SKIDMORE COLLEGE, ENVIRONMENTAL STUDIES

Choosing Spots for Garden Plots

Evaluating Social and Physical Characteristics of Community Gardens in the Capital District

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1.0 Introduction

Urbanization and human population growth are escalating at unprecedented rates. By 2008, more than 50 percent of the global population lived in an urban environment (Goddard et al., 2009). Higher populations lead to higher development rates and consequently, urban green spaces shrink in size or disappear entirely. Urban green spaces, and gardens in particular, play critical roles in mitigating the detrimental impacts of urbanization. They provide ecosystems services and have a positive impact on quality of life, human health, and wellbeing (Goddard et al., 2009). Gardens provide opportunities for people to interact with nature and therefore are vital in fostering a wider interest in the natural environment, conservation issues, and self-sufficient food production. Gardens also rejuvenate urban environments by providing a space and means to interact with other individuals and cultivate meaningful community bonds.

A *community garden* is any piece of land gardened by a group of people in urban, suburban, or rural settings (ACGA, 2013). Garden layouts vary from single, large communal gardening areas to many individual plots located in a public space. Plot space may be walled off, in raised beds, or planted directly into the ground. Community gardens can be located in vacant lots, schools, parks, hospitals, elderly communities, on rooftops, privately owned parcels opened to the public, or government owned land (ACGA, 2013). Regardless of garden settings and layouts, community gardens offer a space for routine interaction amongst diverse individuals living in the same vicinity who share the common interest of growing their own food, herbs, or flowers. There are many different reasons why community gardens are established. Whatever the motivation may be, studies have shown that a city with community gardens is less dependent on nonrenewable fossil fuels and has healthier citizens eating better food, communities with stronger economies and more jobs, and youth that are provided with "inspiration rather than desperation" (Hanson & Marty 2012).

2.0 Social Characteristics

"Community" is commonly defined as a population of people living in the same general location (Saldivar-Tanaka and Krasny, 2004). Scholarly definitions of the word further assert that individuals and groups of individuals within a community must also consciously share common interests and interact with one another on a regular basis (Moseley, 2003; Kingsley & Townsend, 2006). S*trong* communities are comprised of community members who are engaged, participate and work through problems together, and who are supported by strong social networks (Firth et al., 2011). Additionally, individuals must share emotional connections with each other and feel as if they are valuable and influential members of the community (Schneider et al., 2012). In his book, *Bowling Alone*, Putnam suggests that "social capital is eroding" in the United States (Putnam, 1995). Fewer Americans know their neighbors, engage in civic activities, and reap the benefits of being socially connected like they once did. Community gardens have been shown to provide opportunities to enhance social capital, and promote interactions and social inclusion within gardens and beyond garden walls (Glover, 2004; Kingsley & Townsend, 2006; Quayle 2008).

2.1 Community within the Garden

Building relationships can occur both intentionally and serendipitously (Sander & Lowney, 2006). "The basic foundation of any interaction is conversation with two (or more) people talking about their experiences, beliefs, values or concerns" and community cannot exist without interaction. Conversations may begin with commonplace topics such as weather, sports or hobbies, but these

interactions breed familiarity, and establish common interests and personal inter-relationships. Without these initial conversations, it is difficult to delve into the more meaningful social issues that communities must address, to discuss deeper personal issues, or feel comfortable taking action together. It is through these repeated conversations and interactions that community grows (Sander & Lowney, 2006).

Community gardens are places where conversations amongst dissimilar people can flourish. Neighborhoods with intentional green spaces tend to have increased informal contact (L.E. Jackson, 2002). Studies have shown that especially in low-income housing developments, residents establish stronger social ties among neighbors if they are surrounded by trees, grass, or open green spaces (L.E. Jackson, 2002). Wakefield et al. found that participation in community gardens "elicited pride and provided a positive place for social interaction and sharing" (2007). Sharing may be in the form of information transfer, or of physical goods. Both forms of sharing bring people together. One study found that 95% of community gardeners give away some of the produce they grow to friends and family (DUG, 2010).

Community gardens come in a myriad of sizes. Few studies have been carried out to determine what would constitute the optimum number of gardeners in terms of efficiency, productivity, stability, and satisfaction at community garden sites. A group is said to be in a state of cohesion when its members possess bonds linking them to one another and to the group as a whole. Relationships in small intimate communities tend to be more stable and groups more cohesive (Thelen, 1949). Dunbar suggests that since it is easier for fewer people to agree on goals and to coordinate their work, smaller groups are more cohesive than larger groups (Dunbar, 1993). Sociologist Georg Simmel argued that as the group becomes larger, individuals become separated and grow more alone, isolated and segmented (Simmel, 1971). Group cohesiveness may suffer, though, if the group lacks enough members to perform its tasks well.

2.2 Engagement with the Surrounding Community

Community gardens can also encourage community-building within the greater community (Saldivar-Tanaka and Krasny, 2004; Armstrong, 2000; Comstock et al, 2010; Teig et al, 2009). Gardens provide a non-denominational "third space" outside of home and work where community residents may network; informally meet each other, introduce each other to friends and family, and learn more about other organizations in their community (Saldivar-Tanaka & Krasny, 2004). Research has shown that individuals who participate in church and other non-political organizations (such as gardens) have an enhanced psychological attachment to their communities (Liu et al., 1998), and that individuals who are more attached to their communities are more likely to be active in civic life (Davidson & Cotter, 1989; Unger & Wandersman, 1985).

In two metropolitan settings, New York City and Denver, garden sites were found to be places for frequent socialization and community organizing. In New York City, "many of the community gardens seemed to facilitate improved social networks and organizational capacity in the communities in which they were located, especially in lower income and minority neighborhoods" (Saldivar-Tanaka and Krasny, 2004). Similarly, the Colorado School of Public Health (SCPH) and the non-profit organization Denver Urban Gardens (DUG) recently completed a six-year study of Denver gardens that was specifically designed to determine whether "community gardens really enhance communities and reach a broad audience" (DUG, 2010). The Denver gardens were found to promote "stronger neighborhood leadership, outreach, and volunteerism" amongst individuals not directly involved with gardens in their neighborhoods (DUG, 2010). The DUG study also found that gardeners were engaged with the greater community by donating food to assistance programs and people in need.

Conducted in a less densely populated area, Armstrong's (2000) survey of community garden programs in upstate New York found that in more than half of the gardens surveyed, the existence of the garden had improved resident attitudes towards the neighborhood. Improved attitudes towards the community may occur because neighbors become more comfortable around each other, feel safer in their communities, or simply because the garden sites beautify their neighborhoods. When citizens feel more connected to the place they live in, they are more likely to want to make positive changes in their community. Thirty-three percent of garden leaders in Armstrong's study believed that "other neighborhood issues were addressed" thanks to the neighborhood presence of their community gardens (Armstrong, 2000).

While surveys of community development as a result of community gardening have occurred in various locales and regions of varying density around the world, no study has ever explicitly *compared* community garden success in terms of community engagement based on their surrounding population densities. Fischer (1982), Shah (1998), and Verba et al. (1995) have found that the larger the city, the less likely residents are to have a strong sense of community, and the more likely they are to be anonymous, "thereby resulting in less opportunity for recruitment in civic volunteerism".

3.0 The Natural Environment

Agricultural productivity is one objective of community-based gardening. For a garden to provide the largest quantity and highest quality of food, the site must meet certain physical requirements. Water retention and availability is one of the most important requisites for successful agriculture, on rural and urban land. Successful urban and rural community gardens will thrive under optimal soil conditions and a low percent of impervious surface cover.

3.1 Soil Type

Soil type is important to consider when choosing a garden location and, depending on several factors, could either promote or prevent plant growth. Soil type is a "product of geology" and refers to the characteristics, grain size, and texture of the soil (Bane, 2012). In agriculture, proper growth, development, and maintenance of plants depend significantly on soil moisture content (Kitic et al., 2013). Sandy soils sustain less water content than clay soils, so sandy soils need more frequent rainfall or irrigation to support a crop (Winch, 2007). Fine- and medium-textured soils, such as clays, clay loams, silty clays and silty clay loams increase agricultural potential because of their superior ability in retaining nutrients and water (White, 1997). Finer grain soils can retain water better than larger grain soils because they are more permeable and have a greater porosity. Permeability is the rate at which water infiltrates through a soil body and porosity is the amount of void spaces in soil that can contain water. There are other factors besides soil moisture content that affect a soil's agricultural performance. Gradient is important because it determines the stability of a slope. Land with high percent slopes do not foster optimal growing conditions because soil cohesion is weakened. Slope failure and erosion is more likely to occur and a garden could be ruined. Higher slopes also allow for more run-off, thus preventing water infiltration. Uniform soil composition is another important factor. Heterogeneous soils (i.e. rocky soils) are not conducive to agricultural success. Healthy soils tend to be more homogeneous in composition, are rich in organic matter, and consist of well-developed soil horizons.

3.2 Impervious Surface Cover

According to Boyd et al., urban areas generally consist of two categories of surfaces (1993). Impervious surface areas (ISAs) are parcels of land that are entirely covered by impermeable material. This includes roads, parking lots, man-made structures, and in some cases roofs. ISA are artificial constructions and are a direct result of development and urbanization. Preserved "green" spaces that are exposed to the elements and able to provide ecosystem services such as lawns, parklands, roadside vegetation, and gardens are pervious or semi-pervious areas (PSAs).

