# CITY OF FORESTS, CITY OF FARMS:

# CONSTRUCTING NATURE IN NEW YORK CITY

By

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ABSTRACT OF THE DISSERTATION

City of Forests, City of Farms: Constructing Nature in New York City

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This dissertation examines how the politics and practices of urban forestry and urban agriculture in New York City are negotiated. Centering on the municipal long-term sustainability plan, PlaNYC2030, it examines the network of actors, discourses, and socio-natural environments that constitute urban forestry and agriculture. It asks: what actors via what institutions make what claims in order to shape the goals that are set within the plan? What accounts for the varied treatment of urban forestry and agriculture within a single sustainability planning process? And how do the goals of the plan alter resource management practices going forward? It compares two natural resource use systems that are constituted out of different material components, deploying differing discourses about nature, society, and 'sustainability'.

This study presents case studies of urban forestry and agriculture as they thread through (yet also exceed the scope of) PlaNYC2030 from 2007-2011. This comparison reveals the differences and similarities that exist between two domains that have varying degrees of institutionalization within the plan. Urban forestry was an important part of PlaNYC, which catalyzed the creation of the MillionTreesNYC campaign, a public-private partnership to plant and care for 1 million new trees citywide by 2017. In contrast, urban agriculture was absent from the first version of the plan, yet was a vibrant

area of engagement among civic groups and elected officials that led to the development of a series of reports on local food systems. Urban agriculture was subsequently incorporated into the 2011 updated PlaNYC through a cross-cutting section on food.

The primary research methods used were semi-structured interviews with policymakers and natural resource managers and discourse analysis of plans, reports, and documents associated with PlaNYC, MillionTreesNYC, and food policy in New York. A secondary method of participant observation and fieldwork grounded the research in the materiality of urban forestry and agriculture. Finally, social network analysis visualizations were created to supplement the qualitative case findings.

Empirically, this study examines the political, discursive, and material dimensions of urban sustainability planning and natural resource management in a global city. Theoretically, it brings concepts of urban politics and networked governance into nature-society geography.

**Acknowledgements**

Despite the single name on the cover, this study was made possible because of the knowledge, hard work, and generosity of many people.

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grads helped show me how it is done and encouraged me to join the program; thanks to Nate Gabriel, Rich Nisa, and Za Barron.

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It feels impersonal to call my research subjects 'respondents', 'subjects', 'interviewees,' or even 'participants'. So many of you are my friends and colleagues – and you inspire me each and every day with the work that you do to create, manage, and shape New York City's urban environment. I cannot name your names to protect your confidentiality, but you know who you are! Everything in this work I learned from you.

I know that my study is made richer through the personal ties that I have to many of you. But I know, too, that critique can be difficult to read. Please know that I offer any analysis or critique with the utmost respect for your hard work and dedication as public officials, natural resource managers, educators, and activists. Thank you for your time and patience in speaking with me, answering my emails, inviting me to meetings and site visits. I look forward to continued collaborations with many of you.

## Dedication

For Zen Campbell: we did it.

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## List of Acronyms and Abbreviations

| | |
|---|---|
| AFN | Alternative Food Network |
| BBG | Brooklyn Botanic Garden |
| BFC | Brooklyn Food Coalition |
| BUG | Black Urban Growers |
| CDBG | Community Development Block Grant |
| CFH | New York City Department of Parks and Recreation's Central Forestry and Horticulture Division |
| CSA | Community Supported Agriculture |
| DCAS | New York City Department of City Administrative Services |
| DEP | New York City Department of Environmental Protection |
| DIY | Do-it-yourself |
| DOE | New York City Department of Education |
| DOHMH | New York City Department of Health and Mental Hygiene |
| DOT | New York City Department of Transportation |
| DPR | New York City Department of Parks and Recreation |
| DSNY | New York City Department of Sanitation |
| EBT | Electronic Benefits Transfer (electronic payment system for Supplemental Nutrition Assistance Program, also known as 'food stamps') |
| FoodNYC | Manhattan Borough President Scott Stringer's *FoodNYC*: *A Blueprint for a Sustainable Food System* |
| FoodWorks | New York City Council Speaker Christine Quinn's *FoodWorks: A Vision to Improve NYC's Food System* |
| FPC | New York City Food Policy Coordinator |
| FRESH | Food Retail Expansion to Support Health |
| FSNNYC | Food Systems Network of New York City |
| GIS | Geographic Information System |
| GreenThumb | New York City DPR's community gardening program |

