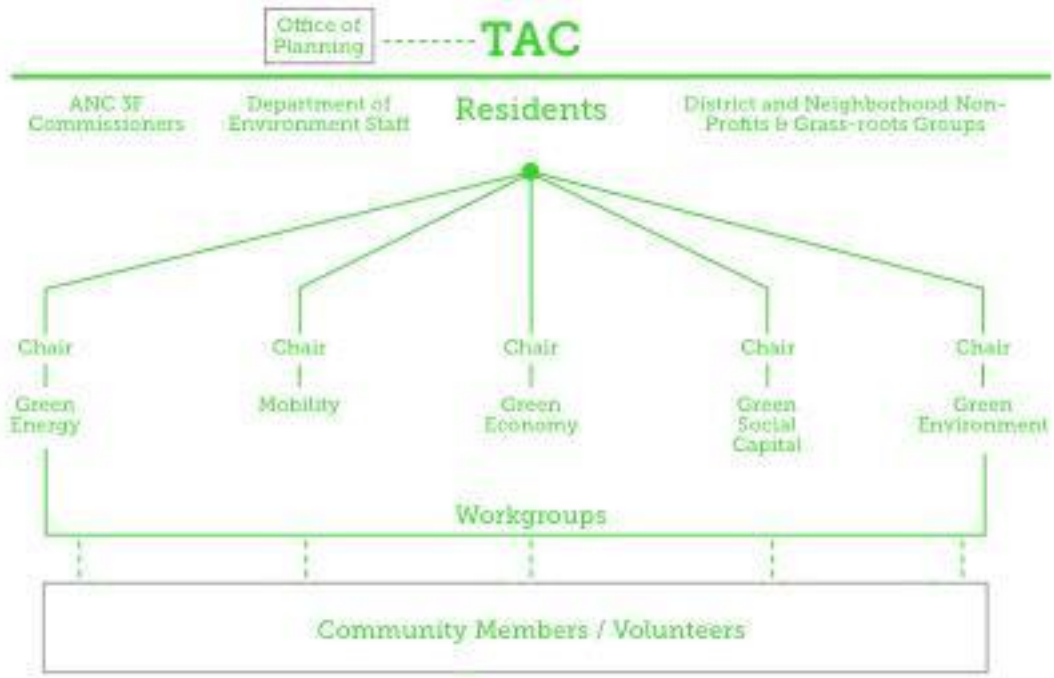


Figure 4.7 Technical Advisory Committee (DC Office of Planning and AECom, 2010b, 12)

Proactive empowerment developed among community members throughout NSIP and Green Living DC (Manzo and Perkins, 2006, see Chapter 2). Although leadership came from the top-down when NSIP was initially established, the formation of workgroups and execution of successful sustainability projects facilitated the development of empowerment. Figure 4.7 is a visual representation of the power structure of NSIP. The formation of Green Living DC was symbolic of the empowerment developed – volunteers were creating their own sustainability projects based upon the goals of NSIP and lessons learned.

Mr. Limauro (personal correspondence, April 10, 2014) described the framework he established in the beginning – to setup NSIP so citizens would pursue the action items they decided upon within their workgroups. In the beginning of the project, he attended all of the meetings. However, he eventually realized he was hindering the workgroup's productivity by attending these meetings. His presence affected the way the groups operated and the intended goal was for these workgroups to be self-sufficient. Figure 4.8 is a photograph of a workgroup meeting with Mr. Limauro in attendance. Ultimately, he

stopped attending the meetings altogether, but to this day he remains affiliated with the group members.

Figure 4.8 NSIP Green Energy Workgroup (DC Office of Planning and AECom, 2010b, 22)

As discussed in Chapter 2, Newman and Jennings (2008) believe it is the citizens' responsibility to generate changes they want within their own communities. The authors outline indicators of empowerment, including self-confidence of community members, capacity of a community to self-organize, understand and reflect on the current living environment, setting goals, developing and implementing plans, creating networks, communicating effectively, and evaluating outcomes of activities (Lopes and Rakodi, 2002 in Newman and Jennings, 2008, see Chapter 2). Although several of the indicators are difficult to "measure" in the traditional sense, based on individual interviews, I offer an assessment of these indicators within the Green Living DC case study following Newman and Jennings' (2008, see Chapter 2) indicators of empowerment:

- **Self-confidence of community members:** Green Living DC subjects were humble when discussing NSIP and Green Living DC's accomplishments.

However, they were knowledgeable about the community and the various initiatives they were each involved with respectively. All of the subjects were somehow involved in environmental work either voluntarily or professionally.

- **Capacity of a community to self-organize:** During NSIP, DC Office of Planning took the lead on organizing the project. Green Living DC is now led by volunteers who self-organize. However, the number of participants is low in comparison to the initial attendance of NSIP meetings.
- **Understand and reflect on the current living environment:** Green Living DC subjects have a deep understanding of the local neighborhood and the environmental factors at play. They have chosen to undertake specific projects based on community needs and group themselves in alignment with their interests.
- **Set goals:** An extensive number of goals were set during NSIP. Green Living DC has since pared down these goals to allocate more time to a fewer number of projects. The group seems to be moving at a faster pace by working towards fewer goals.
- **Develop and implement plans:** With guidance during NSIP, workplans were developed based upon the goals and associated action items surrounding sustainability. Green Living DC members continue to implement plans and revise goals according to what is achievable for a group of their size.
- **Create networks:** A formal network was built during NSIP. However, Green Living DC subjects had to build or maintain their own partnerships once the project concluded. Subjects expressed disappointment in the lack of a "formal" network among environmental initiatives city-wide.
- **Communicate effectively:** During NSIP, DC Office of Planning initiated communication via multiple channels, including the community and various stakeholders. Green Living DC communicates effectively among one another, with their partners, and occasionally with media sources. However, they do not communicate on a city-wide scale, only within their neighborhood boundaries.
- **Evaluate outcomes of activities:** Once NSIP concluded and measuring of sustainability indicators halted, the group focused more so on the expo instead of evaluating the outcome of sustainability initiatives. Within the last year, Green Living DC subjects have begun to track progress of some of their initiatives.

In summary, Green Living DC excelled in most of the empowerment indicators introduced by Newman and Jennings (2008, see Chapter 2). As an outsider attending a Green Living DC meeting and interviewing subjects, the strongest indicators of empowerment were self-confidence of community members and their capacity to self-organize. In December of 2013, the group was in a transitional phase of setting new goals and developing plans for 2014. Indicators in which the group could improve upon include creating networks and communicating effectively.

The presence of empowerment became apparent through the formation of Green Living DC. As McKnight (in Block, 2008, see Chapter 2) suggests, once citizens have the ability to identify and solve problems for themselves then the most sustainable improvements occur. Essentially the act of power is present in lasting community improvement and change (McKnight in Block, 2008, see Chapter 2). Ultimately, the five workgroups of NSIP consolidated into one workgroup of core TAC and volunteer members. These core members (roughly 10, depending on the timeframe) created Green Living DC (Macgregor, personal correspondence, April 4, 2014). Many of the subjects were unclear of the precise timeline of the transition from NSIP to Green Living DC. Mr. Macgregor (personal communication, April 4, 2014) cited 2011 as the official year for this transition, although he said it had probably informally taken place sometime before that. Green Living DC continues to operate in various capacities, often subgroups form within Green Living DC when various members have more or less time to devote to sustainability initiatives. Ms. Davis (personal correspondence, December 5, 2013) primarily focuses on the execution of the expo – which takes up the majority of her time. September of 2014 will mark the sixth expo for the group.

A common thread mentioned in many of the subject interviews related to the lack of funding once NSIP was over. The Green Living DC Meeting in December 2013, led to the consensus that the group pursue grant opportunities. Mr. Macgregor (personal correspondence, April 4, 2014) expressed passionately that many cities have funding for these types of projects, but on a city-wide scale. However, DC lacks this funding structure. Mr. Macgregor (personal correspondence, April 4, 2014) stated that community groups need resources for these projects to get off the group, which NSIP provided to Green Living DC, if only for a short span of time. This is not a unique

problem; environmental organizations across the nation rely on volunteers to carry out their work due to the lack of funding and resources (Ryan et al., 2001, see Chapter 2). As discussed in Chapter 2, indicators of empowerment include self-confidence of community members, capacity of a community to self-organize, ability to understand and reflect on the current living environment, set goals, develop and implement plans, create networks, communicate effectively and evaluate outcomes of activities (Lopes and Rakodi, 2002, in Newman and Jennings, 2008). All of the identified indicators were exhibited to some degree within the Green Living DC case study, however some stronger than others. McKnight advocates for communities to focus on gifts – what people *can* do versus *cannot* do – and draw upon the collective strength of the group (Block, 2008; see Chapter 2). Green Living DC focuses on gifts, allocating time towards the expo and smaller sustainability goals of interest – requesting that group members participate as time allows.

Manzo and Perkins (2006, see Chapter 2) argue that empowerment illustrates the connection between place attachments, social capital, and action. Place attachments, place identity, and sense of community provide a deeper understanding of how local spaces motivate ordinary residents to take action to protect these spaces and thus participate in local planning processes (Manzo and Perkins, 2006, see Chapter 2). However, the authors believe a gap in the literature exists surrounding place attachment playing a role in the planning process. It is also noteworthy that NSIP fostered proactive empowerment whereas most often environmental projects are jumpstarted because of environmental problems, or reactive empowerment.

During an individual interview, a Green Living DC subject shared a story symbolic of the empowerment gained over the course of NSIP and Green Living DC's initiatives. The subject had begun to meet with local elected officials whom he had befriended through his work on NSIP. This was a mutually beneficial, as he was able to inform the local DC official of sustainability initiatives and where assistance was needed. In turn, the official could share local priorities for the subject to relay back to the Green Living DC group (personal correspondence, April 4, 2014).

The operating framework of NSIP coupled with the TAC, which had equal say in the project alongside local government officials and stakeholders, enabled the citizens to

build empowerment. Unfortunately, participation declined over time, as I will describe in later sections of this chapter. However, the core group of Green Living DC is operating at a high level based upon the empowerment that emerged at the earliest stages of NSIP. The following section will discuss partnerships as an assessment criterion of community participation.

4.3.2 Partnerships

Partnerships is the second assessment criterion of community participation within this study. This section outlines how partnerships formed among volunteers, DC Office of Planning, and stakeholders – and how partnerships were built throughout NSIP and Green Living DC – to answer the secondary research question: *How does a project integrate community participation?*

Once NSIP was an official project of DC Office of Planning, Mr. Limauro (personal correspondence, April 10, 2014) began cold calling potential stakeholders and NGOs in the ANC 3F neighborhood. He also began attending pre-existing meetings so he could reach a larger audience of citizens in the neighborhood. Mr. Macgregor (personal correspondence, April 4, 2014) described his initial introduction to the project, as he was not a resident of ANC 3F. Mr. Limauro recruited him to serve on the TAC because they knew each other through Politics & Prose initiatives (a local bookstore that founded Politics and Prose Climate Action Project). Mr. Wickham (personal correspondence, April 2, 2014) described a similar relationship with Mr. Limauro, having met him through Politics & Prose initiatives where Mr. Limauro spoke of this project and made a presentation to the Saint Columba Parish community members about NSIP. Both of these members joined the TAC because of their like interests versus geographical proximity as they were not direct residents of ANC 3F.

The various stakeholders became involved by either serving on the TAC or participating in the 2009 expo. Though not an exhaustive list, the members of the TAC represented:

- Friends of Rock Creek Environment
- American University
- Essex Condo Board

- Forest Hill Citizens Association
- Wholeness for Humanity
- Politics and Prose Climate Action Committee
- Saint Columba 's Episcopal Church
- OPX Principal
- Casey Trees
- IONA Senior Services Pedestrian Initiative
- District of Columbia Department of Transportation.

(DC Office of Planning and AECom, 2010b)

Nearly half of the TAC members representing the various stakeholders listed above were also residents of ANC 3F. Mr. Limauro (personal correspondence, April 10, 2014) chose these specific stakeholders and NGOs to rely on them for strong partnerships and resources they could offer during NSIP. As mentioned in the previous section, he structured NSIP so that workgroups would be self-governing with the hope that they would use these members of the TAC for their technical expertise and guidance during the implementation of various sustainability projects.

Mr. Limauro (personal correspondence, April 10, 2014) viewed these partnerships differently than the rest of the subjects did. Mr. Boersma (personal correspondence, April 23, 2014) explicitly stated he would not consider these relationships "partnerships" but rather exhibitors in the expo. He specified the Friends of Rock Creek Environment as a resource in offering guidance when planning the local river cleanup. The ways in which DC Office of Planning and the NSIP participants viewed these stakeholders and NGOs differed. DC Office of Planning intended for NSIP participants to use NGOs as a resource through formalized partnerships once NSIP concluded. However, it was apparent through subjects' interviews that they considered their relationship with the majority of the NGOs in the context of the expo and did not extend that to requesting technical guidance or assistance with sustainability projects.