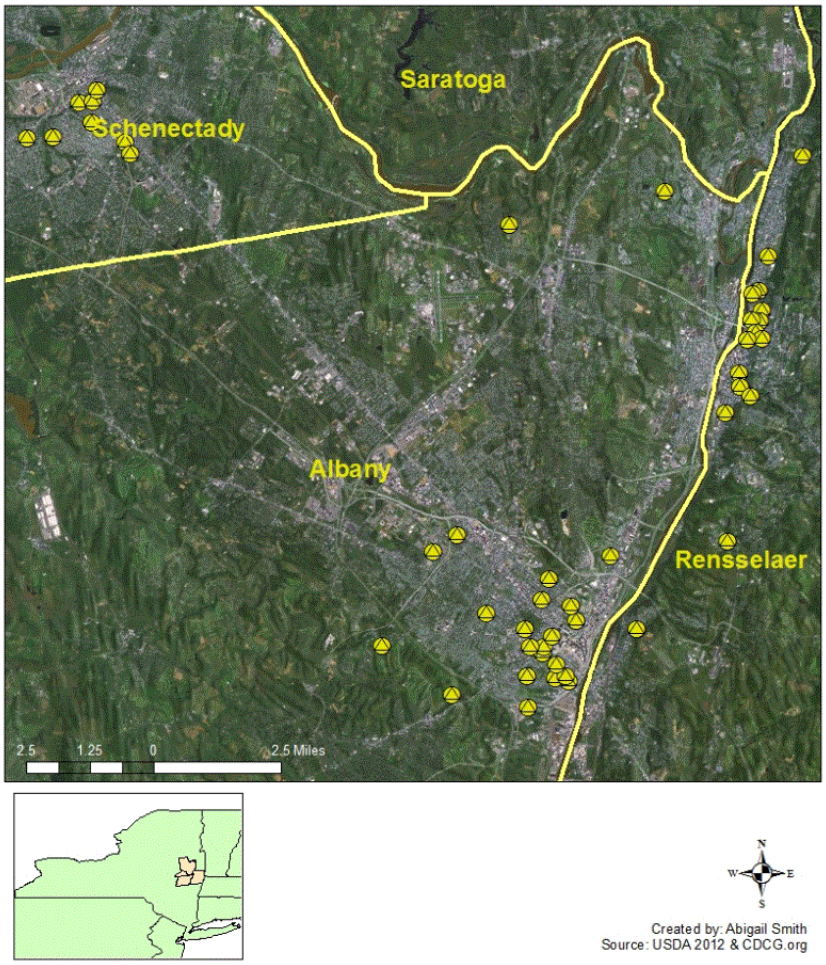
PSAs allow the earth to retain and filter water into the soil naturally. If the land is covered by an impenetrable surface, infiltration is impeded and runoff processes and transport will be exacerbated. This can facilitate the movement of pollutants (e.g. toxins, excess fertilizer and metals) into waterways, and increase erosion, sedimentation, and water temperatures, flooding and periods of low flow (Jackson 2003). Elevated concentrations of nutrients (nitrogen and phosphorus) which originate from farm or industrial activities and are more likely to contaminate surrounding land or water bodies if they are picked up by surface runoff (Weng, 2008).

ISA is an important indicator of water quality and abundance within a watershed (Hasse & Lathrop 2003). Higher percentages of ISA lead to degraded water quality and increased water scarcity which will have major implications for the ecological productivity and overall agricultural potential in urban gardens. ISAs have already proved destructive to urban streams and garden productivity and can have lasting effects on urban economies, infrastructure, and public health and safety (Weng, 2008).

4.0 Research Setting

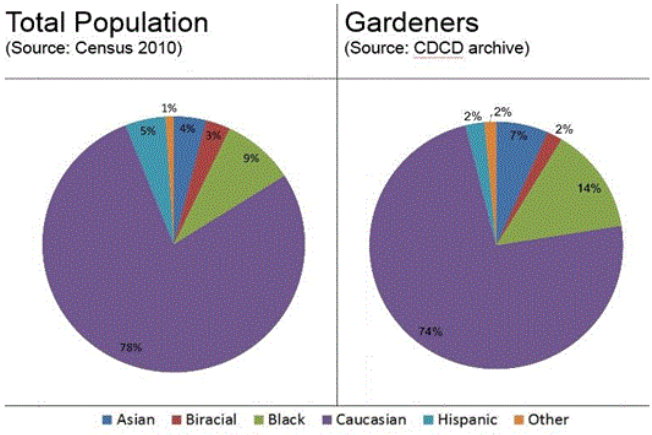
We studied 49 gardens within Schenectady, Albany, and Rensselaer counties, all of which are overseen by Capital District Community Gardens (CDCG) (Figure 1). CDCG is a non-profit organization established in 1975 whose mission is to "nourish healthy communities by providing access to fresh food and green spaces for all" (CDCG, 2013). A coalition of employees, interns, and volunteers work to convey the organization's mission by establishing and managing community gardens, providing healthy food access, offering nutritional and horticultural education for all ages, and coordinating urban green programs in the Capital District (CDCG, 2013).

Figure 1: Community Garden Locations in the Capital District



According the CDCG archives, 74 percent of CDCG gardeners were Caucasian in 2012. Compared to the demographics of the entire Capital District, a higher percentage of minorities gardened than were represented as residents in the 2010 Census, suggesting that for community gardens in the Capital District are attracting a racially diverse mix of people (Figure 2).

Figure 2: Racial Demographics in the Capital District



5.0 Goals and Objectives

The objective of our study is to investigate how social and physical characteristics influence the functionality of community gardens in the Capital District of New York State. For the purpose of our study, we are recognizing community inside the garden, engagement with the surrounding community, soil type, and impervious surface cover to be the major agents of a community garden. The social characteristics were evaluated based on population density and garden size. Ultimately, we sought to determine which characteristics were influential in determining a successful garden and which were irrelevant. We selected two gardens that we deemed most interesting and indicative of our findings to analyze further. We anticipate our results will provide useful information to garden coordinators and participants. Our study will enhance local community dynamics and further the agricultural movement as a whole.

6.0 Methods & Results

Table 1: Methods and Results Summary

Research Topic	Methods	Results
CDCG history, goals, challenges, etc.	· Semi structured interview with Sharon DiLorenzo	· Table 2: Interview Themes and Responses
Community within the Garden	· Survey Questions 4, 5, 6, 7, 8 and 12 (see Table 3: Questions Used from Community Gardening Survey) · CDCG Archive data 2012 (showing number of gardeners per garden)	· Table 4: Community Scores · Figure 3: Community Scores · Figure 4: The Relationship between Garden Size and Community Inside Garden
Engagement with the surrounding community	· Survey Questions 3 & 9 (see Table 3: Questions Used from Community Gardening Survey) · Population Demographics from US Census (2010)	· Table 4: Community Scores · Figure 3: Community Scores · Figure 5: Population Density in The Capital Region · Figure 6: The Relationship between Population Density and Gardener Engagement with the Surrounding Community
Soil	· USDA NRCS Soil Surveys: Albany (2006) Rensselaer (1988) Schenectady (1978)	· Table 5: Soil Type at Capital District Community Gardens · Figure 7: Community Garden Ratings Based on Soil Type
Impervious Surface	· USGS NLDC 2006	· Table 6: Percent Impervious Surface Cover Within a 200m Radius of Community Gardens · Figure 8: Community Garden Ratings Based on Percent Impervious Surface Cover Within a 200m Radius

6.1 Interview Methods

We conducted a semi-structured two-hour interview with the Program Manager of Capital District Community Gardens (CDCG), Sharon DiLorenzo, on February 18, 2013. The interview was designed to document the origin and goals of CDCG, the meaning of gardens, garden practices, garden-neighborhood interactions, and the impacts of community gardens on the broader neighborhood and city environment. Sharon has worked with CDCG for over 20 years and oversees many aspects of the non-profit organization, from grant-writing to acquisition of new garden space property.

6.2 Interview Results

Sharon covered many topics in her discussion. Table 2 shows a few exemplary quotes of the most relevant themes and responses from the interview. The full interview transcript can be found in Appendix 3.

Table 2: Interview Themes and Responses

Gardener's motivations for gardening: *"I think it's really social, I think it's about food, I think it's about the activity of gardening, having something to do."*
Issues with land acquisition and ownership: *"We have several gardens that are probably under threat, longer term threat meaning we will probably lose some of them. So what we've been trying to do as we build new gardens is find the best possible scenario—ownership being number 1—and if we can take ownership then all of those problems go away."*
Importance of location: *"I look at so many lots and probably 70-80% of them are totally not useful to us and I turn them down. It has a lot to do with where they are, too. I mean who's going to use this thing?"* *"It's location, location, location, I can almost guarantee that."*
Importance of community: *"One of our favorite terms is, it's more about the community than it is about gardening."*
Soil quality: *"In all the gardens I've built, I have found low lead levels only twice. This is after full soil analysis—we use UMass Amherst—they give you really good feedback. But even in a case like that we'll excavate, bring in new soil."*
Characteristics of a successful garden: *"The smaller gardens are more intimate; I think people relate to the space better, I think they take more ownership of it. As you get more and more people, there's a little more room for some head-butting, for more personalities. I don't know what the formula is exactly. It's not the soil, I can tell you that much."*

6.3 Survey Methods

We distributed our survey (Appendix 1) to attendees of returning gardener sign-up sessions in Albany and Troy on February 16, 19, 25, and 27, 2013 and received a total of 91responses. Returning gardeners are required to attend these annual meetings to reclaim their plot for the upcoming gardening season. The answers to questions 4, 5, 6, 7, 8, and 12 were used to determine the level of *community within the gardens* and questions 3 and 9 measured the gardeners' *engagement with the surrounding community* (Table 3). Answers to question 14 were qualitative responses that provided insight on gardener's attitudes and valued experiences as community gardeners. The responses to question 14 can be found in Appendix 2.

We quantified the answers by assigning each one a number value from 0-4, with 0 being responses that indicated a lack of community and 4 being ones that indicated a high level of community. Question 4 and 8 was scored as a=1, b=2, c=0, questions 5-7 were all ranked as a=1, b=2, c=3, d=4, and question 12 was ranked as a=2, b=1. The individual scores for each question were averaged, added up, and converted into a percentage. Due to a lack of survey data from certain gardens, we chose not to include those that had a response rate of less than 10 percent in our study.

Table 3: Questions Used from Community Gardening Survey

3. After your involvement in your community garden, are you (a) more or (b) less likely to join another community organization?	a. more likely	b. less likely	c. no change	n/a
4. When problems arise in the garden, are they typically solved by (a) and individual or as the (b) as the result of a collaboration?	a. individual effort	b. result of a collaboration	c. I don't know.	n/a
5. How often do you coordinate with other garden members to garden on the same day/time?	a. never	b. rarely	c. often	d. routinely
6. During a typical gardening day, approximately how many gardeners will you converse with?	a. none	b. 1–2	c. 3–5	d. 6+
7. Would you prefer more or less conversations and socialization when you are gardening?	a. more	b. less	c. I don't care.	n/a
8. Since participating in the garden, has your perception of the surrounding community changed?	a. Yes, in a positive way	b. Yes, in a negative way	c. No, it has not changed.	n/a
12. If your community garden were to increase in size, would you prefer it increase:	a. the number of plots (i.e. more gardeners)	b. individual plot size	n/a	n/a
14. What about your community garden do you value the most?	See..	appendix..	#...	2.