Within Chapter 2, Newman and Jennings (2008) discuss *cooperative partnerships* as being comprised of: sharing of power, trust, effective communication, shared/complementary visions and goals, symbiosis, and adequate resources. These traits were exhibited in the relationship between the DC Office of Planning partnerships

and community members. Newman and Jennings (2008, see Chapter 2) describe the primary challenge in forming partnerships *between* businesses, government and community to overcome professional silos. While these elements of a cooperative partnership existed between DC Office of Planning and stakeholders, it was not strongly demonstrated between the community members and stakeholders. Drawing from individual interviews with Green Living DC subjects, I offer an assessment of Green Living DC's cooperative partnerships based upon Newman and Jennings' (2008, see Chapter 2) criteria:

- **Sharing of Power:** During NSIP, the formation of the TAC allowed for sharing of power among community members, DC Office of Planning and District Department of the Environment representatives, stakeholders, and NGOs on the committee. Each TAC member fulfilled a leadership role. However, each person had an equal input through procedural democracy during NSIP (Wickham, personal correspondence, April 2, 2014). Now Green Living DC operates as a single volunteer-based group, where members share power with various partners including UDC, SEU, and Friends of Rock Creek Environment, depending upon projects they are implementing at the time (Davis, personal correspondence, December 5, 2013 and Macgregor, personal correspondence, April 4, 2014).
- **Trust:** The leaders of NSIP who initially spearheaded the project were well respected within ANC 3F. Trust was built among the NSIP community members over time – especially with representatives from DC Office of Planning. A few local NGO leaders also served on the TAC, so trust was built through this relationship as well. Because this project was goal based, everyone involved was working towards common interests and therefore open to building trust (Wickham, personal correspondence, April 2, 2014).
- **Effective Communication:** During NSIP, local government, volunteers, and stakeholders engaged in inclusive communication via multiple channels. However, once NSIP concluded, communication between volunteers and NGOS/stakeholders slowed considerably without facilitation from DC Office of Planning and District Department of the Environment (Boersma, personal correspondence, April 23, 2014). Now, Green Living DC communicates primarily via email and in-person meetings once every month or two. However, their communication is targeted to those directly involved with their specific projects

and does not include citizens of ANC 3F or other volunteer-based environmental groups. Subjects consider the lack of a wider communication network a failure and are working to expand communication efforts moving forward (Davis, personal correspondence, December 5, 2013).

- **Shared Complementary Visions and Goals:** Everyone involved in NSIP had input on the visions and goals throughout the entirety of the project. However, after the project officially ended, volunteers were tasked with carrying out the specific goals while DC Office of Planning and NGOs would serve as resources. Annual reports were to be published on progress towards goals. These annual progress reports were never published other than the initial data collected in October 2010 for baseline reports (Limauro, personal correspondence, April 10, 2014). It is also important to note that no definition of "success" was clearly established. However, Green Living DC continues to work on various initiatives based upon their shared vision and goals within the group (Boersma, personal correspondence, April 23, 2014).
- **Symbiosis:** Mutually beneficial relationships developed under the NSIP umbrella. Citizens could make improvements in their neighborhood with official assistance from the local government and NGOs. The Neighborhood Sustainability Indicators Project required community participation and promoted shared goals of local NGOs and stakeholders. Once Green Living DC was on its own to implement sustainability projects, it was more difficult to build one-off relationships with NGOs. There seems to be a breakdown in symbiosis once citizens were spearheading the sustainability projects without local government involvement (Boersma, personal correspondence, April 23, 2014). The relationship between NGOs and volunteers was not as strong as DC Office of Planning had intended, and citizens did not use "outside" expertise beyond the annual expo and river cleanup efforts (Limauro, personal correspondence, April 10, 2014). Nevertheless, Green Living DC members did continue to build their own partnerships with UDC and SEU, for example.
- **Adequate Resources:** Initially NSIP was fully funded, with allocation of staff time from the local government. This attracted to the project stakeholders and NGOs whose goals aligned with NSIP. Community participation was exercised through volunteer time. The projects chosen by the community received adequate resources and money was also raised through sponsorship. For

example, Chipotle restaurant sponsored one of the Soapstone River Cleanups. Once NSIP funding ceased, less volunteers remained dedicated to the efforts. Green Living DC has no full-time employed staff and is now seeking grants to fund various projects they have down the pipeline. Current technical resources available to the group continue to come from NGOs and stakeholders (Davis, personal correspondence, December 5, 2013 and Macgregor, personal correspondence, April 4, 2014).

A common thread between the many of the subjects interviewed was the strength in the partnership with UDC. Mr. Boersma (personal correspondence, April 23, 2014) explicitly stated that one of the most successful outcomes of NSIP was the UDC partnership. Mr. Macgregor (personal correspondence, April 4, 2014) said when community participation is tied to formal organizations it gives the project a longer lifespan, specifically referencing UDC, DC Office of Planning, SEU, Casey Trees, and Friends of Rock Creek Environment. Ms. Davis (personal correspondence, December 5, 2013) discussed the way Green Living DC uses UDC as a hub for meeting space and it also uses students' skills as a resource for planning the DC Green Expo. The new dean at UDC made sustainability a priority and values Green Living DC's work, having a staff member attend each meeting. Ms. Davis (personal correspondence, December 5, 2013) stressed that UDC partnership was key to the group's success.

Building these partnerships through NSIP and beyond was not without its challenges. Mr. Limauro (personal correspondence, April 10, 2014) provided a tangible example of a challenge he encountered while building partnerships. He contacted Van Ness Vision Committee, a local group working on sustainability projects, as a prospect for potential partnership opportunities. However, they ultimately did not participate in NSIP because the projects did not fall directly within their neighborhood boundaries. As Newman and Jennings (2008) discuss, professional silos form and, in this case, groups operated according to strict neighborhood boundaries versus common interests (see Chapter 2).

The operation of stakeholders and NGO efforts are often disjointed, as Ms. Davis observed (personal correspondence, December 5, 2013). She expressed concern over neighborhood projects being disjointed and lacking a "formal" network. Sorensen (2010, see Chapter 2) argues that networks create a more efficient way of gathering and

distributing data; local groups working together can learn from one another and share resources instead of potentially replicating efforts. As a citizen, Ms. Davis often acts as a liaison between groups, sharing stories of projects and efforts underway by various stakeholders, most of who have no idea what projects are underway in adjacent neighborhoods.

Mr. Wickham (personal correspondence, April 2, 2014) and Mr. Macgregor (personal correspondence, April 4, 2014) both referenced DC Office of Planning leadership. They regarded Mr. Limauro as a well-respected leader within the community. Mr. Macgregor (personal correspondence, April 4, 2014) cited that the strong connection from DC Office Planning was critical to the success of NSIP. He believes that partnerships with community groups and strong leadership are vital pieces of environmental sustainability projects.

Many of the partnerships developed through NSIP and Green Living DC were successful due to the value of local knowledge. Volunteers within the community acted as *citizen scientists*, working *with* expert planners and scientists, not in place of them (Corburn, 2003). The success of the partnerships formed can be seen in the network of citizens who remain committed to Green Living DC, and the network's capacity to build and leverage these relationships with the evolving needs, interests, and connections to be made (Sorensen, 2010, see Chapter 2).

Corburn (2003, see Chapter 2) outlines four ways local knowledge can improve planning: epistemology, procedural democracy, effectiveness, and distributive justice. Based on individual interviews with Green Living DC subjects, I offer an assessment of local knowledge within the Green Living DC case study following Corburn's (2003) categories:

- **Epistemology:** Green Living DC members are currently working with SEU to improve energy usage in corporate and condominium buildings. They are filling in data gaps in partnership with the NGO and hope to report on these findings. This will broaden the current knowledge base and contribute to environmental policy (Wickham, personal correspondence, April 2, 2014).

- **Procedural Democracy:** Both NSIP and Green Living DC operate using procedural and substantive democracies. The Neighborhood Sustainability Indicators Project votes on all major decisions. Green Living DC has followed suit, all members vote on goals and initiatives. The Neighborhood Sustainability Indicators Project was more inclusive of any community member who wanted to participate. Green Living DC, on the other hand, is a smaller group more focused on depth of sustainability projects versus recruiting new members. The way Green Living DC operates sets an example for the way procedural democracy can improve planning in practice (Wickham, personal correspondence, April 2, 2014).
- **Effectiveness:** During NSIP, members of the community gave input into their vision of sustainability for ANC 3F and projects to implement. This strategy of setting goals and action items valued a bottom-up process. Although the community set too many goals to accomplish given the amount of volunteers carrying out the work, they were able to make progress. Green Living DC has since outlined a fewer number of sustainability goals and prioritized projects that will benefit their local community (Macgregor, personal correspondence, April 4, 2014).
- **Distributive Justice:** NSIP was an inclusive project that encouraged participation from anyone interested within the neighborhood. Thus, the projects chosen and subsequently implemented were for everyone's benefit. The TAC was comprised of citizens, business leaders, NGO representatives, and local government officials – thus representing the neighborhood population. Because everyone had an equal vote in the decision-making process, goals, and action items were not skewed to the benefit of one group in particular (Wickham, personal correspondence, April 2, 2014).

Partnerships have grown and evolved over time through NSIP and on to Green Living DC. Overall, partnerships developed between DC Office of Planning, stakeholders, and citizens of the community. However, strong partnerships between citizens and stakeholders and NGOs to provide mutual resources did not emerge (Boersma, personal correspondence, April 23, 2014. Nevertheless, members of DC Green Living are now seeking out their own partnerships with new sustainability efforts underway in ANC 3F (Wickham, personal correspondence, April 2, 2014 and Macgregor, personal

correspondence, April 4, 2014). The following section will address social capital as an assessment criterion of community participation.

4.3.3 Social Capital

Social Capital is the third assessment criterion of community participation within this study. This section outlines how social capital was built among volunteers, DC Office of Planning, and stakeholders – and continues to evolve throughout NSIP and Green Living DC to answer the secondary research question: *How did the project integrate community participation?*

Green social capital emerged as one of the goals through the NSIP process, defined as spreading awareness, recognizing local sustainability champions and sharing success stories to foster social cohesion and implement successful sustainability programs (DC Office of Planning and AECom, 2010b, 13). According to the Pilot Project Draft Baseline Report:

> The Green Social Capital workgroup arose from the community's interest in spreading awareness, sharing knowledge, and recognizing the numerous local sustainability champions and their success stories. Although as a community, ANC 3F is fairly well informed about sustainability, it needs to coordinate its collective knowledge and interest in sustainability to fully support the community's sustainability priorities. A goal of creating and expanding its green social capital helps residents foster social cohesion and ultimately implement successful sustainability programs.
>
> (DC Office of Planning and AECom, 2010a, 31)

According to the report, residents voted on measures of social capital and they recorded the number of participants who attended NSIP activities and meetings. They set measures for 2011, which included 100 participants in workgroup-led activities and 20 workgroup-led meetings, based upon the baseline data for 2010. However, because DC Office of Planning and AECom generated no annual progress reports after the October 2010 baseline reports were published, formal records on social capital do not exist within the group after this time.

Mr. Wickham (personal correspondence, April 2, 2014) suggested that perhaps more valuable than the sustainability initiatives was the social capital created from NSIP. He believes that while many of the sustainability goals were not met over the long term, building social capital has been invaluable. However, he expressed frustration in quantifying this over time. The majority of the subjects did not speak in-depth about the topic of social capital, they often mentioned it was difficult to measure and were humble regarding praise surrounding this accomplishment.

Mr. Limauro (personal correspondence, April 10, 2014) spoke of social capital during the implementation phase of NSIP. As discussed in the previous section on locality, this neighborhood was chosen for the pilot study because of its active citizens, neighborhood associations, and demonstrated commitment to sustainability plans in the past (DC Office of Planning and AECom, 2010b). However, in hindsight Mr. Limauro would have chosen an area with *more* established community groups, because in 2009 ANC 3F had weak social capital. He cited challenges in creating a coalition out of nothing. He also shared his unique perspective that most participants throughout NSIP and within the workgroups were not engaged even when present in meetings (Limauro, personal correspondence, April 10, 2014). However, it is important to note that he stopped attending meetings after the conclusion of NSIP, so he could only speak to the social capital within a certain timeframe.

Mr. Boersma (personal correspondence, April 23, 2014) believes the main failure regarding NSIP was the failure to *genuinely* involve the community at large. He believes that the community as a whole does not view sustainability and environmental concerns as an "emergency," which lead to the unfortunate results: projects like NSIP do not receive the attention they are due. Mr. Limauro (personal correspondence, April 10, 2014) echoed this idea in a different light, stating that often in community meetings citizens are on the defensive but when discussing sustainability, it is proactive conversation. Therefore, concerning social capital, progress has been made through expanding the conservation around sustainability within ANC 3F.

Mr. Macgregor (personal correspondence) echoed ideas expressed by Mr. Boersma, citing a failure of the group to engage universities, as there are numerous institutions

within close proximity to the neighborhood. He expressed his disappointment in not involving additional institutions such as Catholic University, American University, George Washington University – particularly because many have strong environmental and sustainability programs.

The subjects viewed social capital as quantifiable in the number of participants, yet it is more complex within the case study. They did not recognize the social capital built since Green Living DC has formed and the resulting networks that have developed. As discussed in Chapter 2, NSIP and Green Living DC exhibit the *synergy view*, which acknowledges dynamic professional alliances and relationships between and within state bureaucracies and various civil society actors. Essentially, social capital exists as a mediating variable shaped by public, society, and private institutions (Woolcock and Narayan, 2000, see Chapter 2). Falk and Kirkpatrick (2000, see Chapter 2) argue even connections made between micro-level social interactions have the potential to be agents of change. The authors argue that social capital cannot be measured in the traditional sense because often the whole is greater the sum of its parts, so to speak. Essentially, social capital does not exist in a vacuum and thus cannot be measured as such.

Social capital is difficult to measure, aside from number of participants, as was identified as the measurement criteria of this goal within the Pilot Project Overview Report (DC Office of Planning and AECom, 2010b). While attendance has declined over the years, strong networks have formed between core members of Green Living DC and the surrounding community. It appears that stronger social capital exists than participants directly involved in these projects even realize. The following section will address volunteerism as assessment criteria of community participation.

4.3.4 Volunteerism

Volunteerism is the fourth assessment criterion of community participation within this study. This section outlines how volunteerism is an integral part of this case study – and continues to evolve throughout NSIP and Green Living DC – to answer the secondary research question: *How does a project integrate community participation?*

Mr. Macgregor (personal correspondence, April 4, 2014) spoke of the evolution of NSIP volunteer efforts over time. For instance, at the initial meeting attendance was high with nearly 75 citizens. However, over time volunteer participation dropped off to roughly 10 volunteers at any given time. Consequently, those who remained dedicated to the project consolidated into one workgroup instead of the original five workgroups. The meetings also transitioned from public forums to residents' homes. DC Office of Planning reported the following statistics regarding NSIP participation:

2010 Attendance/Participation: 700 participants (400 during the 2009 and 2010 expos, 200 during 4 workshops and 100 at workgroup and TAC meetings)

2010 Meetings/Activities: 27 meetings (2 expos, 4 workshops, 3 TAC meetings, 18 workgroup meetings).

(DC Office of Planning and AECom, 2010b, 20)

Within the joint report from AECom and DC Office of Planning, attendance can be double counted and estimated (DC Office of Planning and AECom, 2010b). Therefore, the reporting on participation differs between the subjects' accounts and the report officially generated on NSIP. Overall, the official report reflects a higher participation rate than the subjects' accounts of estimated NSIP volunteer participation.

Penner (2002, see Chapter 2) outlines four salient attributes of volunteerism: longevity, planfulness, nonobligatory helping, and organizational context. Based on individual interviews, I offer an assessment of these attributes within the Green Living DC case study following Penner's (2002) categories:

- **Longevity:** NSIP offered planning-based volunteer opportunities over a one-year period and continued to offer successive volunteer opportunities on sustainability projects thereafter. However, the yearlong planning process that led to individual sustainability projects may have been too long. Said differently, the cost of the project may have been too great up front with not enough benefits for volunteers. Green Living DC now operates on a smaller scale, with long-term projects in their pipeline.

- **Planfulness:** Generally volunteers carefully consider opportunities by weighing both costs and benefits of engagement. The structure of the NSIP allowed community members to plan their involvement accordingly. However, Green Living DC operates in a different fashion, which may be why they have a smaller number of volunteers.
- **Nonobligatory Helping:** NSIP offered opportunities for volunteering without obligation. Therefore members of the community were not required to attend NSIP meetings but rather showed up by choice. However, this project was unique in that those benefitting from NSIP were not strangers but ultimately the volunteers themselves. Green Living DC is now structured to allow volunteers freedom of participation, if their work or family life becomes more time consuming they can curtail their involvement accordingly.
- **Organizational Context:** NSIP provided an organizational setting in which community members were able to volunteer their time. However, this structure changed in October 2010 when the project switched gears – into the phase of community members spearheading sustainability projects. The lack of a formal structure during this time most likely led to the formation of Green Living DC. However, the number of volunteers also declined throughout time, which may be attributed to the change in organizational structure of the project.

Mr. Limauro (personal correspondence, April 10, 2014) expressed his views as to why NSIP volunteer participation declined over time, suggesting the amount of work needed on the project scared many of the volunteers away. Each of the subjects interviewed cited the decline of participation throughout the project's lifespan. Mr. Boersma (personal correspondence, April 23, 2014) explained that volunteers were hard to manage, and NSIP tended to be the first project dropped when work or family life was busy. Mr. Wickham (personal correspondence, April 2, 2014) cited volunteer burnout as a major problem throughout NSIP. Ms. Davis (personal correspondence, December 5, 2013) explained that volunteers faced many challenges from the outset, the primary challenge being the lack of time to allocate to NSIP. Mr. Macgregor (personal correspondence, April 4, 2014) shared his view that projects, such as NSIP, are more difficult than one might imagine and the burnout rate is particularly high. He believes this model will work when people have appropriate time and energy to invest over the long term.

Sharpe and Conrad (2006, see Chapter 2) discuss community based monitoring as collaboration between government, industry, academia, and community groups to track and respond to issues of common community concern. They mention benefits of this model, including community members taking the lead in collecting and using data to promote informed decision-making. The Neighborhood Sustainability Indicators Project was modeled broadly around this idea, however as the project took shape data collection was allocated to AECom and DC Office of Planning. Sharpe and Conrad (2006, see Chapter 2) argue that, for this model to work, community groups must have adequate resources and regular training of staff and volunteers. As NSIP concluded and transitioned into Green Living DC, resources were no longer readily available to volunteers and training was not provided. We cannot assume that because collaboration efforts existed under NSIP, continued access to scientific expertise in data collection and interpretation procedures would always be available.

An example of community based monitoring with collaboration occurred when the community tested water quality of their local Soapstone tributary and implemented river cleanup activities based upon their findings. They worked with local NGOs, using them for project guidance and resources. The river cleanup efforts continue today, however this project and ones like it would benefit from a formalized network *between* groups engaging in these types of projects (Sharpe and Conrad, 2006, see Chapter 2). Green Living DC has yet to reach out to other local groups to formalize this network.

Mr. Wickham (personal correspondence, April 2, 2014) believes NSIP did not continue on its trajectory because too much of the work fell on too few people. Volunteer burnout is often a challenge in implementing projects like these – as is inconsistent funding that causes data fragmentation (Sharpe and Conrad, 2006, see Chapter 2). Even within this study, one of the subjects I interviewed retired from their Green Living DC duties. Ultimately, adequate resources and a formalized network between local groups would benefit Green Living DC moving forward.

Chapter 5 will offer recommendations based upon the assessment of volunteerism within the Green Living DC case study. The next section analyzes the case study against Arnstein's Ladder of Participation (1969), which Chapter 2 introduced.

4.4 From Arnstein's Ladder of Participation to Optimum Participation

Arnstein's Ladder of Participation (1969, see Chapter 2) is one of the most well-known typologies of participation, navigating degrees and kinds of participation. The ladder is comprised of eight rungs, citizen control being highest and manipulation categorized as nonparticipation being the lowest. Arnstein (1969, see Chapter 2) groups citizen participation in three general categories within the "ladder:" nonparticipation, degrees of tokenism, and degrees of citizen power.

I chose Arnstein's Ladder of Participation (1969, see chapter two) as a starting point to examine community participation within the Green Living DC case study. Analyzing the case study against the ladder, NSIP skipped the first two levels of nonparticipation and began at the informing and consultation rungs of the ladder, or what Arnstein classifies as degrees of tokenism. DC Office of Planning and DC Department of the Environment kicked off NSIP with the expo, educating the community about sustainability opportunities within their neighborhood and green services readily available. Throughout the next year, they guided the NSIP efforts, seeking to expand participation through in-person and online efforts. Cornwall (2008, see Chapter 2) offers a critique these rungs, criticizing development organizations that "promote participation" by focusing on disseminating information and consultation as their only form of participation in practice. Said differently, she argues that these groups have already made decisions, and citizen participation is only practiced as a formality and ultimately has no real effect on decision-making.

Cornwall's (2008, see Chapter 2) critique is a cautionary one, acknowledging that participation cannot be accepted at face value. However, in the Green Living DC case study, the informing and consultation rungs were, in my opinion, honest attempts in mutual education between citizens, local government, and stakeholders. Information flowed back and forth between those involved with the hope of empowering members of the community. For example, local knowledge had value equal to the knowledge of experts with whom the community worked (Corburn, 2003, see Chapter 2).

Moving upwards on Arnstein's Ladder of Participation (1969, see Chapter 2), partnerships, delegated power, and citizen control are rungs classified as citizen power. Within NSIP, partnerships were nurtured and power was delegated among various people. For instance, volunteers were tasked with implementing sustainability projects after the official conclusion of NSIP in October 2010. DC Office of Planning and AECom took the lead on publishing annual follow-up reports on progress towards goals after aggregating data on various sustainability indicators. Ultimately, annual progress reports were never published and only a handful of sustainability projects were completed from start to finish, leaving gaps in the ladder.

Green Living DC would technically be classified as citizen control on Arnstein's Ladder of Participation (1969, see Chapter 2). However, through the transition from NSIP to Green Living DC, dynamics of the group changed throughout the years. For instance, DC Office of Planning became less involved in the group's sustainability projects, as did the majority of NGOs. Green Living DC went on to form their own partnerships and delegate power internally among their volunteers. Again, this leaves gaps in the ladder, raising questions about whether citizen control is really achieved if partnerships with NGOs are lacking. Connor (1998, see Chapter 2) offers a critique of Arnstein's ladder (1969), citing the lack of logical progression of citizen participation from one level to the next, or the range of participation that exists in practice. In reality, the Green Living DC case study would require many additional rungs in the ladder. To this end, participation would fall in different places within the ladder depending upon the time and place in the history of various sustainability initiatives.

Cornwall (2008, see Chapter 2) unpacks Arnstein's typology of citizen participation. Arnstein's ladder (1969) views participation from the receiving end, and boils participation down to power and control. The ladder defines a shift from control by authorities to control by people or citizens. However, when put into practice, community participation cannot fit into "tidy" categories. Multiple rungs of Arnstein's ladder were present at once or rungs were skipped, depending on the historical timeline of the Green Living DC case study. Cornwall (2008) elaborates upon community participation in practice:

> In practice, all of the forms and meanings of participation identified in the kind of typologies referred to here may be found in a single project or process, at different stages. The distinctions that typologies present as clear and unambiguous emerge as rather more indistinct. Indeed, the blurring of boundaries is in itself a product of the engagement of a variety of different actors in participatory processes, each of whom might have a rather different perception of what 'participation' means.
>
> (Cornwall, 2008, 274)

Arnstein's Ladder of Participation (1969, see Chapter 2) was a starting point in typologies of community participation within this study. The ladder is widely known and respected regarding citizen participation. However, after examination of the case study against the ladder it became increasing clear that participation could not be categorized in this manner. In doing so, this would only contribute to the "silo approach" in practice, which is one of the primary reasons for undertaking this study (Block, 2008, see Chapter 2). Thus Cornwall (2008, see Chapter 2) introduces a realistic framework for participation, *optimum participation*, which seeks to balance depth with inclusion. Participation cannot involve everyone and often inclusion involves predetermined categories of stakeholders whose views represent others of their kind. Lumping together groups of stakeholders provides operational advantages, but these groups do not exist in social isolation. Context is vital to community participation and understanding this dimension of a project is necessary when exercising optimum participation (Cornwall, 2008, see Chapter 2).

4.5 Conclusion

This chapter identified the study's research findings and analyzed them against the assessment criteria established in Chapter 2. The first part of Chapter 4 discussed the assessment criteria of environmental sustainability and associated findings. The second part of this chapter discussed the assessment criteria of community participation and associated findings. The findings indicate progress in each of the criteria, but the initial goals of NSIP were much too large to tackle considering the volunteer base. Green Living DC continues work on sustainability initiatives but progress has slowed considerably since the conclusion of NSIP and the loss of formal involvement of local

government and stakeholders. The following section offers a summary of the findings discussed in this chapter. Chapter 5 will address optimum participation within the Green Living DC case study, conclusions, recommendations and limitations of this study.

4.6 Summary Table

Integrated Framework	Secondary Research Questions	Assessment Criteria	Summary of Research Findings
Sustainability	How does a project achieve environmental sustainability?	• Locality • Human, nature and economic interdependence • Sustainability indicators	• **Locality:** Community, local government, DC Office of Planning, NGOs and local stakeholders had a direct impact in ANC 3F through local projects. • **Human, nature and economic interdependence:** NSIP and Green Living DC Projects that integrated all three factors were most successful. • **Sustainability indicators:** NSIP achieved a low number of sustainability goals; formal data collection ended in 2010 despite the promise of annual progress reports. Green Living DC has recently initiated new sustainability project goals and data collection efforts.
Community Participation	How does a project integrate community participation?	• Empowerment • Partnerships • Social capital • Volunteerism	• **Empowerment:** The TAC and core members of NSIP used democratic decision-making processes that have enabled empowerment. Lack of a formal network exists between local groups. • **Partnerships:** Formed between DC Office of Planning, citizens and stakeholders but specifically lacking between citizens, NGOs and stakeholders. Cooperative partnership between Green Living DC and UDC. • **Social Capital:** Difficult to measure, attendance has declined but networks have formed among Green Living DC members and the community. • **Volunteerism:** Volunteer rates were initially high and dropped off significantly throughout NSIP and Green Living DC. Green Living DC's core members have remained dedicated since 2009, taking the lead in collecting data to make informed decisions about their projects.
	What may we learn from the Green Living DC case study for future practices?	• Green Living DC case study	• Adequate resources, training and formal networks are needed to give projects life. • Optimum participation is the framework goal, with cooperative partnerships not only with local government but NGOs as well.