6.4 Survey Results

Overall, the gardens in Albany County have higher scores than those in Rensselaer County (Table 4). We did not gather any survey data from Schenectady gardens. The average community scores for Rensselaer for community within the garden is 41%, and the average garden community score for Albany is 48%. For community engagement, the Rensselaer average is 79%, and the Albany average is 83%. Neugebauer has the highest community within score and scores highly in engagement as well. Ness Park has low scores in both categories; it has a lot of room for improvement in terms of community. Stearns had the highest community engagement score but only has an average community within the garden score. Some gardens have high scores in one category but low scores in the other, such as Chaucer Farm,

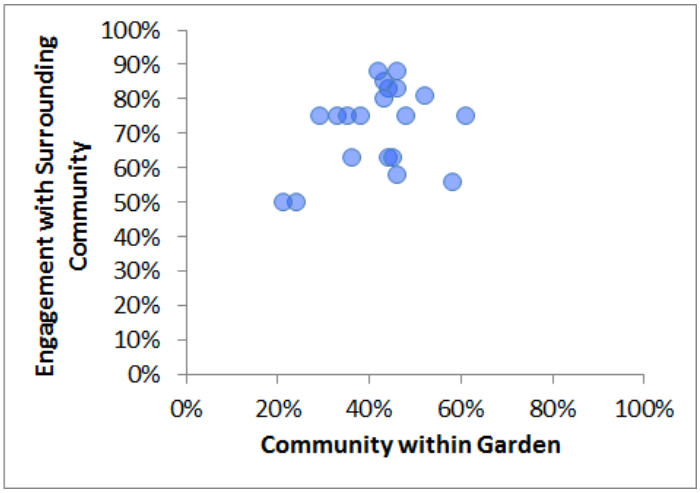
which has the lowest community inside the garden of all the Albany gardens, but scored quite highly for surrounding community, and Yun Garden which had one of the highest community inside scores but one of the lowest engagement scores.

Table 4: Community Scores

	Garden Name	Community Within Garden Score (%) (Source: Community Garden Survey 2013)	Engagement with Surrounding Community Score (%)
Rensselaer	LaBella	63	72
	Miller	43	90
	Raudonis	54	92
	Marks	35	83
	Risley	55	75
	Ness Park	38	67
	Harris	38	67
	Lipshutz	29	83
	Greene	50	83
Albany	Yun	58	71
	Marcella	52	88
	Turner Park	48	83
	Neugebauer	61	83
	Stearns	46	92
	Marx	46	88
	Smith	44	75
	Lindemann	44	89
	Chaucer Farm	43	87
	Schneller	38	83
	DeJongh	45	75

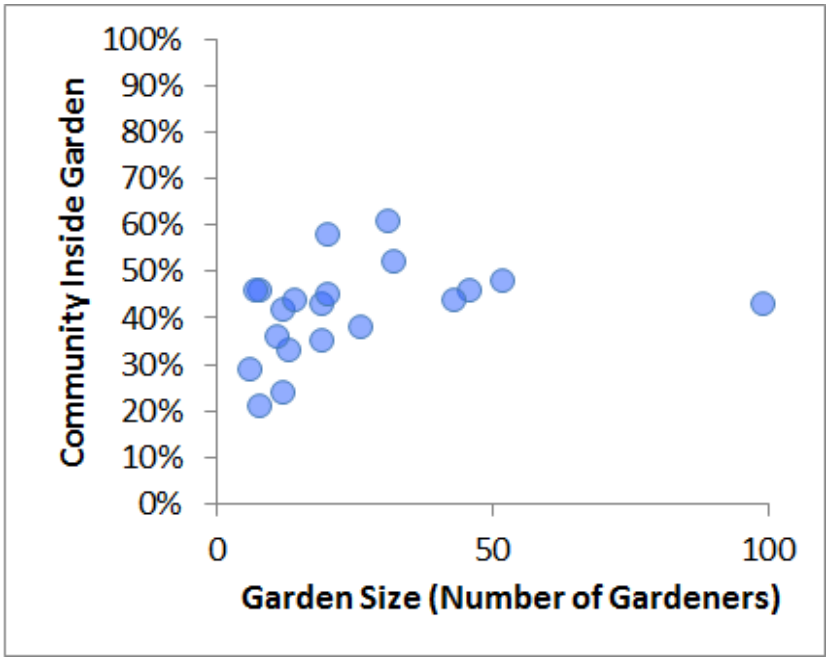
In Figure 3, each point represents a garden plotted in regards to both community scores. Ideally, gardens would be as close to possible to the upper right-hand corner, which represents the highest scores for both community types. The further away each garden is from this point, the more room the garden has for improvement.

Figure 3: Community Scores



In order to see what was giving gardens high scores in both types of community, we looked at the community inside the garden scores with regards to the size of the garden, which we represented through the number of people who were gardening in the garden in 2012 (Figure 4). It is evident that the community scores get higher as garden size increases, although once the size gets past a certain point, the scores level off or even drop off. The scores peak at the mid-sized gardens, with our three highest scores being Neugebauer, Yun, and Marcella, which have 31, 20, and 32 gardeners respectively. The gardens with between 20 and 40 gardeners have an average community score of 51%. In comparison, the gardens with less than 20 gardeners have an average community score of 36%, and the gardens with more than 40 gardeners have an average score of 45%.

Figure 4: The Relationship between Garden Size and Community Inside Garden



Population density at each garden was analyzed in relation to community engagement scores (Figure 6). The scores decrease in the highest population density (Figure 5), which is over 20,000 people per square mile.

Figure 5: Population Density in the Capital District

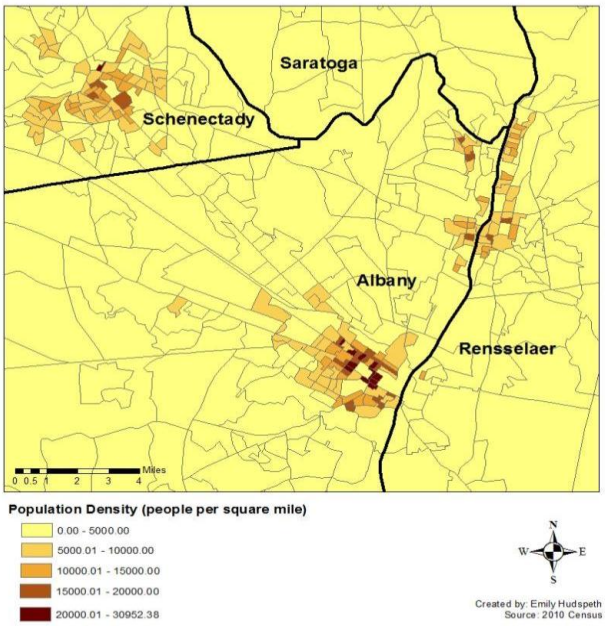
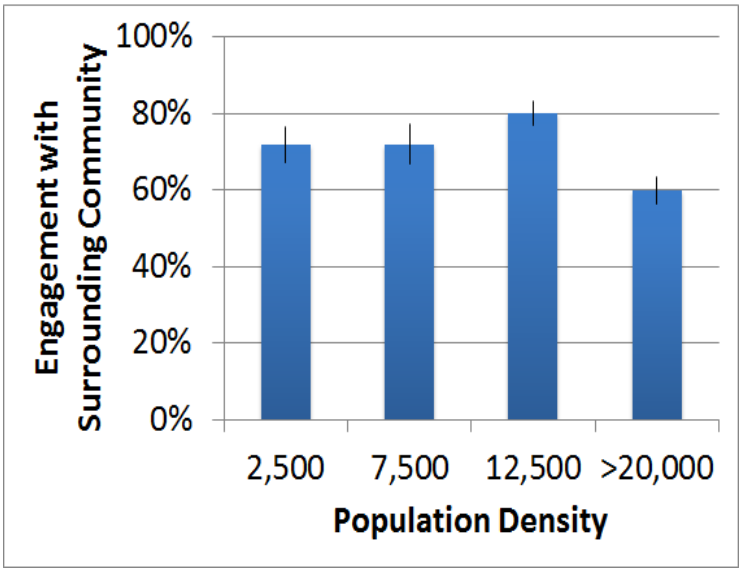


Figure 6: The Relationship between Population Density and Gardener Engagement with the Surrounding Community



6.5 The Natural Environment Methods

Soil Quality

Soil type was downloaded from USDA NRCS soil surveys of Albany (2006), Rensselaer (1988), and Schenectady (1978). Each county's soil survey provided detailed descriptions of each soil type and, based on slope and physical characteristics of the soil, commented on its agricultural potential. With this information, we determined which soils were suitable for gardening and rated the gardens as either excellent, moderate, or poor.

Impervious Surface

We retrieved raster information from USGS (2006) to measure the amount of impervious surface surrounding each garden. Percent impervious surface ranged from 0-100 with 0 being least pervious and 100 being most impervious. We classified 0-33% impervious as category 1, 34-66% impervious as category 2, and 67-100% impervious as category 3. Using ArcGIS, we drew a 200 meter buffer around each garden and clipped these circles to the impervious surface raster with the three categories of imperviousness. We counted the number of cells in each garden radius, and converted these numbers to a percent of the whole area for each garden. We multiplied these percentages by the average percent imperviousness for each category (Category 1 average=16.5%, Category 2 average=49.5%, Category 3 average=82.5%), and the sum was used to create a single score of imperviousness for each garden. We assigned all gardens with an average percent less than 33 percent to be "poor", greater than 33 percent and less than 66 percent to be "moderate", and greater than 66 percent to be "excellent".

6.6 The Natural Environment Results

Fifteen out of the forty-nine gardens we looked at were classified to have excellent soil types. Twenty-five of the forty-nine had poor soil (Table 5).