Chapter 5: Conclusion and Recommendations

5.1 Introduction

This study explored how community participation contributed to the success of a local sustainability project. This study used an integrated framework outlined in Chapter 2 of this study, based upon the review of relevant literature surrounding sustainability and community participation. I established associated criteria in order to analyze the case study and provide answers the primary and secondary research questions. In the previous chapter, I introduced and analyzed the research findings of this study in relation to the research questions.

This chapter will synthesize the research findings introduced in Chapter 4. The first half of this chapter will provide answers to the primary and secondary research questions, based upon the assessment of the Green Living DC case study against the criteria established in Chapter 2. The second half of this chapter will put forth recommendations concerning sustainability and community participation. The recommendations in this chapter will be useful for local NGOs implementing environmental sustainability projects. Although NGOs are the target group for the recommendations in this chapter, lessons learned are pertinent to anyone involved in translating these theories into practice. I will identify limitations of this study prior to the reflections, conclusion, and table summarizing the main points of this study.

5.2. Answers to the Research Questions

5.2.1 How does community participation contribute to the success of a local sustainability project?

To answer the primary research question, I investigated the Green Living DC case study, which implemented sustainability projects using community participation of varying degrees since 2009. I examined these projects under the case study umbrella, identified their successes and challenges to explore how community participation contributed these successes. Analyzing these findings based upon the integrated framework of

sustainability and community participation led to the following conclusions outlined in this section.

The research findings indicate community participation is not separate from sustainability projects but a necessary component of them. Although it is often challenging to achieve environmental sustainability goals, no progress happens without community participation. Community participation contributes to the success of local sustainability projects in a variety of ways:

- Citizens have a direct impact on their local communities and decisions effecting their immediate environment (Newman and Jennings, 2008, see Chapter 4).
- Citizens have a choice to move away from operating in traditional silos and implement local projects that facilitate human, nature, and economic interdependence (Block, 2008, see Chapter 2).
- Citizens have the opportunity to be involved in all phases of a sustainability project, including the development of local, and relevant indicators (Reed et al., 2006, see Chapter 2).
- Citizens operate in a decision-making capacity through a procedural and substantive democracy, which provides an opportunity to influence the outcomes of local planning (Fainstein, 2000, see Chapter 4).
- Citizens contribute practically rooted, local knowledge that planners fuse with science to improve environmental decision-making (Corburn, 2003, see Chapter 2).
- Citizens have the opportunity to build social capital in ways that cannot be measured (Falk and Kirkpatrick, 2000, see Chapter 4).
- Citizens have the opportunity to take the lead in collecting and using data to promote informed decision-making through community based monitoring (Sharpe and Conrad, 2006, see Chapter 4).

Optimum participation should be the framework of every sustainability project, seeking the balance between depth and inclusion that fits each specific project (Cornwall, 2008, see Chapter 2). Achieving optimum participation will inform all other aspects of the project based upon context. For example, optimum participation fosters the setting of achievable goals, building cooperative partnerships, developing social capital, and so on

(Bell and Morse, 2008, see Chapter 2). Connor (1998) recommends developing a shared perspective when designing programs comprised of community participation. The following questions serve as an example of the types of questions we should ask to address strategic issues that arise when developing local sustainability projects:

- What are the various types of community participation?
- Which are appropriate for a specific situation?
- If a given approach does not work, what next?
- Is there a logical progression from one kind of community participation to another?

(adapted from Connor, 1998, 249)

Asking these questions when developing a project, takes more work during the planning phase of the project, but ultimately shapes the project depending on context and optimum participation.

Arnstein's Ladder of Participation offers a way of categorizing community participation, and was a starting point for understanding typologies of participation in Chapter 2 and 4 respectively. However, it would be doing sustainability projects a disservice if the aim were to categorize participation in "tidy" boxes based upon power and control (Arnstein, 1969, see Chapter 2). Once forms of participation are contextualized, the lines become blurred and more ambiguous than in theory. Optimum participation allows sustainability projects to be shaped accordingly, with participation from local government, NGOs, and citizens (Cornwall, 2008, see Chapter 2). Community participation can provide many resources to projects, including volunteer time, local knowledge, and social capital. However, it is necessary that project frameworks are based upon context and optimum participation (Khan 2005 and Cornwall, 2008, see Chapter 2). Thus, every sustainability project should have a unique agreed upon definition of "success." This involves a holistic approach in engaging both top-down and bottom-up paradigms to sustainability where local policy promotes local sustainability initiatives and vice versa (Reed et al., 2006, see Chapter 2).

Based upon the assessment of Green Living DC case study as an example, local sustainability projects will not be successful on a wider scale until optimum participation

is achieved based upon context at the local level. Although this takes more time during the planning phase of projects, establishing optimum participation and what "success: means on a local scale is imperative when translating theories into practice (Blumenauer, 2009, see Chapter 2).

The following section provides answers to the secondary research question. The section will be unpacked further to address each of the three assessment criteria of sustainability established in this study.

5.2.2 How does a project achieve environmental sustainability?

Green Living DC continues to implement environmental sustainability projects on a local scale. Although the number of sustainability goals reached has been low throughout the years in comparison to the original goals set during NSIP, their most successful projects have facilitated locality as well as human, nature, and economic interdependence. As discussed in Chapter 4, projects such as the Soapstone River Cleanup and annual expo have integrated community volunteers, local government and businesses in environmental sustainability projects. Projects comprised of these factors move away from operating in silos and put into practice the way humans, nature and economic factors unite.

As discussed in Chapter 4, successful projects completed by NSIP workgroups included the annual expo, the Soapstone River Cleanup, and the website. Green Living continues to implement local sustainability projects. For example, their current initiative seeks to improve energy usage among businesses and condominium buildings. Optimum participation existed in these projects. For instance, NGOs facilitated the planning of the Soapstone River Cleanup with volunteers. Local businesses have sponsored the event over the years. DC Office of Planning also worked with the local NGOs to assist citizens in testing the water quality of their local river to identify pollutants and inform decision-making regarding future river cleanups. The interdependence of all of the factors led to the success of the project – citizens protecting their local environment while working with local businesses and NGOs in the process. Optimum participation balanced depth with inclusion for a project of this scope.

Many projects within NSIP and Green Living DC failed or were abandoned by volunteers. Examples provided in Chapter 4 include creating a community award/recognition program for local green businesses, and creating a video to highlight buildings with progressive design techniques using solar power. Many of these projects failed due to the lack of guidance and resources received by volunteers while implementing these various projects. The number of goals set during NSIP proved to be too numerous relative to the number of volunteers carrying out these action items. However, the largest failure of NSIP was the lack of data collection after baseline reports were published in 2010. Local government and consultants failed to collect the data, produce annual progress reports and volunteers were not trained to do so. Instead of being able to draw conclusions from NSIP based upon data, many projects were left hanging and the only way to learn about these projects was through subjects' firsthand accounts.

The following sections will unpack this issue further by addressing each assessment criteria of sustainability. I will summarize successes, challenges, and gaps between theory and practice to inform the recommendations within this chapter.

5.2.3 Locality

Green Living DC grew out of the local NSIP initiative. Throughout the lifespan of various sustainability projects, the group has always worked within the parameters of the ANC 3F neighborhood. DC Office of Planning and DC Department of Environment developed NSIP to support grassroots sustainability efforts with local stakeholders and NGOs. Green Living DC operates on a local level today, led by a core group of volunteers committed to the annual expo and various sustainability initiatives. Green Living DC remains steadfast in their dedication to locality. Ultimately, citizens were able to make a direct impact in their local community and decisions effecting their immediate environment (Newman and Jennings, 2008, see Chapter 4).

When NSIP was introduced, the goal was to replicate the project in all DC Wards. However, once the pilot project concluded – this idea was abandoned and S*ustainable DC* was immediately put in its place. As discussed in Chapter 4, this initiative was introduced on a city-wide scale in 2011 (The District of Columbia Government, 2014b).

While it is necessary for policy to support local sustainability projects to ensure success, a gap is left between goals established on this city-wide scale and implementation through community participation. Simply hosting workshops is not optimum participation – citizens must be involved in all phases of the project to some degree. Thus, I will identify recommendations in the second half of this chapter on how NGOs can facilitate local sustainability projects.

5.2.4 Human, Nature and Economic Interdependence

Projects executed successfully by Green Living DC displayed human, nature, and economic interdependence. For instance, the annual expo allows citizens to connect with local businesses, green vendors, and public officials to expand the conversation around sustainability and offer "green services" to those who are interested. Sustainability initiatives underway now involve working with businesses and SEU to encourage energy conservation, framing this as cost effective measures. The most successful projects created connections between humans, nature and local businesses, and were supported by local government.

Projects incorporating these factors move away from operating in silos and put into practice the way humans, nature and economic dynamics rely upon one another (Block, 2008, see Chapter 2). Bioregionalism promotes citizens' understanding of ecological interdependence and insights of deep ecology versus scientific research (Mazmanian and Kraft, 2009, see Chapter 4). Essentially, ordinary citizens can identify "needs" within their community without being considered experts. By examining projects that were successful or had failed throughout NSIP and Green Living DC, I will put forth recommendations on how NGOs can promote bioregionalism, based on these lessons learned.

5.2.5 Sustainability Indicators

The sustainability indicators developed under NSIP in 2009 were ambitious in the depth and breadth of goals and action items voted upon by volunteers. This portion of the study has more "gray" areas than initially anticipated. The data pertaining to the sustainability indicator goals was not measured after the initial baseline data was collected in 2010. The Green Living DC subjects believe a low number of goals were

achieved. However, group members continue to make progress with new and ambitious sustainability efforts in the years after NSIP. They have revisited and pared down the original NSIP goals, and have continued working on a smaller number of projects. Such projects include implementing the sixth expo in September 2014 and meeting with local businesses in conjunction with SEU to encourage energy conservation. By definition, NSIP's own vision of "environmental sustainability" was not achieved through these projects. This conclusion was reached based upon the lack of data collection, subjects' personal viewpoints, and the low number of projects successfully implemented over the years. However, Green Living DC efforts have most certainly *not* been a failure.

Citizens have the opportunity to be involved in all phases of a sustainability project, including the development of local, and relevant indicators (Reed et al., 2006, see Chapter 2). However, in order for community sustainability indicator application to be successful, it must quickly and formally feed into the planning process (Fraser et al., 2006, see Chapter 4). The Neighborhood Sustainability Indicators Project drew out over the span of a year, which allowed too much time to pass without putting ideas into practice and thus losing momentum. The lack of data collection pertaining to the sustainability indicators was the primary hurdle within this case study. Thus, in the second half of this chapter I will address recommendations on how citizens can lead data collection measures with guidance from NGOs.

The following section provides answers to the secondary research question. The section will be broken down further to address each of the four assessment criteria of community participation established in this study.

5.2.6 How does a project integrate community participation?

The Neighborhood Sustainability Indicators Project's foundation required community participation as a component of sustainability projects. Green Living grew out of NSIP and thus operates using democratic processes. This process allows citizens to operate in a decision-making capacity through a procedural and substantive democracy, which provides an opportunity to influence the outcomes of local planning (Fainstein, 2000, see Chapter 4). Co-production through community participation allows anyone to be a potential contributor to environmental decision-making (Corburn, 2003, see Chapter 2).

Therefore, volunteers, NGOs, and local government officials all had equal input within NSIP through such avenues as voting, workgroups, and input on publications.

This democratic process can develop proactive empowerment among community members (Manzo and Perkins, 2006, see Chapter 2). By focusing on gifts - what people *can* do versus *cannot* do - a community can draw upon the collective strength of the group (McKnight in Block, 2008, see Chapter 4). For example, Green Living DC chooses projects based upon community needs aligning with their expertise and interests. Cooperative partnerships are a necessary component of projects comprised of community participation (Newman and Jennings, 2008, see Chapter 4). Fusing local knowledge with science, where citizens work *with* experts, not *for* them, is integral to sustainability projects (Corburn, 2003, see Chapter 4). However, it is also imperative to form networks between local groups in order improve efficiency, share ideas, and avoid duplication of efforts (Sorensen, 2010, see Chapter 2).

Stoecker (2005, see Chapter 2) argues that success at the implementation stage of sustainability projects requires community involvement, although the type will vary depending upon context. Ultimately there is no real community change without community participation – and those who attempt to make change alone will be unsuccessful no matter how good their research is or how deep their commitment may be (Stoecker, 2005, see Chapter 2). Although overall participation declined with time, the core members of Green Living DC continue to pursue sustainability projects within ANC 3F.

The following sections will unpack this issue further by addressing each assessment criteria of community participation. I will summarize successes, challenges, and gaps between theory and practice to inform the recommendations within this chapter.

5.2.7 Empowerment

Green Living DC operates in a decision-making capacity through a procedural and substantive democracy, which provides an opportunity to influence the outcomes of local planning (Fainstein, 2000, see Chapter 4). Throughout NSIP, volunteers and members of the TAC operated in a decision-making capacity. During the project, they created

their vision of sustainability for their neighborhood and voted on primary action items, generally influencing the way in which the project unfolded. Green Living DC continues to work in a similar fashion – shaped as a workgroup – and various members join sustainability efforts when they have spare time and the projects coincide with their interests. They trusted the leadership during NSIP and in turn, these individuals often serve as a resource for current project guidance.

As discussed in Chapter 4, place attachments, place identity, and sense of community provide a deeper understanding of how local spaces motivate ordinary residents to take action to protect these spaces and participate in local planning processes (Manzo and Perkins, 2006, see Chapter 2). However, a gap in literature and research exists surrounding the role place attachment plays in the planning process. The authors' proposition describes a gap in the case study; although proactive empowerment developed over time, it is not understood how local places motivate people to take action. I will outline recommendations on how NGOs can use place attachment as motivation for ordinary residents to join sustainability projects later in this chapter.

5.2.8 Partnerships

Partnerships formed during NSIP that fostered community participation. DC Office of Planning's leadership formed partnerships with local NGOs, stakeholders, and citizens. Stakeholders became involved in sustainability initiatives through the expo and continue to participate voluntarily. Overall, partnerships between stakeholders, NGOs, and citizens grew weaker over time. Members of Green Living DC continue to have close ties with members of local government, specifically with DC Office of Planning and UDC. Members of Green Living DC are now working on sustainability initiatives and forming partnerships based upon their own goals instead of all the action items outlined via NSIP.

Citizens contribute practically rooted, local knowledge that planners fuse with science to improve environmental decision-making (Corburn, 2003, see Chapter 2). Cooperative partnerships facilitate this synthesis, which is mutually beneficial to all involved (Newman and Jennings, 2008, see Chapter 4). The lack of adequate resources, which common in cooperative partnerships, posed a problem as Green Living DC worked to

create their own partnerships. I will describe how NGOs can build cooperative partnerships with local groups in the recommendations section of this chapter. I will also address the lack of formal networks between local groups, which was characteristic within the Green Living DC case study (Sorensen, 2010, see Chapter 4).

5.2.9 Social Capital

Social capital grew throughout the lifespan of NSIP. It was weaker than initially anticipated at the inception of NSIP. For example, citizens and community groups were less active in local projects than anticipated. Staff members from the DC Office of Planning worked diligently to involve citizens in the project's efforts. Within the case study, social capital was measured in volunteer attendance, but both the leadership and members of Green Living DC faced challenges in measuring social capital beyond the scope of participation through voting, attending meetings, and workgroups. Green Living DC has become a strong organization with ties to citizens, stakeholders, and officials – yet it is difficult to measure strength and intensity among and between relationships that have formed throughout these projects.

The synergy view acknowledges the dynamic professional alliances and relationships developed between everyone involved in sustainability projects. Social capital is shaped by the public, society, and private institutions (Woolcock and Narayan, 2000, see Chapter 4). However, Falk and Kirkpatrick (2008, see Chapter 4) argue social capital cannot be measured in the traditional sense because it does not exist in a vacuum. I will offer recommendations on ways NGOs can facilitate social capital in the recommendations section of this chapter.

5.2.10 Volunteerism

Volunteerism rates were high in the beginning phases of NSIP. However, over the course of the year spent planning NSIP, participation dropped off significantly. One subject indicated that volunteer turnout in initial meetings was close to 75 participants. However, by the end stages of NSIP, the five workgroups has consolidated into one – comprised of 10 members (Macgregor, personal correspondence, April 4, 2014). Many of the subjects interviewed provided reasons for the decline in volunteerism: high

burnout rates, too much work from the outset, and the project was more challenging than initially envisioned (see Chapter 4).

Community based monitoring is collaboration between government, industry, academia, and community groups to track and respond to issues of common community concern (Sharpe and Conrad, 2006, see Chapter 2). This approach encourages community members to take the lead in data collection and use it to promote informed decision-making. Within the case study, data collection after NSIP failed, as did annual progress report generation. Later in this chapter, I will outline recommendations on ways NGOs can assist community groups in monitoring their own sustainability projects.

5.2.11 What may we learn from the Green Living DC case study for future practices?

The Green Living DC case study is unique in time, place and actors in history. The transition from NSIP in 2009 to Green Living DC today, offers a robust case study with multiple environmental sustainability projects (both successful and failed) to draw lessons learned for future practice. Prior to identifying these lessons learned, I offer general conclusions based upon examination of Arnstein's ladder of participation (1969) when translating theory into practice.

Connor (1998) introduces implications after examining Arnstein's ladder of participation (1969), which are applicable when developing local sustainability projects:

- There is no one best way to design and manage a public participation program – it must reflect the specifics of a given situation;
- There is a cumulative relationship between the rungs on the ladder – each successive rung builds upon the previous one;
- At times, several approaches will be used simultaneously in order to meet the needs of the parties involved;
- A complex economic, social, cultural, and political issue will not be resolved by a news release and a public meeting; a systematic process appropriate for the specific situation must be designed and implemented.

(Connor, 1998, 257)

These implications reflect optimum participation in practice and the necessity for projects to be developed based on the context of each specific community within their given neighborhood. As discussed in Chapter 2, rungs on the ladder attempt to classify community participation into "tidy" categories, when in actuality, participation becomes blurred when put into practice. As Connor (1998) suggests, several approaches to public participation should be used simultaneously in order to meet the needs of a community. Thus optimum participation should be the framework of every sustainability project, seeking an ideal balance between depth and inclusion that fits each specific project (Cornwall, 2008, see Chapter 2).

After reflecting on successes and challenges of Green Living DC's local sustainability projects, I identified lessons learned for future practices. The sustainability projects that were successful under NSIP and Green Living DC had access to adequate resources. NSIP had adequate long-term funding, access to scientific expertise in data collection and interpretation procedures, ample volunteer time and engagement of politicians and decision-makers in the community and city-wide (Sharpe and Conrad, 2006, see Chapter 2). The Soapstone River Cleanup was discussed in Chapter 4, as an example of a successful sustainability project with adequate resources, implemented by NSIP. Green Living DC did not have access to the same resources provided to NSIP such as funding, a strong platform to communicate project results and engagement of stakeholders and NGOs. For future practice, securing the resources needed to implement a project is critical to its success.

Although optimum participation is unique to every sustainability project depending on context, understanding how Green Living DC obtained access to adequate resources for successful sustainability projects is important for future practices. Cooperative partnerships between the community and stakeholders and NGOs are mutually beneficial for everyone. The cooperative partnership between UDC and Green Living DC was elaborated on in Chapter 4. This partnership gives students practical experience in the field by participating in sustainability projects and the annual expo. In turn, Green Living DC gains extra resources such as volunteer time from students, access to meeting space, a venue and promotion for the expo, and expertise from UDC faculty. By forming cooperative partnerships, resources are shared between the community, stakeholders and NGOs to overcome professional silos (Newman and Jennings, 2008, see Chapter 2).

As discussed in Chapter 4, the substantial failure of the Green Living DC case study was lack of data collection efforts after October 2010. In order to develop a robust project framework, community groups must not only obtain adequate resources, they also require regular training of staff and volunteers (Sharpe and Conrad, 2006, see Chapter 2). Community based monitoring can solve problems pertaining to lack of data collection, by training members of the community to take the lead in collecting and using data to promote informed decision-making (Sharpe and Conrad, 2006, see Chapter 2). Sorensen (2010, see Chapter 2) argues that networks create a more efficient way of gathering and distributing data; local groups working together can learn from one another and share resources instead of potentially replicating efforts. Ultimately, lessons learned from Green Living DC's failed sustainability projects suggest that volunteer training on data collection and sharing this information with a formal network of local groups will benefit everyone involved in the project.

Answers to the primary and secondary research questions have been established in the first half of this chapter. Based upon the assessment of the Green Living DC case study against the criteria established in Chapter 2, I further unpacked answers to these questions. Now , I will put forth recommendations concerning sustainability and community participation. The recommendations in the following section will be useful for local NGOs implementing environmental sustainability projects.

5.3 Recommendations

The recommendations within this section derive from a combination of the integrated framework of sustainability and community participation in Chapter 2 and suggestions based upon the research findings identified in Chapter 4. The recommendations put forth in this section will be useful for local NGOs implementing environmental sustainability projects.

5.3.1 Recommendations for Sustainability

This section identifies recommendations for sustainability. First, it will address general recommendations. Next, it will introduce more specific recommendations for NGOs

implementing community sustainability projects drawing from conclusions surrounding: locality; human, nature, and economic interdependence; and sustainability indicators.

Generally, sustainability initiatives must be operational based upon context. Projects should be designed for long-term measurement at local scales (Heinen, 1994, 21 in Bell and Morse, 2008). The Neighborhood Sustainability Indicators Project was the first formal sustainability initiative for DC in 2009, serving as a starting point for projects of this kind. However, moving forward, it is important to acknowledge the context of citizens and neighborhoods situated within the city-wide scale. The selection process needs to be researched further when developing project frameworks and sustainability goals. A subject from DC Office of Planning stated that they would have chosen an alternate neighborhood for the pilot project if they were able to conduct the project over again. Exploration of project sites within a city-wide context, prior to establishing such a project is equally as important as setting long-term measurement goals.

The findings based on locality in Chapter 4 suggest local policy should support local environmental sustainability initiatives. Local DC government priorities have since switched gears from implementing NSIP in all Wards within DC to *Sustainable DC,* which outlines a twenty-year vision of city-wide sustainability. Nongovernment organizations can bridge the gap between city-wide visions and local sustainability projects. These NGOs are often bi-partisan advocacy groups, with a focus on a specific mission independent of party lines. Often local NGOs understand policy and the practical implication in local arenas. Therefore bridging this gap between local government and citizens, specifically offering guidance to local groups will benefit all involved. This will allow local government to focus on city-wide visions, volunteers to focus on local projects, and NGOs to mediate between both realms. Nongovernment organizations also benefit by drawing attention to their specific mission through engagement on the local government and community levels. Ultimately, I believe lessons learned from NSIP should be used to modify the project and re-implement by Ward as part of the *Sustainable DC* plan.

The findings based on human, nature and economic interdependence in Chapter 4 promote citizens' choice to move away from operating in traditional silos and implement projects that facilitate interdependence (Block, 2008, see Chapter 2). Earlier, this

chapter discussed bioregionalism and NGOs can facilitate this process by challenging citizens to become "dwellers of the land" (Mazmanian and Kraft, 2009, see Chapter 2). NGOs often have a better understanding of local context in comparison to local government. For instance, one of the NGOs involved in NSIP was concerned only with protection of one park within ANC 3F. Therefore, the NGO knew more about the landscape and environmental factors at play than the local government. Nongovernment organizations can provide technical expertise within a community and assist them in identifying local "needs" within their neighborhood.

The findings based on sustainability indicators in Chapter 4 establish that citizens have the opportunity to be involved in all phases of a sustainability project, including development of local and relevant indicators (Reed et al., 2006, see Chapter 2). However, in order for community sustainability indicator application to be successful, it must quickly and formally feed into the planning process (Fraser et al., 2006, see Chapter 4). The yearlong planning phases of NSIP allowed too much time to pass before implementing sustainability projects. Additionally, volunteers needed more guidance when developing sustainability indicators and proper training on measuring progress towards goals. If citizens had chosen a more realistic number of goals and action items, they would likely achieve greater success. Rather than hiring outside contractors for data collection purposes, allocating data collection responsibilities to community members allows for informed decision-making and a robust project framework (Sharpe and Conrad, 2006, see Chapter 2). Thus, recommendations for NGOs implementing local sustainability projects should ensure that sustainability indicator application quickly and formally feeds into the planning process. I will address additional recommendations based upon sustainability indicators when discussing volunteerism within the next section.

The following section introduces recommendations for community participation. These recommendations are applicable to NGOs implementing community sustainability projects.

5.3.2 Recommendations for Community Participation

This section identifies recommendations for community participation. First, I address general recommendations. Next, I put forth more nuanced recommendations for NGOs implementing community sustainability projects based on the conclusions surrounding: empowerment; partnerships; social capital; and volunteerism within the case study.

"Community" is not a fixed entity. Rather, it is a dynamic, social, and political process involving human interactions over space and time (Lee and Field, 2005, see Chapter 2). Although the boundaries define ANC 3F as "a community," the community has evolved over time through projects such as NSIP and the continued efforts of Green Living DC. We should view community participation as a requirement of sustainability projects, not as an optional way to model a project. Optimum participation, which seeks to balance depth with inclusion, should be the framework for all community sustainability projects. Context is a vital to community participation – and understanding this dimension of a project is necessary when exercising optimum participation (Cornwall, 2008 see Chapter 4).

The findings based on empowerment in Chapter 4, encourage citizens to operate in a decision-making capacity through a procedural and substantive democracy, which provides an opportunity to influence the outcomes of local planning (Fainstein, 2000, see Chapter 4). Decisions within the case study were voted upon, and thus goals and action items were decided upon in a fair manner. Volunteers exhibited proactive empowerment in establishing their own volunteer based group, Green Living DC. As discussed in Chapter 4, a gap in literature and research exists surrounding the role place attachment plays in the planning process. Nongovernment organizations have the opportunity to explore this within the local setting, because they have less rules and regulations regarding what they can and cannot say. Said differently, NGOs are able to develop *different* relationships with communities compared to the local government, and may be able to gain a better understanding of how local places motivate people to take action in the planning process.