Table 5: Soil Type at Capital District Community Gardens

	Garden Name	Soil Type Code	Soil Type Name (Source: USDS-NRCS)	Agricultural Potential (Excellent / Moderate / Poor)
Schenectady	Alverson	CoA	Colonie loamy fine sand	Excellent
	Blanks	CoA, Gr	Colonie loamy fine sand/ Granby loamy fine sand	Excellent
	Burke	CPE, CoA	Colonie and Plainfield/ Colonie loamy fine sand	Moderate
	DiLisio	Ur	Urban Land	Poor
	Duncan	Ur	Urban Land	Poor
	Figueroa	Ur	Urban Land	Poor
	Goldbas	Ur	Urban Land	Poor
	Green	UR, CPE	Urban Land/ Colonie and Plainfield	Poor
Rensselaer	Ness Park	HoB	Howard gravelly silt loam	Excellent
	Greendorfer	SwA	Shaker very fine sandy loam, sandy substratum	Excellent
	Greene	HoC	Hosaic gravelly sandy loam	Excellent
	Harris	Ur	Urban Land	Poor
	Hudspeth	Ur	Urban Land	Poor
	Johnson	Ur	Urban Land	Poor
	LaBella	Ur	Urban Land	Poor
	Lawler	Ur	Urban Land	Poor
	Lipshutz	Ur, HuD	Urban Land/ Hudson silt loam, hilly	Poor
	Markram	NrD	Nassau very channer silt loam, hilly, very rocky	Poor
	Marks	HuD	Hudson silt loam, hilly	Poor
	Miller	NrD, NaC	Nassau very channer silt loam, hilly, very rocky/Nassau very channery silt loam, rolly, very rocky.	Poor
	Paino	Ur	Urban Land	Poor
	Raudonis	Ur, HuE	Urban/ Hudson silt loam	Poor
	Risley	Ur	Urban Land	Poor
	Siedmon	Ur	Urban Land	Poor
Albany	Smith	Ut	Urban land-Udorthents complex	Excellent
	Stearns	HuB	Hudson silt loam	Excellent
	Stern	Ut	Urban land-Udorthents complex	Excellent
	Stumpf	Ut	Urban land-Udorthents complex	Excellent
	Wyant	Ut	Urban land-Udorthents complex	Excellent
	Yun	Ut	Urban land-Udorthents complex	Excellent
	DeJongh	Ut	Urban land-Udorthents complex	Excellent
	Marx	EIA, Uh	Elmridge fine sandy loam/ Udorthents, loamy-Urban complex	Excellent
	Chaucer Farm	ScA	Scio silt loam	Excellent
	Schneller	Ud	Udipsamments, smoothed	Excellent
	Kellogg	RkC	Riverhead fine sandy loam	Moderate
	Gibson	Ug	Udorthents, loamy	Moderate
	Marcella	Uh	Udorthents, loamy-Urban complex	Moderate
	Lindemann	Ug	Udorthents, loamy	Moderate
	Neugebauer	Ug	Udorthents, loamy	Moderate
	Nichols	Uh	Udorthents, loamy-Urban complex	Moderate
	Goody	Ur	Urban Land	Poor
	Glotzbach	HuE	Hudson silt loam	Poor
	Turner Park	Ur	Urban Land	Poor
	Jones	Ur	Urban Land	Poor
	Scarce	Ur	Urban Land	Poor
	Nurcan	Ur	Urban Land	Poor
	Stelmack	Ur	Urban Land	Poor

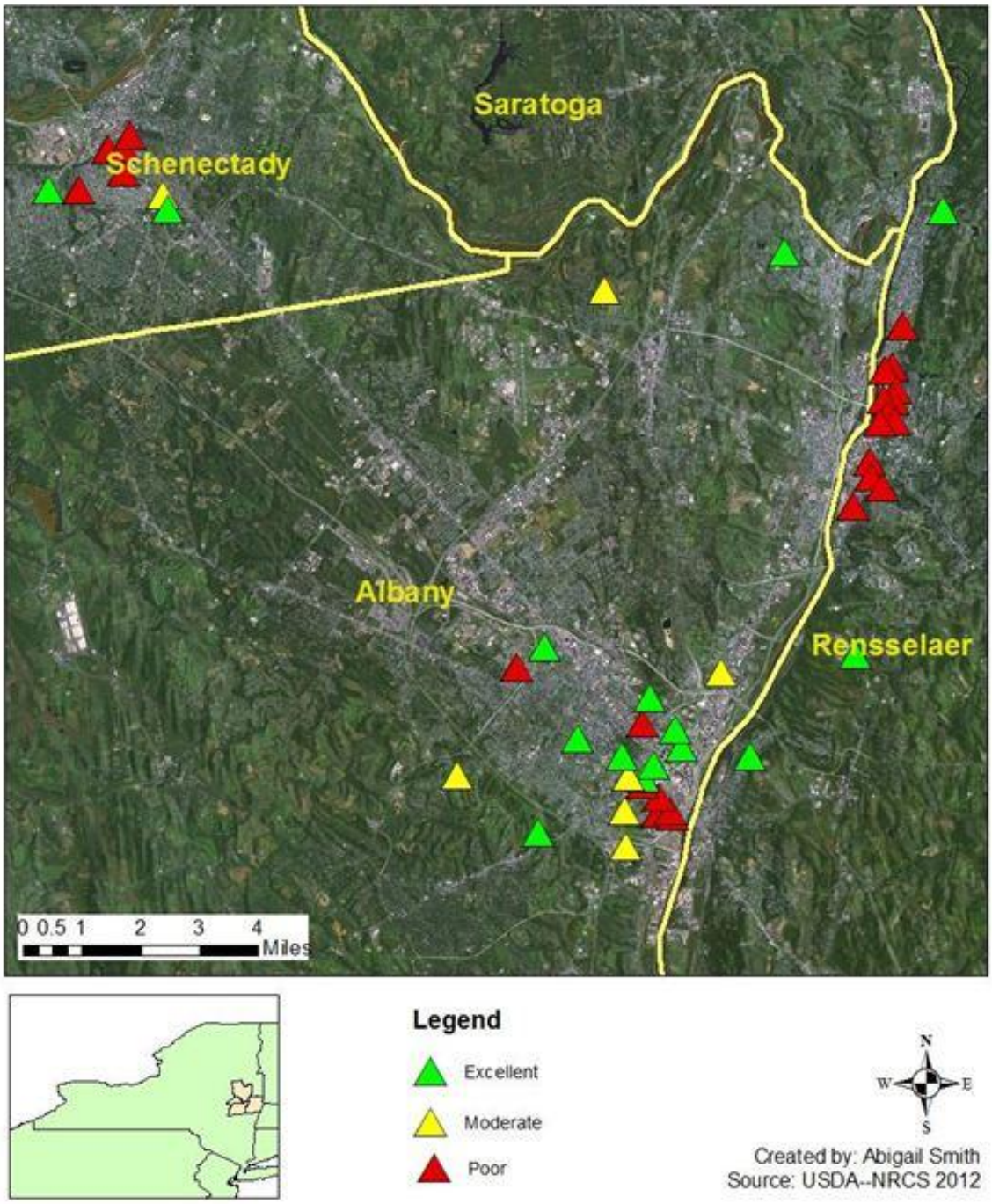
10 of 49 gardens received excellent ratings for percent impervious surface cover and 14 of 49 received poor ratings (Table 6). The average impervious surface cover for Schenectady gardens was 51.25%. Rensselaer had an average cover of 55.56%, and Albany had an average of 46.43% impervious surface cover.

Table 6: Percent Impervious Surface Cover Within a 200m Radius of Community Gardens

	Garden Name	Impervious Surface Cover (%)	Impervious Surface Cover Rating Excellent 17-37% Moderate 38-57% Poor 58-78%
Schenectady	Alverson	42	
	Blanks	45	
	Burke	46	
	DiLisio	46	
	Duncan	56	
	Figueroa	56	
	Goldbas	59	
	Green	60	
Rensselaer	Ness Park	28	
	Greendorfer	28	
	Greene	30	
	Harris	39	
	Hudspeth	40	
	Johnson	50	
	LaBella	55	
	Lawler	62	
	Lipshutz	64	
	Markram	64	
	Marks	67	
	Miller	68	
	Paino	69	
	Raudonis	72	
	Risley	75	
	Siedmon	78	
Albany	Smith	17	
	Stearns	17	
	Stern	29	
	Stumpf	30	
	Wyant	33	
	Yun	34	
	DeJongh	37	
	Marx	38	
	Chaucer Farm	41	
	Schneller	42	
	Kellogg	46	
	Gibson	50	
	Marcella	50	
	Lindemann	51	
	Neugebauer	51	
	Nichols	53	
	Goody	54	
	Glotzbach	56	
	Turner Park	59	
	Jones	68	
	Scarce	70	
	Nurcan	70	
	Stelmack	72	

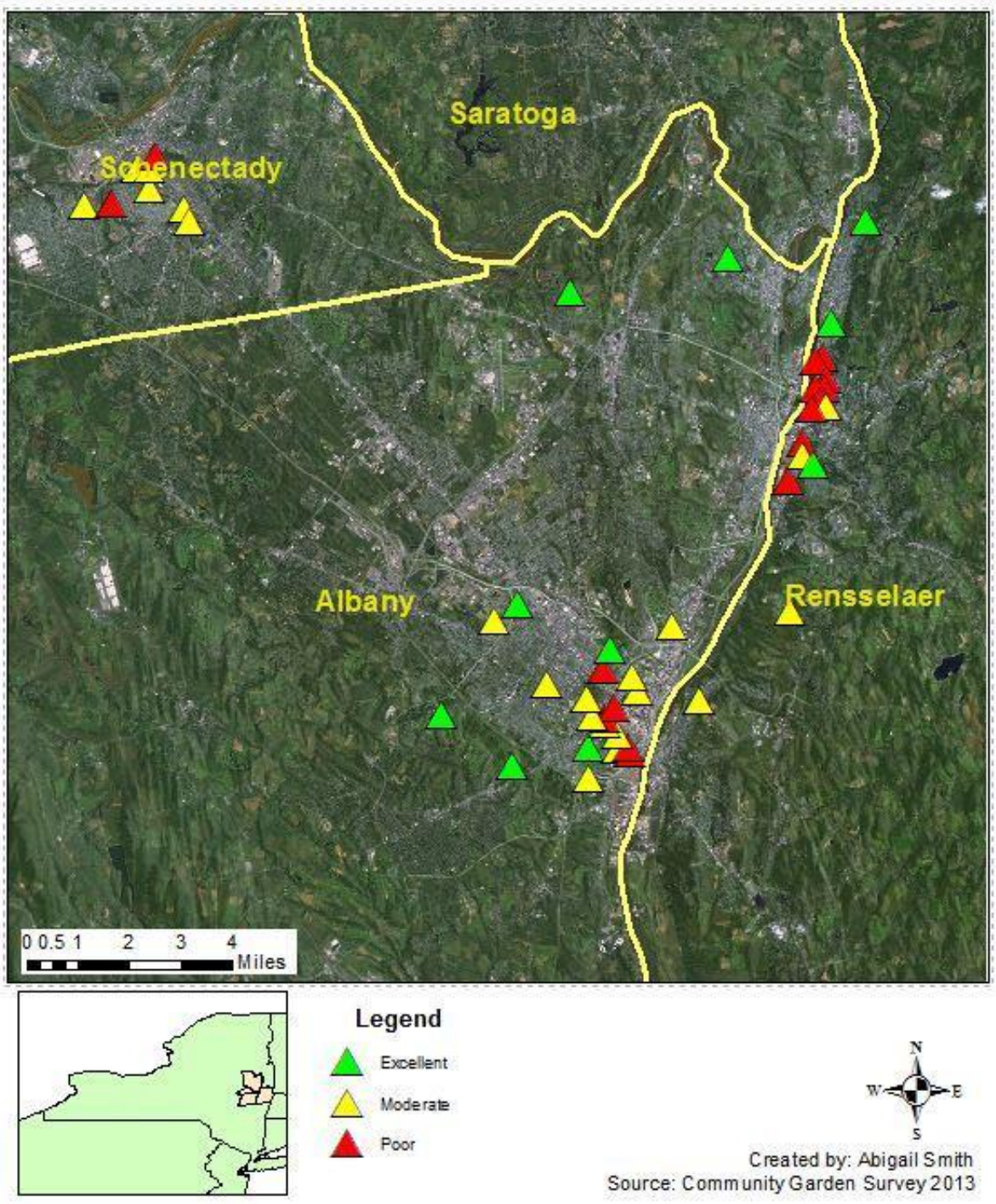
All of the poor soil conditions that we found lie within Schenectady, Troy, and Albany city centers (Figure 7), probably due to the fact that most of them are classified as "Urban Land" which means 85% or more of the land is covered by buildings and roads. For the most part, with the exception to a few downtown Albany gardens, excellent soil types exist on the perimeter of city centers—on suburban or rural landscapes.

Figure 7: Community Garden Ratings Based on Soil Type



The gardens with the most pervious land cover are located in rural areas of Albany and Rensselaer counties and lie outside of the Albany and Troy city centers (Figure 8).

Figure 8: Community Garden Ratings Based on Percent Impervious Surface Cover Within a 200m Radius



7.0 Discussion

Social Characteristics

The results of our survey questions lead us to believe that the strongest community inside of a garden is found at gardens with 20-40 people gardening there. The smaller gardens had much lower scores than the mid-sized gardens, and the larger gardens have somewhat lower scores. Previous research indicates that large groups of people like those found in our larger gardens may result in people feeling isolated and not a part of a community (Simmel, 1971). Additionally, a higher number of people can lead to "head-butting and [clashing] personalities" which is not ideal for community bonding (DiLorenzo, 2013). Smaller groups are more ideal since they can more easily agree on goals and work together (Thelen, 1949; Dunbar, 1993). "The smaller gardens are more intimate" and "people relate to the space better" and "take more ownership" of the gardens (DiLorenzo, 2013). Clearly, smaller gardens are at an advantage because gardeners can more easily get to know each other and work together. However, if gardens get too small, they are not effective either as a result of not having enough people to create a community. Not all gardeners join a garden for the community; many join for food, but many gardeners do recognize that community is a result of gardening together, and even cite socializing and community building as one of their favorite aspects of their community garden (Appendix 2).

Community gardens are not closed systems; rather, they operate in the context of the neighborhood where they are located. Community gardening can lead to higher participation in other community organizations (Saldivar-Tanaka and Krasny, 2004, Armstrong, 2000; Comstock et al, 2010; Teig et al, 2009; Davidson and Cotter, 1989; Unger and Wandersman, 1985; DUG 2010). Population density can be a good indicator of how effectively gardeners interact with the surrounding community; as we saw, gardener's engagement with and perception of their surrounding community was reduced when population density reached over 20,000 people per square mile (Figure 6). In cities that have high density populations, people feel more anonymous and engage less with their communities (Fischer, 1982; Shah 1998; Verba et al, 1995). It makes sense that this would hold true for gardens as well. However, the solution is not to locate all gardens in rural areas, because it is important for gardens to be located close to where people live. Many of the gardeners we surveyed emphasized the proximity of their community garden to their home as a main reason they garden there (Appendix 2). "The [gardens] closest to where people live seem to do the best" (DiLorenzo 2013). Gardens will have the best interactions with their neighborhoods when they are located in a moderately dense urban area.

Physical Characteristics

Soil type is difficult to evaluate in Capital District counties because much of the land has be transformed by urbanization. Bedrock structure and soil composition is largely a product of geologic

activity that occurred thousands or even millions of years ago. In the past century, cities have sprouted and developed at an alarming rate, irrespective of the rich and productive soils that may lie beneath. Historically, cities emerged on the banks of rivers because they provide opportunities for commerce, transportation, and an indefinite water supply for agricultural irrigation and human consumption. River deltas were the most attractive sites for early agriculture because frequent flooding events provided for healthy, loamy soil, flat land, and a consistent water supply. The confluence of the Mohawk and Hudson rivers created an ideal setting for the birth of Capital District urban centers. Ironically, agriculture was one of the major reasons why people settled down on the banks of the Hudson and today much of the land has been stripped and covered by pavement.

It is difficult to determine soil quality within our study locations because the majority of those gardens that received "poor" ratings by the soil surveys were described as being "Urban Land." Thus, our classification system to determine excellent, moderate, and poor soils may be skewed because some land was inaccessible for observation or sampling. It is also important to note that when rating gardens, we assumed the description given by the county's soil survey represented the entire plot of land. For example, we gave those gardens that were described to have hilly land, and thus unsuitable for growing plants, a poor rating-- even though CDCG is selective in their garden locations and would not establish a garden on sloping land. Lastly, another reason why our soil type classification may not adequately represent the actual soil conditions is that CDCG continuously imports soil into gardens that may be lacking. This means that some of those gardens that received "poor" soil type ratings could actually have highly productive soil. These speculations led us to believe that soil type is not reliable in determining overall garden success. When asked to presume what factors contribute to a well-functioning community garden, Sharon DiLorenzo replied, "I don't know what the formula is exactly. It's not the soil, I can tell you that much" (DiLorenzo, 2013).

The relationship between impervious surface cover and garden location is perhaps the most evident. All gardens with the highest percent pervious cover within a 200 meter radius were those that are located furthest from Albany, Schenectady, and Troy city centers. As seen on the satellite image, these gardens were located on what looks to be entirely green space. Those with the highest percent impervious surface cover were located in the densest areas and were built in small bits of open green space that is surrounded by a sea of pavement. This led us to believe that rural gardens are less susceptible to contaminated runoff, erosion, sedimentation and flooding and, therefore, will function better than gardens in dense urban settings.

Case Studies

We looked at a couple of gardens in higher detail to see what was causing them to have good or bad community and physical characteristics. Ness Park is an interesting example in that it has great

physical characteristics, but had the lowest community scores of all the gardens we studied. Seventy-five percent of the plots at Ness Park were vacant in 2012. This may be due to the fact that Ness Park is located on the outskirts of Troy, directly adjacent to a public housing project. According to Sharon DiLorenzo, it is being underutilized by the people who live next to it, and people from downtown Troy are unwilling to travel into the garden, perhaps because the neighborhood, which has a history of crime (Lorenzo, 2013). In this instance, the garden isn't necessarily going to fail, but there is definitely room for improvement. If people from the outside community don't want to garden there, perhaps existing gardeners can canvass for more participation from the housing project, and promote the garden as a safe space in which to unite the community. Saldivar-Tanaka and Krasny believe that community gardens are especially useful in uniting "lower income and minority" communities such as is the case at Ness Park.

In the exact opposite vein, Turner Park has poor soil quality and is surrounded by a high percentage of impervious surface cover, but it scored very highly in terms of community. In contrast to Ness Park, this popular garden does not have any vacancies. It is in downtown Albany, not too far from the Egg Theatre, it falls within the optimal range of population density, an ideal number of people garden there, and there is a school and a park nearby which may make the area a more comfortable place in which to garden.

8.0 Conclusion

Suggestions for improvements

Our study could be improved upon in a few different ways. First, we believe a participant observation study would be more effective in evaluating social dynamics rather than gauging community through survey responses. This could be conducted at garden work parties, general gardening days, or sign-up sessions and could span over several months' time. This would allow for more intimate interactions with gardeners and lead to a better understanding of the gardening experience as a whole.

It would also be interesting to study other social and physical characteristics, such as neighborhood demographics or soil pH tests. This would broaden the scope of our research and allow for a more in depth evaluation of garden successes and failures.

Final Conclusions

Above all, social characteristics, rather than physical, are the most influential agents of a well-functioning community garden. We found that rural gardens have the potential to be less contaminated by urban sources and reap the benefits of being surrounded by more green space. This does not necessarily mean these rural gardens are any more successful than those located in city centers. There are higher prospects of having a cohesive and valuable community atmosphere in urban gardens. Community

development and neighborhood dynamics are more complex and, unlike environmental factors like soil or pavement, are harder to manipulate and control. Thus, social characteristics are most indicative of garden success and ensuring their predominance in community gardens should be prioritized over physical characteristics.

Today, there are more people living in cities than in any other parts of the world. Private organizations, urban planning committees, or individual community members should encourage the establishment of *urban* community gardens. If a community garden is located in or around a city center, it is more likely to succeed in enhancing local communities and providing fresh, local produce to underserved populations.

The knowledge gained from this study can be applied in several different ways. First, our findings can substantially improve social or physical conditions in pre-existing gardens. Those gardens deemed as "poor" according to our rating system do not necessarily mean they are bound to fail entirely. Rather, if garden managers are aware of the weaknesses within their gardens, they may focus their attention on such areas and the overall garden atmosphere in order to improve productivity.

Our study can also influence the allocation of space for future community gardens. Our findings can direct garden managers and urban planners in establishing gardens in places that have ideal population densities and neighborhood characteristics that make for the most successful community gardens. Above all, the knowledge gained from our study will be valuable in creating thriving community gardens that are able to provide high quality food to community members in need and revamp social, economic, and environmental aspects of urban communities.

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10.0 Appendix

Appendix 1: Community Gardening Survey (Whole Survey)

COMMUNITY GARDENS SURVEY

Olivia Miller, Abigail Smith, Emily Hudspeth
Skidmore College, Environmental Studies Capstone Project

Location of your community garden: _____

1. How many seasons (years) have you been involved with the garden?

2. Are you involved in any other community organizations?
   a. yes
   b. no
   If yes, how many?

3. After your involvement in your community garden, are you (a) more or (b) less likely to join another community organization?
   a. more likely
   b. less likely
   c. no change

4. When problems arise in the garden, are they typically solved by (a) an individual or as the (b) result of a collaboration?
   a. individual effort
   b. result of a collaboration
   c. I don't know

5. How often do you coordinate with other garden members to garden on the same day/time?
   a. never b. rarely c. often d. routinely

6. How often do you share seeds, seedlings, soil, or tools with other gardeners?
   a. never b. rarely c. often d. routinely

7. During a typical gardening day, approximately how many gardeners will you converse with?
   a. None b. 1–2 c. 3–5 d. 6+

8. Would you prefer *more* or *less* conversations and socialization when you are gardening?
   a. more
   b. less
   c. I don't care.