The findings based on partnerships in Chapter 4 encourage the fusion of local and scientific knowledge – citizens working with planners and not for them (Corburn, 2003,

see Chapter 2). Within the case study, cooperative partnerships developed between local government, NGO, and stakeholders but the citizen/NGO participation grew noticeably weaker over time. Green Living DC gradually lost resources, including volunteers, funding, and access to readily available technical expertise. NGOs implementing community sustainability projects can facilitate the establishment of "formal" networks between projects (Sorensen, 2010, see Chapter 4). Often NGOs have a pulse on environmental projects of relevance being implemented city-wide, and thus can act as a liaison between groups. This allows for sharing of resources and mutual learning *between* groups, thus avoiding duplication of efforts. Because NGOs are often under-staffed, facilitating the establishment of a "formal" network will take some of the burden off them within the project arena, as groups can help each other through the process.

The findings based on social capital in Chapter 4 suggest that citizens have the opportunity to build social capital in ways that cannot be measured (Falk and Kirkpatrick, 2000, see Chapter 4). When conducting semi-structured individual interviews, subjects were modest and often surprised when I brought up social capital pertaining to the case study. This criterion is often larger than subjects are able to articulate, and measuring social capital through volunteer participation statistics does not speak to the impact it can have within a community. The synergy view acknowledges the dynamic professional alliances and relationships developed between everyone involved in sustainability projects (Woolcock and Narayan, 2000, see Chapter 4). Nongovernment organizations can promote social capital in ways the government cannot. For example, they can create opportunities for mutual support, engage citizens in projects they care about, support local projects, and share good news through formal networks city-wide.

Lastly, the findings based on volunteerism in Chapter 4 suggest that citizens have the opportunity to take the lead in collecting and using data to promote informed decision-making through community based monitoring (Sharpe and Conrad, 2006, see Chapter 4). Collaboration between the community members, NGOs, academia, stakeholders, and local government is necessary to track and respond to issues of common community concern (Sharpe and Conrad, 2006, see Chapter 2). Nongovernment organizations with project experience integrating community participation can promote community based monitoring within communities by training volunteers on data collection and

interpretation. For instance, a local DC NGO taught volunteers how to measure and record data regarding tree health and canopy to make informed decisions regarding greening efforts within the neighborhood. Nongovernment organizations can promote community based monitoring by setting up mentoring between networks so that local groups can teach other local groups how to collect and interpret data.

These sections identified recommendations for sustainability and community participation for local NGOs implementing community sustainability projects. I will summarize these recommendations in section 5.6, which will conclude this study. The following section will address limitations to the study.

5.4 Limitations to the Study

The primary constraint within this study was the amount of time that had passed since NSIP officially concluded in the fall of 2010. Green Living DC subjects often had trouble recalling specific details of NSIP. They also tended to bypass details relevant to my study because of their more immediate involvement in current initiatives such as the 2014 expo or *Sustainable DC*.

Another limitation of this study surrounds the semi-structured individual interview process. Although I interviewed five subjects who were directly involved with Green Living DC, DC Office of Planning and NSIP, there are limitations to drawing on five voices. While I was able to identify and interview all the members of my target population, I had hoped to engage with other members of the community and participants within the Green Living DC case study. Because participation in Green Living DC had decreased over the years, the five subjects interviewed represented a majority of the case study population. It is also important to acknowledge the inherent bias of this research technique – by documenting the subjects' subjective opinions on the case study for purposes of my own research. However, to offset these factors, I also relied on documentation of the case study, which was officially published in 2010 and attended Green Living DC meetings.

Another hurdle faced within this study was the lack of data collected after 2010. Although baseline data was collected and published by AECom and DC Office of

Planning in October 2010 reports, little data was recorded past this point in time despite intentions to produce annual progress reports. I could not verify sustainability indicators and progress towards goals with the available data and had to depend only on verbal accounts of Green Living DC members and employees of DC Office of Planning. Moreover, when I requested unofficial data on multiple occasions from the DC Office of Planning, it was not provided.

5.5 Reflections and Conclusion

Throughout this study, it became apparent that the ANC 3F neighborhood had more resources available than most other neighborhoods within DC. The DC government has had very little presence in environmental sustainability initiatives. During this study, one research participant expressed the viewpoint that perhaps another neighborhood would have been better suited for a project such as NSIP. Although on principle I would hope that a project such as NSIP would achieve success in my own neighborhood, I suspect other needs are more immediate than sustainability. The lack of food and shelter, for example, are urgent needs and are mentioned not as an excuse but rather as one reason why sustainability projects have not gained traction in DC**.**

My research findings indicate that community participation should be a requirement of local sustainability projects. Although no two projects are exactly the same, optimum participation should be decided on within each project framework (Cornwall, 2008, see Chapter 5). Communities should define their own idea of "success," suitable for their specific context. The recommendations put forth for NGOs in Chapter 5, are based primarily on what was missing in the Green Living DC case study. Ultimately, NGOs can benefit and serve to bridge the gap between local government and citizens in implementing local sustainability projects.

In conclusion, Chapter 1 introduced the research problem under investigation and the Green Living DC case study. Chapter 2 established the theoretical framework of sustainability and community participation based on the review of relevant literature. Chapter 3 outlined the research methods and associated research techniques implemented to answer the primary and secondary research questions, which were posed in Chapter 2. Chapter 4 introduced the research findings and analyzed the case

study against the assessment criteria established in Chapter 2. Chapter 5 put forth recommendations based upon the research findings surrounding sustainability and community participation. These recommendations will be summarized in the table in the following section.

As I type the last words of my study, I find myself optimistic about the potential for communities to make powerful changes through local sustainability projects. I have dedicated my own life's work to better the environment, and draw inspiration from the word's of the anthropologist Margaret Mead:

"Never doubt that a small group of thoughtful committed citizens can change the world; indeed, it is the only thing that ever has."

5.6 Summary Table

Integrated Framework	Secondary Research Questions	Assessment Criteria	Summary of Research Findings	Summary of Recommendations
Sustainability	How does a project achieve environmental sustainability?	• Locality • Human, nature and economic interdependence • Sustainability indicators	• **Locality:** Community, local government, DC Office of Planning, NGOs and local stakeholders had a direct impact in ANC 3F through local projects. • **Human, nature and economic interdependence:** NSIP and Green Living DC Projects that integrated all three factors were most successful. • **Sustainability indicators:** NSIP achieved a low number of sustainability goals; formal data collection ended in 2010 despite the promise of annual progress reports. Green Living DC has recently initiated new sustainability project goals and data collection efforts.	• Local sustainability projects must be developed based on context, designed for long-term measurement and quickly feed into formal planning process. • Top-down and bottom-up paradigms used for a holistic approach to sustainability projects - moving away from the "silo approach"; policy must support local sustainability projects. • Technical expertise offered by NGOs to ensure appropriate goals are set and citizens are trained to lead data collection efforts.
Community Participation	How does a project integrate community participation?	• Empowerment • Partnerships • Social capital • Volunteerism	• **Empowerment:** The TAC and core members of NSIP used democratic decision-making processes that have enabled empowerment. Lack of a formal network exists between local groups. • **Partnerships:** Formed between DC Office of Planning, citizens and stakeholders but specifically lacking between citizens, NGOs and stakeholders. Cooperative partnership between Green Living DC and UDC. • **Social Capital:** Difficult to measure, attendance has declined but networks have formed among Green Living DC members and the community. • **Volunteerism:** Volunteer rates were initially high and dropped off significantly throughout NSIP and Green Living DC. Green Living DC's core members have remained dedicated since 2009, taking the lead in collecting data to make informed decisions about their projects.	• Community participation should be a requirement of sustainability projects not an optional component. • Formalizing networks *between* community groups facilitates sharing of resources and mutual knowledge; fusing local and scientific knowledge. • Adequate resources provided to NGOs and citizens to train volunteers to monitor their own sustainability efforts; and setup mentoring between networks.
	What may we learn from the Green Living DC case study for future practices?	• Green Living DC case study	• Adequate resources, training and formal networks are needed to give projects life. • Optimum participation is the framework goal, with cooperative partnerships not only with local government but NGOs as well.	*(See above)*

References

Abagond, J., 2013. *Abagond*. [online] Available at: <http://abagond.wordpress.com/contact/> [Accessed 5 March 2014].

AECOM, 2014. *AECOM*. [online] Available at: <http://www.aecom.com/About> [Accessed 20 March 2014].

Arnstein, S.R., 1969. A Ladder of citizen participation. *Journal of the American Institute of Planners*, 216-224.

Barriball, K.L. and While, A., 1994. Collecting data using a semi-structured interview: A discussion paper. *Journal of Advanced Nursing*, 19: 328-335.

Bell, S. and Morse, S., 2008. *Sustainability Indicators: Measuring the Immeasurable?* London: Earthscan.

Block, P., 2008. *Community: The Structure of Belonging*. San Francisco: Berrett-Koehler Publishers, Inc.

Blumenauer, E., 2009. Conclusion. In: Piedmont-Palladino, S. and Mennel, T. (eds.) *Green Community*. Washington, DC: American Planning Association.

Boersma, A., 2014. *Interview on Green Living DC*. Interviewed by Lynsey Knowles. 23 April 2014, 2:30pm.

Bornat, J., 2004. Oral History. In: Seale, C., Gobo, G., Gubrium, F. and Silverman, D. (eds.) *Qualitative Research Practice*. Thousand Oaks: Sage Publications, Inc.

Brugmann, J., 2009. *Welcome to the Urban Revolution: How Cities are Changing the World*. New York: Bloomsbury Press.

Cockburn, T., 2000. Case study organisations: The use of quantitative approaches. In: Humphries B. (ed.) *Research in Social Care and Social Welfare: Issues and Debates for Practice*. Philadelphia: Jessica Kingsley Publishers.

Connor, D.M., 1988. A new ladder of citizen participation. *National Civic Review,* 77(3): 249-257.

Corbett, J. and Corbett, M., 2000. *Designing Sustainable Communities: Learning from Village Homes*. Washington, DC: Island Press.

Corburn, J., 2003. Bringing local knowledge into environmental decision Making: Improving urban planning for communities at risk. *Journal of Planning Education and Research,* 22: 420-433.

Cornwall, A., 2008. Unpacking 'participation': Models, meanings and practices. *Community Development Journal,* 43(3): 269-283.

Daley, D.M., Sharp, E.B. and Bae, J., 2013. Understanding City Engagement in Community-Focused Sustainability Initiatives. *Cityscape: A Journal of Policy Development and Research*, 15(1): 143-162.

Davis, K., 2013. *Green Living DC update and proposed meeting*. [email] (Personal communication 7 December 2013).

Davis, K., 2013. *Interview on Green Living DC*. Interviewed by Lynsey Knowles. 5 December 2013, 2:00pm.

Daniels, T. and Daniels, K., 2003. *The Environmental Planning Handbook: for Sustainable Communities and Regions*. Chicago: American Planning Association.

Dicicco-Bloom, B. and Crabtree, B.F., 2006. The Qualitative Research Interview. *Medical Education,* 40: 314-321.

District of Columbia Office of Planning and AECom, 2010a. *NSIP, Washington DC Neighborhood Sustainability Indicators Project: Pilot Project Draft Baseline Report*. [online] Available at: <http://greenlivingdc.org/files/101130_NSIP_Baseline_Final.pdf> [Accessed 10 October 2013].

District of Columbia Office of Planning and AECom, 2010b. *NSIP, Washington DC Neighborhood Sustainability Indicators Project: Pilot Project Overview Report*. [online] Available at: <http://greenlivingdc.org/files/101130_NSIP_Overview_Final.pdf> [Accessed 10 October 2013].

Dunaway, D.K., 1996. Directions for oral history in the United States. In: Dunaway, D.K. and Baum, W.K. (eds.) *Oral History: An Interdisciplinary Anthology*. Lanham: AltaMira.

Fainstein, S.S., 2000. New directions in planning theory. *Urban Affairs Review,* 35(4): 451-478.

Florin, P. and Wandersman, A., 1990. An introduction to citizen participation, voluntary organizations, and community development: Insights for empowerment through research. *American Journal of Community Psychology,* 18(1): 41-52.

Flyvbjerg, B., 2006. Five misunderstandings about case study research. *Qualitative Inquiry,* 12(2): 219-245.

Fraser, E.D.A., Dougill, A.J., Mabee, W.E., Reed, M. and McAlpine, P., 2006. Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. *Journal of Environmental Management,* 78: 114-127.

Gibson, R.B., 2006. Beyond the Pillars: Sustainability Assessment as a Framework for Effective Integration of Social, Economic and Ecological Considerations in

Significant Decision-Making. *Journal of Environmental Assessment Policy and Management*, 8(3): 259-280.

Glass, G.V., 1977. Integrated findings: The meta-analysis of research. *Review of Research in Education,* 5(1): 351-379.

Gould, K. and Hosey, L., 2007. *Women in Green: Voices of Sustainable Design*. Bainbridge Island: Ecotone, LLC.