9. Since participating in the garden, has your perception of the surrounding community changed?
   a. Yes, in a positive way.
   b. Yes, in a negative way.
   c. No, it has not changed.

10. Does your community garden offer organized garden events?
    a. Yes
    b. No
    c. I don't know.

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11. If you responded yes to Question 10, how often do you attend organized garden events?
    a. never b. rarely c. often d. always

12. If your community garden were to increase in size, would you prefer it increase:
    a. the number of plots (ie more gardeners)
    b. individual plot size

13. What made this community garden an attractive site to invest your time? (Circle all that apply)
    a. proximity b. community c. access to soil/garden d. leisure time

Please elaborate on your answer(s) to Question 13. What about your community garden do you value the most?

Appendix 2: Responses to Survey Question #13

	Garden	Responses to Question # 13: What about your community garden do you value the most?
Albany	Edward Street	* The friends, the sunshine, the vegetables I grow. * Way to get out * My yard isn't large enough to grow crops
	Hartman Road	* SOCIALIZING, GOOD FOOD, EXERCISING.
	Hudson Ave	* I live around the corner and enjoy growing my own produce * Proximity. Soil is pretty bad. * I made a few friends, which is a bonus. Not Everyone is friendly though but it's OK. * Garden is next door * people, sunshine, focus, exertion, sharing.
	Leonard Place	* Being able to grow my own food close to home but in the city. * I love having a place to grow my own food.
	Lincoln Park	* Used as meditation and connection to my life sustaining world. Close to home on park avenue. Friends also have plots here. * Plot size: I would like a larger plot, but not at the expense of leaving anyone out. * The opportunity for people in my community to have green space of their own, to have a space that they can work and grow, * It's close to my home. It's next to Lincoln Park so it's very open and sunny. My neighbors garden there too.
	Livingston Ave	* Space, proximity to wild spaces
	Myrtle & Irving	N/A
	Normanskill Farm	* I love the beauty of the location and the garden itself. I also enjoy the people who have gardened there for a long time. * Chose this garden b/c was able to get in. Wants spot in different locale. * The opportunity to have substantial space for growing my own food in an area that is fenced off from [large animals] AND the opportunity to garden in proximity to other gardeners.
	Ridgefield Park	* The fact that in an urban setting one can see the benefits of organic gardening, working at the college of saint rose and seeing the lifeless soil makes me appreciate all the more the fertility and aliveness of my community gardens soil, we could heal the planet if given the chance. * Love to watch others learn to grow * Close to home * That it is part of the overall "green" effort in Albany and that it build[s] community.
	Sand Street	* I can ride my bike or walk to the garden. There is water there so I do not have to worry about water. All we have to do is call and the community garden has the city bring compost and mulch. * Ability to grow food by our home even though there's no space in our yard!
	Westland Hills	N/A

Rensselaer	11th Street	* I live next door! Very convenient, quiet, and other gardeners are clean, respectful. * There are some good gardeners to talk to * Water spigot on site * Parking is good * Soil is good
	Eighth Street	* The satisfaction of growing my own food
	Ninth Street	N/A
	Corliss Park	N/A
	Hill Street	* The beautiful, pleasant people growing there! * Community access to soil and seeds, as well as the tools :) * Having a space to grow my own medicinal plants and variety of vegetables that is .7 miles from my home * Actively participating in a community interested in urban agriculture Sharing local knowledge with each other
	Knickerbacker Park	* It is taken care [of] by the people who enjoy gardening * It's close to church and home.
	Paul's Place	* A beautiful lush spot in the middle of south Troy. Woods to the left, its peaceful, beautiful, good for my family to be out working the dirt and healthy and rewarding to eat what we grow!
	Rensselaer Family	N/A
	Vanderheyden & Fifth Ave	N/A

Appendix 3: Transcription of Interview with Sharon Di Lorenzo

Note: Some things left out (extraneous sentences, filler words). Bolded parts are most interesting/relevant.

Question (Q): What's the motivation?

"I think the reasons why people get into a CG—I mean somebody's new to the area it's a great way to meet people*, particularly in a community like Troy, I think in some ways There's a lot of young people in Troy—there's a lot going on.* ***So it's a good way to meet your neighbor, so to speak. They might not be your physical neighbor, but in the garden they're your neighbor. It's a great way to have a common theme to talk about if you don't know anybody.*** *All of a sudden it's like, "Hey, what are you growin'?" Breaks the ice****. And then a lot of people just do it for food****. I think some of the older folks have done it forever****. We have a wide range of people who garden. I mean the demographics are literally across the board****. We have people who are almost in their 90's in Troy. And we don't have a lot of children because it's—you can't just let a child be in charge of having a cg plot because they're a lot of responsibility—you saw the handbook, there's a lot of rules****. I think some of the older folks do it for food.*** *They do it because they've always done it, it's sort of their tradition. …like some of the African American families that garden tell me stories about, you know, "I came from South Carolina, and my family, that's how we ate and that's what we did" and so that's a tradition they bring up here, and even sometimes reach out to family members down in the south and bring things like Spanish peanuts that they grow or a certain form of okra or a certain form of a bean. And we noticed—actually we built a new garden in Schenectady last year and in that neighborhood—it's a very Italian neighborhood, as a matter of fact my grandparents—it's the first neighborhood I lived in. The garden was filled with stories like that- "this is a beautiful bean, where did it come from" and this elderly lady would say, "Oh my gosh there's this Italian man that walks by all the time—he's got the big garden you know the one—he brought that when he came here from Italy, you know, forty years ago" Seriously, that kind of stuff. So cool. I love that stuff.* ***I think it's really social, I think it's about food, I think it's about the activity of gardening, having something to do.*** *I think you find people really involved in the neighborhood. I think the neighborhood association is typically involved in the cg. I'm involved in my neighborhood, so this is a great place to sort of see what's going on and communicate to the broader population."*

Q: How many gardens?

49*, depending on what day it is…I have I think the Albany garden is included—we just took a donation of a lot last year, things happen quickly we honestly cannot remember day to day. We actually lost a garden last year—longtime cg in Troy. But we gained two, so it's very strange. The land was never ours, and that's the problem.*

Q: I don't know anything about how you acquire the land?

That's a big piece of it. That's really the biggest. I'm working on one in Latham right now. We're losing another- very small garden, it's been there forever -30 years—it's on the land of an apartment complex and it's one of these situations—it's how we lost our downtown garden—let's say an older gentleman, loves gardening, years ago thought it was a great idea to let us use the land—great people should be able to grow food. Dad dies, and now the rest of the family doesn't know what kind of situation dad had set up with you. They were very informal in a lot of ways. When we say we were leasing a piece of land—we don't pay anything we don't have a budget to pay. ***If we're going to get a piece of land we're going to own it. So we are land owners. We own about 25 of the 49 plots. Those are permanently protected—we own that land.*** *It could be park land—we don't own park land, but at least it has some feeling of permanent protection. But I'd say the gardens that we don't own—that are either privately owned or municipally owned, or maybe owned by an entity—public housing authority, which is sort of a county quasi-governmental thing, um and we have a bunch of those. Sometimes what will happen is they're going to expand a housing project and we own that piece of land—a garden,* ***well we'll move it for them and that has happened several times, particularly in the city of Albany, and the Albany housing project will say we're going to use this piece, sorry, but we'll help you move the garden, and they'll build us a new garden and help us set it up. Often people will move from one spot to the next. So the biggest problem is when a piece of land is used by us and there's not a real agreement in place and even if there is it makes no difference.*** *You can have a lease, you can have a memorandum of understanding you can have all the legal documents you want, bottom line is as a renter you have no legal rights. The good news is most people are understanding and don't want to be perceived as the big jerk who comes along and throws all the poor little gardeners out. If you think about it, if we wanted to take it to the press or something it wouldn't be pretty for them. In the case of the downtown garden they let us use the land for thirty years. They always told us, "someday we're probably going to build something here. We'll help you move it, we'll help you do this, do that" that's great. And then the father that was involved in that he died in a plane crash in the middle of the negotiations. That was just last year….the son was of the belief that what does he care about a garden…he didn't have the kind of feelings about this site that his father did. The conversation isn't even happening anymore. We've got two other gardens in the area. It's a tough one you hate to lose one but you gotta pick your battles. This one in latham is the same exact thing. Father is gone, son doesn't "understand the legalities of it and the liabilities of it" none of that's true we hold a liability policy. But he won't have the conversation with us he's having it with the gardeners, he's telling them they're out. But is he gonna tell us? Cause we're the ones with the agreement…I found another plot at a church about 2 blocks away, that's temporary too. Whenever we can we like to have ownership of the land and that gets to the land use issue and probably the biggest issue facing cg organizations across the country. I just got a piece of land donated to me in Albany to build a new garden off Second Avenue. People are very willing to do that. People buy land at foreclosure auctions, things of that nature, they think something will happen here some year—20 years later it's like how long have we been paying taxes on this let's get rid of it and we make a good partner in that because it's a nice donation, they can take a write-off on their taxes and so they get a little benefit and also they get to see it go into production and people using the land instead of it just, you know, being a vacant lot, you know, trash on it, or a house developed on or something like that. So a lot of people feel like they're doing something really positive. We have several gardens that are probably under threat, longer term threat meaning we will probably lose some of the. So what we've been trying to do as we build new gardens is* ***find the best possible scenario—ownership being number 1****—and if we can take ownership then all of those problems go away. We own it and the only way that it will ever go away or something will happen to it is if this organization ceases to exist. I'm not seeing that right now, been around for 40 years I think we're doing ok. It's a big issue. We have to hold liability on it regardless of whether we own it or not, so no extra costs.* ***We feel we can more deeply develop the site.*** *Spending a lot of money and time hooking up the water line to a spigot in the garden is a pain in the butt for municipalities. They do it for us for free which is great but at a site that we don't own and we don't know what's going to happen down the road it's a pain in the butt for them to do it and it's hard for us to really make that leap and bug them when it's a lot we don't own. Just one particular case we had a beautiful site on morris st in Albany it was a piece of land that was owned by a veteran's group—great neighborhood. There was a lot of work to do on it. There were 3 beautiful black walnut trees that I had a hard time justifying cutting down but black walnut puts out toxins in its roots to kill everything around it and you cannot grow anything around a black walnut tree. We did all this crazy work, I mean the soil there was pure solid hardpan clay, it was a beautiful site but*

it was a mess to develop. We spent a year and a half developing this site, and we knew we didn't own it so we were careful what we were putting into it but got spigot and tool shed. About 4 years the owners of the lot said we're selling the property to this "community group". Everything should be fine and great. Not great. They did not care about the neighborhood; they kicked everyone out, no questions asked. Everyone's so nice to us usually, it was so weird. The lot is still sitting there completely vacant. We had little old men in there crying… We went to court. The first time in the history of this organization….
Much smaller community, land values aren't ridiculously off the charts, I think there's enough land for people to play nice with each other. People usually want to do the right thing and help us in some way. Even bureaucratic entities like municipal governments—they know these gardens are doing good things for the neighborhoods and they don't want to do something mean and take away land that is where people produce food. It's a huge thing for people.

Q: What are factors that you consider when you're trying to establish a new garden both socially and with the soil?
It's physical first. Absolutely. I do that first initial drive by and…you know, what kind of trees, they're out of our control. They're on my side, I can cut 'em down. Or whatever I need to do. Although, it's more cost, and that's a big thing. ***But what is around the garden. Where's my southern exposure. How much light is it getting. That's the very first thing.*** *Options of cutting down trees, but if there's a three story house next door cutting off the light you can't knock that down. There's certain things you just can't control.* ***I look at so many lots and probably 70-80% of them are totally not useful to us and I turn them down. It has a lot to do with where they are, too. I mean who's going to use this thing? It's tucked away—and if I don't feel comfortable there,*** *I'm pretty comfortable in general, even in inner-city neighborhoods, it's not that, it's just as a woman, would I come here and feel comfortable by myself. And if I don't, I'm not building it.* ***I don't care how perfect it is, I'm just not gonna build it. Is it tucked away too much., you know, is it hidden. That's not a good thing for a cg because nobody knows about it and nobody can find it and it's not really necessarily a part of the community****. Like Normanskill farm it's the biggest garden we have in Albany it's two acres it's one of the most popular. But it's popular for very different reasons. It's popular because people from the town of Delmar have a lot mature trees, it's an affluent community, and a lot of people from Delmar will come to the farm and garden because it's the closest place that they have it's really close to Delmar. So we don't get a ton of people from downtown, you know the city of Albany gardening there, some but it's a different kind of garden than a lot of our other ones. But it's because of the folks coming from Delmar, Glenmont and that community; they're the ones who are utilizing that particular space. And that never even occurred to us when we built it. It's on the Albany farm preserve. It's a beautiful space down there, it's along the creek…it's a different kind of garden, it's not that it's a bad garden—it's a beautiful garden,* ***it's just not as community oriented, I think, because everyone's gotta drive to get there, you can't walk to this garden, because of its location. It's just different. They're all different. But they serve different pieces of the population and it depends on where they're located so that is huge. And you have to really look at the demographics of the neighborhood. And I wasn't trying to serve Delmar when we built that garden****—actually we didn't build that garden there was a big mudslide that totally ruined the garden….the state and the city rebuilt the garden for us and they made it twice as big. And it's great, but it's just…would I have built a two acre garden down there? Probably not, but it's nice. I think you have to look at the population and who's going to use it. In all the years that I've been here, one garden that has been a bear to fill is our second largest garden, and it's in the far reaches of north Troy, and it's to be honest, Amy Klein, the current director] was just coming on board, and we bought it through a land auction through the city of troy and we actually purchased it and I think, I don't know what happened. It's directly across the street from a public housing project, a very large one that's lots of low income people live there. There's a neighborhood right behind it and lots of people live there. Hardly anybody uses this garden. I think --we named it after the housing project, it's Corliss park—it's relatively quiet place, it's not an uncomfortable place to be it really isn't. Just because the neighborhood is a little scarier and it's all about comfort levels. It's not that the garden is uncomfortable to be in but the overall neighborhood might be a little different. Corliss is not like that. Troy is relatively low-key. I think it has to do with what we named it, I think it has a lot to do with where it's located because it's directly across from this public housing project people in north troy might consider that their—those people garden there. And there's a lot of that—whoever those people are I don't know****. And that can be a real issue, it's the perception of who's there, what the neighborhood's like. That's too bad. So it takes this cycle of how gardens are used. And you lose sometimes a couple of the main dynamos in a garden, and even a very popular site, and we have one in Albany like that, on plum street, a gorgeous little garden, so cute, and it's in a really great location, it's always been well-used. Really pretty little site it's lovely and a couple of the main people in the garden kind of got real old and moved on and one of them's barely hanging in there, and so it's changed, it's harder to fill that site, it's not a particularly visible site, it's on a little side street, it'll cycle around again and***

everything will be fine. And then there's other gardens where there's never an open space. It's just so popular. So it's hard to find the right piece of land at the right spot at the right time*. It's sort of a little bit of a crapshoot. We do try to canvass the neighborhood. Olivia, my outreach person, we just built a garden in troy on a preserve, and it's kind of well-hidden, but it was given to us by the Renesslear land trust and it's right in a little development—it's kind of an affordable housing development, it's very nice. It does kind of fit the criteria of what not to do but I think because of the people that live—I think they will use it. Quite a bit of interest already. We will in fact go out and flyer the neighborhood going door to door, 'you know there's a community garden' there's always a sign on the garden, you know if you'd like to garden here, call___. So new gardens fill relatively well, I think it's just because we really know the community we're in. We've made a couple mistakes as I've mentioned. I think we're usually on target. The one that we're building in Albany—we haven't even started building it yet—and we've already got it filled. There's only going to be 8 or 9 plots or something like that, and it's done.* ***They went out for two hours yesterday and they probably had 10 people just within a 1 block radius who were ready to jump on board. So in Albany I think there's a lot more people, much easier to fill the gardens. In Troy and Schenectady, I think it's a little harder, there's not quite as many people so it makes it a little more difficult.***

Q: How does CDCG foster community, how do gardeners receive that?

One of our favorite terms is, ***it's more about the community than it is about gardening****,* ***if you a****sked all the gardeners I'm not sure everyone would say that. If I were a cg'r I'm not sure I would say that. I'm not sure—I live out in the country so…it's a little different, depends on your mentality. I think there's a lot of people who garden for the community, just like I said, in the first question****, but I think it's a really fine line, because a lot of people would say, I like to be alone, or I don't want to be socializing while I'm gardening, and I have to be honest, it's sort of that period where you go, this is something I do to relax, and go into my own little head****. I think it would be hard for me to transition to that, and have people asking me questions. I think I'd get used to it though.*

The in person sign ups—people can't sign up without showing their face every year. I set that up, it's one of the first rules I set up when I started working here back in 1992 because I didn't know anybody, and it's like how the hell am I going to meet anyone if they're just sending me a check in the mail with their application? *Over the years we found, people will sign up every relative they can possibly get their hands on—they want more space. Well that's fine except you can't—it doesn't work that way. If your family had every single space in one of my gardens, you guys have to do all the work, and that means you have to do all the maintenance, and participate in work parties, and that's not fair. I mean what kind of community is that? Family community That's a big piece of why the handbook has evolved over the years because we have to explain to people* ***that it's not just about them getting a garden, it's about them participating in the overall garden, helping with some maintenance, coming up with good projects that make the garden more fun and prettier, planting some flowers, doing some things like that, and not all gardens are going to do that. Some of them are going to go in, they do their gardening, they'll get forced to go to a workparty because they have to pay more if they don't.*** *We used money last year as a way to get people more involved. And it hurts, you get them in their pocketbook. It's considered a 'donation'—and most will pay more when they know they've been bad.* ***You're supposed to come to two work parties a year, one in the spring and one in the fall, it's really not a lot to ask. And it's a way to see everyone at the spring work party, you open the garden together, and it's a nice thing, it's like an hour or two. I mean if you came for an hour, that'd be fine. We have people who never come. Because they got complacent, they just aren't doing it anymore****, and we started really holding their feet to the fire and there's only so many things you can do. And you don't want to kick them out of the garden, they might be really great gardeners, they might be doing other things in the garden…and that's always—I do all the mowing I shouldn't have to come. That's great, but you still have to come! Maybe if you came and people knew who you were, you wouldn't have to do all the mowing! Show someone else how to start the lawnmower. Those are the kinds of things we want to happen at work parties. I think people come in for all levels of participation, and we hold them to, say, this much [small amount] and* ***some gardens embrace all of that stuff, they have their own potlucks, they have their own work parties, they love each other, they get together, they do all these great things together. And I have other gardens where people say, hey I've been here three years and I've never seen anybody else, because they come at different times. So they're all very different, and I think we like that about the gardens. It doesn't make one better than another, there's nothing wrong with someone saying I garden because it's my way of distressing, and I don't mind talking to people but I don't go there to socialize. Or, I go completely for growing food. I'm so into growing food that I don't even think about anything else going on in the garden.*** *Or you know, people that would say—you could give them 15 responses and you could find someone who would respond to each of them. So it's personal to them. But that's why we have to have this handbook and these rules, because it's a certain amount of responsibility that you're taking on. That's what I always say to a brand new gardener. And that's why we do orientations—coming up for brand new gardeners. We just want to see*