Green Living DC, 2013. *Green Living DC.* [online] Available at: <http://greenlivingdc.org/> [Accessed 1 September 2013].

Grele, R., 1996. Directions for Oral History in the United States. In: Dunaway, D.K. and Baum, W.K. (eds.) *Oral History: An Interdisciplinary Anthology*. Lanham: AltaMira.

Hawken, P., 2007. *Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw it Coming*. New York: Penguin Books.

Hoffman, A., 1996. Reliability and Validity in Oral History. In: Dunaway, D.K. and Baum, W.K. (eds.) *Oral History: An Interdisciplinary Anthology*. Lanham: AltaMira.

Introduction to qualitative interviews, 2006. *Economic and Social Data Service* (ESDS). [online] Available at; <http://www.esds.ac.uk/qualidata/support/interviews/intro.asp> [Accessed 28 July 2013].

Jick, T.D., 1979. Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly,* 24(4): 602-611.

Johnson, R.B. and Onwuegbuzie, A.J., 2004. Mixed methods research: A research paradigm whose time has come. *Educational Researcher,* 33(7): 14-26.

Kahn, J., 2005. The importance of local context in the planning of environmental projects: Examples from two biogas cases. *Local Environment,* 10(2): 127-142.

Kahn, S., 2010. *Creative Community Organizing: A Guide for Rabble-Rousers, Activist and Quiet Lovers of Justi*ce. San Francisco: Berrett-Koehler Publishers, Inc.

Kellert, S.R., Metha, J.N., Ebbin, S.A. and Lichtenfeld, L.L., 2000. Community natural resource management: Promise, rhetoric, and reality. *Society and Natural Resources,* 13: 705-715.

Krek, A., 2005. Rational ignorance of the citizens in public participatory planning. In: CORP (Competence Center of Urban and Regional Planning), *10th Symposium on Information and Communication Technology in Urban and Spatial Development and Impacts of ICT on Physical Space*. Vienna, Austria, 22-25 February 2005. Vienna: Vienna University of Technology.

LeCompte, M., 2000. Analyzing qualitative data. *Theory Into Practice,* 39(3): 146-154.

Limauro, A., 2014. *Interview on NSIP and Green Living DC.* Interviewed by Lynsey Knowles. 10 April 2014, 3:30pm.

Lee, R.G. and Field, D.R. eds., 2005. *Communities and Forests: Where People Meet the Land*. Corvallis: Oregon State University Press.

Macgregor, J., 2014. *Interview on NSIP and Green Living DC.* Interviewed by Lynsey Knowles. 4 April 2014, 1:00pm.

Manzo, L.C. and Perkins, D.D., 2006. Finding common ground: The importance of place attachment to community participation and planning. *Journal of Planning Literature,* 20(4): 335-350.

Mazmanian, D.A. and Kraft, M.E. eds., 2009. *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. Cambridge: The MIT Press.

Neves, A.R.F., 2007. Local Agenda 21 and the Implementation of Renewable Energies at the Local Level. Masters Degree. New University of Lisbon.

Neighborhood Info DC, 2012. *Neighborhood Profiles*. [online] Available at: <http://www.neighborhoodinfodc.org/anc12/anc.html> [Accessed 5 March 2014].

Newman, P. and Jennings, I., 2008. *Cities as Sustainable Ecosystems: Principles and Practices*. Washington, DC: Island Press.

Penner, L.A., 2002. Dispositional and organizational influences on sustained volunteerism: An interactionist perspective. *Journal of Social Issues,* 58(3): 447-467.

PMPress, 2014. *Galileo's Dream*. [online] Available at: <http://www.pmpress.org/content/article.php?story=LuckyStrikeShareable> [Accessed 5 March 2014].

Rapley, T., 2004. Interviews. In: Seale, C., Gobo, G., Gubrium, F. and Silverman, D. (eds.) *Qualitative Research Practice*. Thousand Oaks: Sage Publications, Inc.

Reed, M., Fraser, E.D.G. and Dougill, A.J., 2006. An adaptive learning process for developing and adapting sustainability indicators with local communities. *Ecological Economics,* 59: 406-418.

Roseland, M., 2012. *Toward Sustainable Communities*. 4th ed. British Columbia: New Society Publishers.

Ryan, R.L., Kaplan, R. and Grese, R.E., 2001. Predicting volunteer commitment in environmental stewardship programmes. *Journal of Environmental Planning and Management,* 44(5): 629-648.

Rydin, Y. and Pennington, M., 2000. Public participation and local environmental planning: The collective action problem and the potential of social capital. *Local Environment,* 5(2): 153-169.

Sandercock, L., 2003. Out of the closet: The importance of stories and storytelling in planning practice. *Planning Theory and Practice,* 4(1): 11-28.

Sharpe, A. and Conrad, C., 2006. Community based ecological monitoring in Nova Scotia: Challenges and opportunities. *Environmental Monitoring and Assessment,* 113: 395-409.

Sorensen, S., 2010. *The Sustainable Network: The Accidental Answer for a Troubled Planet*. Sebastopol: O'Reilly Media, Inc.

Stake, R.E., 1995. *The Art of Case Study Research*. Thousand Oaks: Sage Publications, Inc.

Stoecker, R., 2005. *Research Methods for Community Change: A Project-Based Approach*. Thousand Oaks: Sage Publications, Inc.

Tenleytown DC, 2014. *Community Cleans Up Soapstone Tributary*. [online] Available at: <http://tenleytowndc.org/2014/05/22/community-cleans-up-soapstone-tributary/> [Accessed 2 April 2014].

The District of Columbia Government, 2009. *Office of Planning, 2005-2009 American Community Survey*. [online] Available at: <http://planning.dc.gov/DC/Planning/DC+Data+and+Maps/DC+Data/Tables/Data+by+Geography/Wards/DC+Ward+Data+2005-2009+ACS> [Accessed 16 May 2014].

The District of Columbia Government, 2014a. *Advisory Neighborhood Commission*. [online] Available at: <http://anc.dc.gov/page/about-anc> [Accessed 15 March 2014].

The District of Columbia, 2014b. *Sustainable DC*. [online] Available at: <http://sustainable.dc.gov/page/about-sustainable-dc> [Accessed 10 April 2014].

Tongco, D.C., 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research & Applications: A Journal of Plants, People and Applied Research,* 5: 147-158.

Umemoto, K., 2001. Walking in another's shoes: Epistemological challenges in participatory planning. *Journal of Planning Education and Research,* 21: 17-31.

United Nations, 2012. *What is sustainability?* [online] Available at: <http://www.un.org/en/sustainablefuture/sustainability.shtml> [Accessed 10 January 2014].

Wates, N., 2000. *The Community Planning Handbook: How People Can Shape Their Cities, Towns and Villages in Any Part of the World*. London: Earthscan Publications, LTD.

Wickham, J., 2014. *Interview on NSIP and Green Living DC.* Interviewed by Lynsey Knowles. 2 April 2014, 1:00pm.

Wilkins, P., 2000. Storytelling as research. In: Humphries, B. (ed.) *Research in Social Care and Social Welfare: Issues and Debates for Practice*. Philadelphia: Jessica Kingsley Publishers.

Woolcock, M. and Narayan, D., 2000. Social Capital: Implications for Development Theory, Research and Policy. *World Bank Research Observer,* 15(2): 225-249.

Yarnal, B., Polsky, C. and O'Brien, J., 2009. *Sustainable Communities on a Sustainable Planet: The Human-Environment Regional Observatory Project*. Cambridge: Cambridge University Press.

Yin, R.K., 2003. *Case study research: Design and methods*. 3rd ed. Thousand Oaks: Sage publications, Inc.

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APPENDIX A

Interview with Kara Davis: Notes
December 5, 2013
Open City - Lunch @ 2pm – 3:30pm

(Began by providing background on her work and previous graduate school program; historical background on NSIP and her role in Green Living DC)

Note: She was not part of the original NSIP project but joined after the fact, and is a group leader within Green Living DC specifically pertaining to the DC Green Expo.

KD: NSIP was funded by DC Office of Planning as a pilot project with a lifespan. DC Office of Planning wanted to use this project as a model. Green Living DC as it stands now has become Expo Focused, so Kara called a meeting to narrow the focus back to the original NSIP goals and set 3 goals and regular check-in meetings on the progress. She explained that NSIP had consultants who tracked the specific goals and created the deliverables – and there is now a lack of funding for any initiatives of this scale for Green Living DC.

One of the great challenges faced is time, many folks don't have enough to allocate to various projects. Also feels that many efforts are disjointed, she is involved in many neighborhood projects and shares ideas between them (often acts as a liaison between the groups) however there is no "formal" network. She seemed discouraged by the fact that people aren't aware of sustainability efforts underway in the city as a whole let alone in adjacent neighborhoods.

Interviewer: How is the partnership between Green Living DC and UDC structured?

KD: The group uses UDC as a hub – for meeting space but also tapping students as a resource for planning the DC Green Expo. She hopes the students will take over the expo to free up time so she can focus on substantive projects (such as revisiting the original NSIP goals).

Interviewer: What are some of the challenges you face as a Green Living DC member?

KD: Planning the events takes up most of her time – and attendance has been low at the events in the past. She stressed that the UDC partnership is key; especially involving students, and the new dean made sustainability a priority so students worked and organized the expo as part of their curriculum and project/deliverable.

Note: She invited me to the Green Living DC meeting after the interview concluded. She advised that it was better to show up to these meetings versus trying to meet participants individually.

Interview with John Wickham: Notes
April 2, 2014
Filter Coffee @ 1pm – 2pm

Interviewer: How did you first become involved with the NSIP project?

JW: John doesn't live in the area, but introduced to the project and asked to serve on the "Technical Advisory Committee" (TAC) by John Macgregor. They work together on Politics & Prose initiatives. He was drawn to the project because of shared interests versus geographical proximity. John's primary interests were in sustainability projects.

Interviewer: How was community participation organized for NSIP?

JW: Emails were sent and a community listserve was created. Andrea was from the DC Office of Planning and spearheaded the project, and was also a DC resident. He spoke at both Politics & Prose and John's St. Colombo Parish – which was technically outside the Ward 3 district of the project's boundaries.

Interviewer: Why was this neighborhood chosen?

JW: Ecosystem diversity was high, with tributaries, wooded areas in Forest Hills and a commercial district as well.

Interviewer: *(Gave background on the focus of my thesis)* Can you speak to some of the successes and failures of community participation and the project as a whole?

JW: Back in 2009 when the project was kicking off, the group met at a new community facility – the Wilson pool which was recently built. The city-wide meeting was attended by officials, Ken Tersian (green architect) joined the TAC, and everyone volunteered their time. He said this was civic participation working at the highest level; group participated in a visioning process and then voted on criteria they thought were important to address within the community. AECom was a consultant group, which produced the deliverable at the end of the project.

The project seemed very promising in the beginning. However, volunteer burnout did occur on some level. The goal was to use this project as a model and scale it up for other neighborhoods and she light on what is needed for these community projects to succeed. The lack of a full time staff member and fair delegation of duties is the reason why it did not continue past the project's end date.

Perhaps more valuable than the sustainability initiatives was the social capital that was created. He believes that some of the goals were not met over the long term but building social capital has been invaluable – however he struggles with how to measure this qualitative success.

Interview: Have you continued to extend the work of NSIP after the project formally concluded?

JW: He is working with one of the participants from NSIP in collecting raw data from businesses in order to encourage more effective energy usage in buildings. He has met with DC Sustainable Energy Utility (SEU) to collect energy data and indicators. A

challenge they face in this project is reporting fatigue – and in this case he uses the 1:1 qualitative to quantitative ratio. He has seen more success when he asks business for their own goals and what they want versus presenting metrics and asking them to comply with standards they set. He made the point that sometimes they have to abandon the original goal in order to make progress. He has also seen success in building social capital and relationships with business and the SEU while working on lowering energy consumption.

Interview with John Macgregor: Notes
April 4, 2014
Panera @ 1pm – 3pm

Interviewer: How did you first become involved with the NSIP project?

JM: John doesn't live in the area, but Andrea Limauro through Politics & Prose initiatives and was asked to serve on the "Technical Advisory Committee" (TAC). They work together on Politics & Prose initiatives.

Interviewer: How did people become involved in the project?

JM: Andrea was key in spreading the word about the project. He assumed that the partners sent word to many of their members – between 50 and 75 citizens attended the initial meeting.

Interviewer: Can you speak to the effectiveness of the project with regards to achieving sustainability goals?

JM: DC Office of Planning was in charge of measuring the indicators. There was a large diversity of interests from the citizen – 9 goals were decided upon. He was specifically interested and more involved in the energy and water goals. Subsequently, five subgroups were formed to tackle each goal – however those who were dedicated to the project formed one group instead because participation dropped off substantially with time.

Interviewer: How did the evolution occur from NSIP to Green Living DC?

JM: The single subgroup of citizens decided that what was needed was an expo to connect the Department of Energy, private sector entities who were interested in selling "green" services, NGOs. The first DC Green Expo was in 2009 – over the years, members of Green Living DC, Live Green and UDC students have led this annual event in various capacities. The official transition from NSIP to Green Living DC was in 2011, although informally it probably happened before then.