your face, we're trying to learn names, or when we're trying to pick a new garden coordinator, we know your personality, and that this person can talk to a lot of different people. Not everyone can coordinate people. We've had some bad coordinators. We have people who have religious backgrounds that don't allow them to interact with certain members of the community on the same level. We have people that are totally nuts. They're very internal, they don't want to talk to anybody, they don't like anybody, they're suspicious of people…we just have such a cross-segment of the population that you do have to get to know them so you do know how to deal with them.
You call someone and very kindly leave a message saying we noticed your garden doesn't look like you've been there too much and we're just making sure everything's ok—you're trying to be as—and they call back and they're rabid. They hate you, and you're racist, or you're nuts or you're an elitist, and how dare you insult my…it's like, dude, your weeds are this big! It happens all the time. 1000 people, that may only be 50 people—seems like more—the ones that really freak out are the ones you remember, you don't remember all the lovely people. It's a little difficult to remember the good stuff. I think the community piece of it is, in the right garden, it can mean everything. ***Some gardens are not going to come together as a community as readily. But that doesn't mean that they don't come together to get what has to be done, done.*** *In our 8th street garden inTroy, the shed was really ugly. We cut down this whole hillside of this weedy weird hillside that you could see from a main street in troy. The garden's beautiful, it's one of my favorites and we have our urban farm right next to it so we own like two blocks of 8th street. We've owned it for a long time. The 8th street gardeners have been a little disappointing lately, not keeping up the front of the garden as well as—it used to be a showpiece. And now with the farm there, our beautiful farm has flowers and it has greenhouses and the kids are out there. I sit there and look at the garden and go, whoa [wince], and I look at the farm and I go [happy sigh]. And that bothered me. That's our job to make sure that garden looks good.* ***Where did that community go? They used to be really tight, they all worked together, they did a great job. But you know what, there's a lot of older people in there, really old people, and maybe that's what it is. They can do their gardening, but you can't hand an 80 year old a weed whacker and say go to it. I wish we could, but we have to be realistic sometimes. So I think the work falls to a certain number of people—the older folks do what they can. And so as the demographics in a garden change, age, it changes the nature of the garden. When those older people leave or die or whatever, I don't know what will happen, who will take those places. And for a couple years you might get a few people who are novices, don't really know what they're doing, so their plot's a mess that year, and they try and they don't really accomplish it, and so you have a couple of plots in a garden that really look terrible, and what do you do? Do we go in with a weedwhacker? That is the question—how those rules get enforced. And you can't be insensitive, what if you're new and all excited and don't know the first thing about gardening? Everyone in the garden wants to kill you because your weed seeds are going in everyone else's plot, they're all looking at you nice, 'oh she's sweet', (let's kill her) [laughter]. We go in and do monthly inspections during the season and we write down little notes. We can't make you go in there and physically remove all your weeds, we can only bug you enough to make you feel guilty, take a stab at it, or give you all the information you need, like please, use mulch, but there's only so much you can do. So how can you have a happy community when a couple of gardeners maybe don't always do their share and some of the older folks who've been there longer feel like they're doing all the work.***
We get asked that question a lot and there's not a perfect answer because it's human nature. You're dealing with 10-20-30 humans that are all different that are all occupying the space together and there's always going to be issues. I mean they'll fight over 3 inches of space between two plots if they're the wrong people to be next to each other. We can't know that when we're signing them up. That's rare, but it happens, and we do a lot of mediation and things of that nature. ***I wish it were more harmonious in some spots, and all that wonderful stuff that gets written about community gardens is true in a lot of ways, but nobody wants to write about this stuff, that they don't always get along, and they are ridiculously belligerent at times and it's not always the perfect space you want it to be. People are people and the other thing too is sometimes they get territorial because they're people who don't own any space. They don't own land, they don't have any space, they might be renters, they could be students, although we don't get as many students as we would think we would get, but we do get some. It might be people who are temporarily living in an area…you don't always get the buy in from people that you think you're going to get.***

Q: Are returning gardeners guaranteed plots?
If you sign up for a plot, as long as you're relatively communicative and engaged in the garden, and do what you're supposed to do, that plot is essentially yours until you don't want it. We don't ever give it away. You do have the opportunity at the beginning of the season at the sign ups to come in and switch to another empty plot or another garden empty plot, but only those ones that we know that are empty, which is not that many at this time of year. A couple of people get 'not invited back' and it takes a lot to get kicked out of a garden—it means we don't for the last

3 years, or you didn't get along with your neighbors at all, and were belligerent. And even in even know where you are, or we never hear from you, or you really did the worst job humanly possible that case, we want to take into consideration that not everybody is happy—people have a lot of stuff going on in their lives, and just because somebody is having a 'moment' doesn't mean they should get kicked out of their garden plot. ***This might be the only happy thing in their life at that point and we don't know everything that's going on in people's lives****. We will do everything we can—separating people who aren't getting along—it's crazy the things that we've gone through. But you can only do so much.*

Q: Can you address the physical aspects, such as the soil in the gardens?

In all the gardens I've built, I have found low lead levels only twice*. This is after full soil analysis—we use UMass Amherst—they give you really good feedback. But even in a case like that we'll excavate, bring in new soil. It's not that easy to find good soil around here, to purchase good soil. I have relied on a couple of people who sell soil in the past and I thought it sucked. A bunch of sand or a bunch of clay. I want compost,* ***so what I've learned is to go to the dairy farms, things of that nature, it's so much better. I buy thousands and thousands of dollars' worth, I can spend the money when I have a grant.***

We're not here to provide resources to other gardening organizations If you don't want a garden run by CDCG that's fine, but don't look at me for resources. That's not what we're here for. If you want to manage it differently, that's fine, but I don't have time to set you up with all the information and resources that I've accumulated and written over the years so you can take it. We don't have the resources to set you up. We're working with a group in glens falls—it's way out of our purview—so I did help them as much as I could. She was very frank with me—can you guys manage. We just can't, but I'll help you guys out as much as I can. I would answer questions anytime and help as much as I can. I don't know how that sounds to you guys, but it is really hard, and it happens every. Single. Week. Particularly at this time of year.

I'm not going to turn over the handbook, because you might not want to manage a garden that way. As a volunteer and gardener, you're not going to have the time. We have 3 full time staff, plus myself, that deal with issues in our gardens every day, I mean, I don't know how to tell them that without sounding negative. People are going to drive you nuts. They think it's all about gardening and they think the little kids are going to be doing that up front. Kids don't garden happily without mommy and daddy forcing them…people have very weird ideas about gardening. And then there's the soil issue on top of it. You can tell I'm a little jaded.

The soil is critical to everything anyone does in the garden, and my point is to try and get it right from the beginning. In an older garden, it's really hard, we don't have resources to go buy soil [for older gardens] Most people in gardens don't have cars or trucks to get it on their own. And you have elderly people that don't have the resources or physical capabilities. ***We don't allow pesticides and chemical fertilizers. I don't know how the old timers keep their gardens going. They must have some magic because you can't keep extracting nutrients. The old timers always have beautiful gardens. We try to convince people to put down straw and paper mulch so that that gets worked back into the garden at the end of the season. So we're big proponents of organic mulch. And the leaf thing, in some gardens. Building soil after the fact is the individual responsibility of each gardener because we just don't have the resources to do it.*** *We worry about your soil and we wish we could do more for you, but it started out ok and if you take over a plot that you don't know what happened in it before you started. Nobody probably did a ph test in 10 years…in one garden, this plot and this plot, side by side, could have completely different compositions. We had a fire next to our Lincoln park garden in the heart of Albany. Right behind it there's an alleyway and a row of brownstones, about 4 of them burned down, about 10-15 feet away. There was major concern on the part of the gardeners that anything that got burned came down into the garden, and you can see streams of water. They were calling on cdcg to do all this testing. At some point we decided we were going to move forward—it was worth the couple thousand bucks.* ***Every single person that I called that was professional laughed and said I wouldn't worry about it. There was nothing at all found. what we did find was every single person's plot came up with a different pH. Or you've got calcium off the charts. But no contamination. Your plot probably had lousy soil because you're not doing anything to make it conducive to growing things****. Most of our gardens have pretty good soil, a lot of our older gardens, there's going to be plots that have amazing soil because people work on it, and there's ones that will be really odd, we don't control what they put in. they can bring in organic matter of any kind. Some people don't bring anything in for years. Some people grow cover crops. Very few. I'm surprised by how many don't do that, it's a great way to add nutrients back into the soil. I know a lot of gardeners who don't use fertilizer at all, even good organic fertilizer. How they get the production they get, I have no idea. All of our classes are on how to do things organically, and cheaply and easily.*

First thing we do is check out the soil. Calcium is often really high. Ph is often off. We can fix those things by building up the soil, adding organic matter. Soil's about the easiest thing to fix. It's just that people don't do it.

You have to do a full soil analysis, what if there are really high lead levels. What if it's really great soil or the drainage sucks? You can't look at soil and know anything. We don't compost in all our gardens. I wish it was done more. We kind of leave it up to the gardeners. How do you have enough compost to really split? Everyone would through all their crap in the compost pile, stuff that wouldn't break down for the next 20 years. We'll make them pull everything out of there and they hate doing that, and then after a while they decide they don't want a compost pile anymore. ***We want them to take some ownership in the garden, we don't want it always coming down from us.*** *And then we have some gardens that sift it and they have the most beautiful compost in the world. There's just not enough that you're going to get in a season or two to be able to share equitably among 20 people in a garden. So a lot of people are starting to do composting on their own plots. Something we're finding at the urban farm, is we're starting to use cull from the veggie mobile [leftover, rotten veggies, all the stuff that goes bad]. We do trench composting. One of the things they say is you shouldn't plant directly into the trench because it takes nutrients away from the plants, not what we're finding. That's something we would encourage our cg'ers to do on an individual basis. So we don't really have any good ways of changing the soil aside from leaves and mulching.*

The [gardens] that are closest to where people live seem to do the best. *There's something about a site when you look at it and I'll look at a site and go wow, and I don't even know what it is. Something about it tells me wow; this is going to be a great site.* ***The smaller gardens are more intimate; I think people relate to the space better, I think they take more ownership of it. As you get more and more people, there's a little more room for some head-butting, for more personalities. I don't know what the formula is exactly. It's not the soil, I can tell you that much. That is the one thing I get the least amount of questions about, and it bugs me because as I said, it's all you're getting, guys. It's just the soil, we're not really giving you anything else—some seeds, some plants, but you're making the contribution to get a piece of ground with soil and if you don't care about that soil, I don't know what you got in the end. And there's very few people who take that role as seriously as I wish they would.*** *It's location, location, location, I can almost guarantee that. Somebody has to die, I'm not kidding you, to get into that garden [henry street garden][Hudson avenue, Ridgefield park is also popular, and state campus garden] in Albany I can fill almost anything.*
It could just be the perception of the neighborhood [why some gardens are unpopular]
Our organization does not build school gardens, because the seasons do not line up. We've encouraged potential school garden projects in the past to become community gardens. Why not bring the community in instead of having this space where you all have to do the work—the teachers end up doing all the work. [ones that work are rare] we won't set up a garden at a school like that unless it's a community garden. Who do you think's going to do the work? A seven year old? people don't think about how bad a fence is going to look when nobody's going around cutting out all the weeds. Stuff grows, and that's a good thing and a bad thing.
Starting one at an old people's home? Bad idea. just 'cause you think something's a good idea—how about you ask the people who are actually going to participate—we don't want it, we don't like it. And we're not surprised anymore.
The ones who NEED it, that's our audience*. But to put our resources from our grant into making a garden for more affluent people, it's a hard sell to our grantors. It's not my job to make a garden for people who have a lot of resources. I make gardens for low income families.*
That's what makes it fascinating and maddening at the same time. You can't figure out human nature. The population is so diverse—we have immigrant families that don't speak a word of English and have to bring a translator. But how do I collect their thoughts?

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