In 2013, Kara called a meeting to reallocate efforts back to some of the NSIP goals and tackling these with the smaller subgroup and others who were interested. The focus of these efforts were on the Connecticut Avenue corridor – specifically greening business initiatives, and building a relationship with the DC Sustainable Energy Utility (SEU). Building this link has given them grant and educational opportunities with local businesses.

Interview: What was gained and/or the most successful outcome(s) of NSIP?

JM: The meeting in the very beginning – with local government and citizens was the most valuable. He said that it was introducing new ideas and thinking a certain way. The DC Office of Planning expected citizens to act alone after initial meetings to achieve specific goals. Many citizens wanted re-zoning, cleaning in areas that were privately owned or operated by the city, basically things that weren't possible in the time frame that they were operating under.

He believes this model will work where people have the time and energy to invest over the long term. He also believes it has been a failure of the group not to engage universities as there are numerous institutions within close proximity to the neighborhood, with sustainability programs.

He also offered a few "lessons" from his experience*:

- Community groups need resources for these projects to get off the ground
- Partnerships with strong leadership are key, plus the community groups
- A strong connection from DC Office Planning was helpful, people must respect the leadership
- Many cities have funding for these projects but on a city-wide scale, that is needed in DC.
- This project, and projects like these are harder than you think. Burnout rate is high.
- When community participation is tied to formal organizations – it gives the project a longer lifespan. (i.e. DC Office of Planning, SEU, Casey Trees, Friends of Rock Creek Park, etc.)

**Suggested I attend DC Environmental Network – led by Chris Weiss, monthly meeting on sustainability topics related to DC.*

Interview with Andrea Limauro: Notes
April 10, 2014
DC Office of Planning @ 3:30pm – 4:30pm

(Began by showing me NSIP original documents & telling me the story of the project)

AL: He began working for DC Office of Planning in 2009, and NSIP was a pilot project for DC and his full time job. At that time sustainability project were almost non-existent and the ones that did exist were very disjointed within the city. NSIP was a test for DC Office of Planning.

What did exist for DC Office of Planning was the Green Action Agenda, which was essentially a database for the projects underway in the city. DC Office of Planning focused (and still focuses) on small neighborhood plans – and Andrea was in charge of Ward 3 at the time. 90 – 95% of what his office did was small neighborhood plans, with a focus on community and a few legislative wins that allowed them the opportunity to test this pilot project.

The DC Office of Planning hired AECom (consultants) to assist them with some of the technical aspects of the project, i.e. measuring the sustainability indicators and producing the deliverables.

This neighborhood was chosen because it was environmentally diverse – Rock Creek Park, a mix of suburban, urban and natural landscapes. The ratio of the natural environment to built environment was a good fit for NSIP. He referred to this neighborhood as a "microcosm" of the larger city. Engaged universities were either in the neighborhood or within close proximity (and many had environmental and/or sustainability programs) Howard, UDC. Also this was a neighborhood that could afford upgrades to their homes (i.e. solar/energy efficiency upgrades). Additionally the ideas introduced would not be received with backlash here because the community was already somewhat engaged.

Interviewer: How did you develop partnerships and involve stakeholders in the beginning stages of NSIP?

AL: He began cold calling potential stakeholders and NGOs in the Ward 3 neighborhood who were a good fit for the project. He also began attending pre-existing meetings so he could reach a larger audience of folks in the neighborhood.

(Continued telling me the story of the project)

AL: Implementation of NSIP was challenging. He originally thought that groups were more engaged than they actually were. In hindsight he should have chosen an area with more established community groups because in 2009 Ward 3 had weak social capital, and Andrea had to create a coalition out of nothing. Most participants were not engaged, even those that did attend the meetings. Van Ness Vision Committee existed – but groups were a bit disjointed especially if projects being implemented didn't directly fall into their neighborhood boundaries. *(I suggested that perhaps the stronger social capital that exists in the neighborhood now is a result of Andrea's work – and he hoped/agreed that it was true).*

Interviewer: After the initial NSIP planning meetings, was community participation effective once you let citizens participate in subgroups without your guidance?

AL: Folks were grouped based upon their interests – so those that had 3 or 4 overlapping interests out of the 9 goals chosen were tasked with implementation of those specific goals. This presented too much work for folks from the outset and Andrea knew this would only work if many folks participated. He found it difficult to keep up momentum.

Andrea knew how much work this project was going to be – because it was his full time job. Knowing that it was volunteer-based, he suggested that folks edit and pair down the 9 goals they originally chose. Even after they chose the goals – Andrea had to study and read technical reports in some of the categories because he was not well versed or trained on the technical info, solar, water etc. He relied on the strong NGO partnerships for their resources – and to give the subgroups guidance. He provided the stream contamination example – he wanted to test the water for 1 contaminant however, he learned that each was indicative of a larger pollution problem so he was veto'ed and they tested the stream water for 5 indicators.

He believed that the amount of work that was needed on this project scared many of the volunteers away. He suggested that perhaps an emerging neighborhood might have been better for this project. Many of the Ward 3 participants had families and were too busy to see it through.

In the beginning of the project he attended all of the meetings but eventually he realized he was harming the subgroups by attending these meetings. His presence effected the way the groups operated and the intended goal was for these groups to be self-sufficient. Ultimately he stopped attending Green Living DC meetings altogether, but remains affiliated with the group members. *(Continued telling me the story of the project)*

AL: The initial plan was to replicate with an annual report – an update and measurement of progress towards original goals. However this didn't happen, Andrea found it difficult to gather the data in a timely manner, because this involved participation by stakeholder groups who had moved on to other projects.

They decided not to scale up the NSIP project to other DC neighborhoods. They drew upon lessons learned to create *Sustainable DC,* which is a blend of small area plans and NSIP. It is a more visionary plan to be implemented over a 20 year period. The DC Office of Planning has been to hundreds of community meetings, and organizing workgroups based upon Sustainable DC plans – and generally expanding the conversation around sustainability.

He believes DC is stuck in the old way of city planning, but so are neighborhoods. He shared that in many of these meetings community members were on the defensive, but when discussing "sustainability" it is more of a proactive conversation.

In many ways, DC is behind the curve on sustainability projects – especially in comparison to other cities of its size. For instance, we have a huge waste problem paired with low recycling rates. Hopefully with the *Sustainable DC* plan and small area plans – the visionary goals can be reached over a 20-year period, because progress has already been made over a short time period.

Interview with Arno Boersma: Notes
April 23, 2014
World Bank Headquarters Cafe @ 2:30pm – 3:15pm

Interviewer: How were you involved in the NSIP project as a resident of the neighborhood?

AB: Arno moved to DC in 2007 from Holland and got a job with working on Sustainable Development with the World Bank. He had kids and decided he needed to be more involved in the neighborhood – specifically on environmental issues pertaining to where he lived.

He said that they no longer use terms like "Neighborhood Sustainability Indicator Project." He attended the initial meetings or what he called "brainstorming sessions." He noted that folks were on parallel tracks – Andrea from Office of Planning and those who were getting paid for this work and then the group of participants or the volunteers. They created a long list of action items for each of the nine goals.

Arno agreed to participate because he wanted to learn more about the community participation aspect – seeing as his background was in international sustainability projects. He signed on to be part of the communications & marketing and website design team within Green Living DC. The goal was to raise awareness and provide a connection to resources for the neighbors. The expo was under the NSIP umbrella (although he could not recall when NSIP formally started/ended and when Green Living DC formed as a result).

Andrea has become less and less involved. UDC has become key to the group's success in engaging stakeholders – example he provided was green homes tour as part of the Expo highlighting rain gardens and various individual efforts. Planning the Expo has gotten easier each year especially because UDC is the lead. This year they hope to combine the "back to school bbq" with the Expo to save on costs and to draw a larger crowd. This year's date is scheduled for September 11, 2014.

Interviewer: What were some of the challenges you faced as community member participating in this process?

AB: It was humbling how little the group accomplished over a five-year period. The group began an initiative, a label for companies in ward 3 who were leaders in energy conservation. The incentive of this over the other types of labels that existed was the fact that it was locally based and awarded. However, the challenge was implementing this and it ultimately came to a halt in the process. Another initiative was a video of local green initiatives, giving recognition and using a condominium building as an example of solar power and progressive design. However, participants involved in making the movie wanted to wait until results of the project were produced – and then the movie project was never fully completed.

Interviewer: From your perspective, what aspects of the project were successful?

AB: He thought that was the main problem, no definition of success was decided upon from the beginning of the project. The main successful outcomes he thought were the

expo and the website. As far as NSIP was concerned, the number of goals the group actually tackled was low. Volunteers were hard to manage and when citizens are busy – this project is the first that they drop. He also mentioned that they failed to really involve the community at large.

He suggested that maybe the website was actually a better resource than the group even knows – can't measure it's success/have no way of tracking this. He also mentioned other small success, i.e. his personal rain barrel and wind power sticker on his home have prompted questions from his neighbors and in turn they make these modifications to their homes. He thinks tangible items were considered a success – website and expo, people have a hard time identifying with things that aren't part of their direct lives.

He thought that perhaps the nine goals identified by NSIP community members with action items was too high. He also mentioned the lack volunteers who saw the project all the way through – now the only core members of NSIP that remain are himself, John Macgregor, John Wickham and Nina Dodge (Kara recently decided to pursue other interests).

He gave an example of why he thinks people don't stick around to see these types of projects all the way through. Example: DC has recently re-drawn the school district boundaries. Therefore schools that are within walking distance to people's homes won't necessarily be the schools the students attend. Now many students will have to drive farther away and commute to their "district." He said families are up in arms and fighting this – they see it as an emergency. He said that people don't view sustainability and environmental concerns as an "emergency" so unfortunately it doesn't attract the attention it is due.

Interviewer: Were the partnerships that were developed successful?

AB: He would not consider the relationships developed "partnerships" necessarily. He said that many of the NGOs, were exhibitors in the Expo. He specified the Friends of Rock Creek Park for their help in a river cleanup and said explicitly that the UDC partnership was probably the greatest success.

APPENDIX B

Re: Green Living DC update and proposed meeting

December 7, 2013

from: **Kara Davis** <karadavis@gmail.com>

to: David Bardin <davidbardin@aol.com>

cc: John Macgregor <beamup2@gmail.com>, ken terzian <ken.terzian@verizon.net>, Arno Boersma <arnovation@gmail.com>, Lynsey Knowles <knowleslk@gmail.com>, "Curtis, Wayne" <wayne.curtis1@udc.edu>, Nina Dodge <ndodge53@gmail.com>, "Limauro, Andrea (OP)" <Andrea.Limauro@dc.gov>, Tom Whitley <tom9754@verizon.net>, John Wickham <johndwickham@gmail.com>, Dwane Jones <dwane.jones@udc.edu>

Hi everyone,

Thanks to those who were able to make it to the meeting on Thursday! Tom, John W., John M., Nina, and I were joined by Dr. Wayne Curtis, from UDC, and Lynsey Knowles, who is working on her thesis on community sustainability projects and may also be able to help out as a volunteer while she is here.

We had a productive session talking about some of the community actions that had come out of original NSIP suggestions, and settled on three main projects that we'd like to pursue in the near future. We'll meet again in early January (mark calendars for Thursday, January 9 at 3:30) and check in on progress then. In the meantime, here are the tasks that folks have agreed to take on:

Projects and Tasks

1) Organize sessions for businesses and multifamily building managers on benchmarking and energy savings
* We're focusing on Connecticut Ave businesses between Tilden and Nebraska
* We will compile a list of businesses and manager/building manager contact information
    * Wayne will check will check with DC Chamber of Commerce to see if they release contact information to members
    * Kara will create and share a Google Doc to that anyone can add to.
    * Nina will start knocking on doors and collecting information in person and will add info to doc.
    * Andrea - do you have a map or list of businesses that may be useful?
* John W will check with Marshall to ask what the benchmarking program can offer for neighborhood groups (have they held sessions in other neighborhoods?)
* John M will check with Hasim Dawkins to learn more about what he did for Georgia Ave, let him know that we will be collecting business contact info for them, and find out what kind of program they can offer once we do that.
* We might consider asking Scott Pomeroy to come give a session to us + UDC students on how to conduct business outreach and how they've been successful in the Downtown BID. Dr. Curtis, would you like to take the lead on that?
* Ken - could you let us know what the Van Ness Vision group is doing and where there may be overlap with this project?

2) Shore up our data collection on NSIP goals
* John W and Kara will take a look at the indicators we're trying to track, identify data sources, identify data gaps, and see how we can fill them (maybe with the help of UDC students?)

3) Track and report on DC government agency projects in neighborhood - submit stories to Forest Hills Connection
* Nina will check on Streetlinghts/public lighting
* Tom will check on walkability (one on 37th Street) and storm water projects
* Other topics may include:
    * Street trees/sidewalk design
    * 4 way stops - complete streets

Other News
* "Tom's Book Club" - Tom recommends that we all read Global Thirst by John Wennerston to understand threats to our Oceans and Rivers.
* Nina reports that there is a new EV charging station at Walgreens AND that she has a new Nisan Leaf!
* Lynsey would love to learn more about the original NSIP process, so may be getting in touch with some of you with some questions (I wasn't around then, so couldn't tell her much more than where we are now).