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|---|---|
| HPD | New York City Department of Housing Preservation and Development |
| HUD | United States Department of Housing and Urban Development |
| ICLEI | International Council for Local Environmental Initiatives |
| LiDAR | LIght Detection and Ranging – a remote sensing technique |
| MTTP | MillionTrees Training Program |
| NYBG | New York Botanic Garden |
| NYCHA | New York City Housing Authority |
| NYCCGC | New York City Community Gardening Coalition |
| NYRP | New York Restoration Project |
| OLTPS | Mayor's Office of Long Term Planning and Sustainability |
| OMB | New York City Office of Management and Budget |
| NRG | New York City DPR's Natural Resources Group |
| PlaNYC | PlaNYC2030: New York City's Long Term Sustainability Plan |
| PlaNYC 2.0 | 2011 update to PlaNYC |
| PROW | Public Right of Way (streets and sidewalks) |
| SAB | Sustainability Advisory Board (to PlaNYC) |
| SNA | Social Network Analysis |
| STEW-MAP | Stewardship Mapping and Assessment Project (Forest Service project) |
| STRATUM | Street Tree Resource Analysis Tool for *Urban Forest* Manager (Forest Service model) |
| TNY | Trees New York |
| TPH | Trees for Public Health program |
| TPL | Trust for Public Land |
| UFORE | Urban Forest Effects model (Forest Service model) |
| USDA | United States Department of Agriculture |
| UTC | Urban Tree Canopy (Forest Service model) |

# Chapter One - Examining 'actually existing sustainabilities'

## Introduction

Whether because of pressures of increasing urbanization and growth (Pierce and Johnson 2008; McGranahan et al. 2005; Sadik 1999), rising concerns over climate change (Finn and McCormick 2011), a "mainstreaming of environmental values" (Keil and Boudreau 2006: 49), or trends in policymaking amongst entrepreneurial, competitive cities (Harvey 1989; Jonas and While 2007; Gibbs and Jonas 2000), local sustainability planning efforts are on the rise. Sustainability is a highly flexible concept, discursive frame, and political strategy that emerged from policy, practice, and activism (Swyngedouw and Heynen 2003; Kruger and Agyeman 2005; Hajer 1995). Since the oft-cited Brundtland Commission Report that notes the fundamentally intertwined nature of environmental protection and economic development and calls for sustainable development that meets the needs of the present without compromising the ability of future generations to meet their needs (WCED 1987), a wide range of global, transnational, national, and local sustainability initiatives have developed. Some efforts are collectively pursued or facilitated, such as: UN-sponsored Agenda 21 and Local Agenda 21; the International Council for Local Environmental Initiatives (ICLEI), which is a nonprofit membership association for local governments; and the C40, which is a collaborative of 40 large cities working to address climate change at the local level, working in partnership with the Clinton Global Initiative (UN 1992; ICLEI 2010a; C40 Cities 2013).

Other more recent efforts are independent local policy initiatives, such as New York City's PlaNYC2030, Chicago's Climate Action Plan, and Toronto's Environmental Plan (City of New York 2007; City of Chicago 2008; City of Toronto 2000). This rescaling of environmental governance was highlighted by the 2007 *Time* magazine cover featuring Michael Bloomberg, Mayor of New York City, and Arnold Schwarzenegger, Governor of California, with the headline "Who Needs Washington?" In addition to—and sometimes in concert with—long-term and comprehensive planning processes, city leaders are developing new practices in urban natural resource management[1]. In some cases, these practices consist of large-scale public and private investments in 'green infrastructure', like the campaigns to plant one million trees in Los Angeles and New York (Pincetl 2010; MillionTreesNYC 2010). In other cases, advocacy campaigns focus on policy changes, such as the emerging discussion surrounding food policy in New York (Stringer 2010; NYC Council 2010).

There is a broad literature that critically examines urban sustainability efforts. Simply drawing a line around a city and focusing on the processes within that boundary does not remove the impacts of lifestyles that are borne in spatially distant localities (See, for example, Braun 2005; Swynegedouw 1996; Swyngedouw and Heynen 2003). Geographers critique local sustainability planning as supporting hegemonic, capitalist social relations and simply mitigating the worst effects of what is primarily a growth

[1] The term 'natural resource' itself has been thoroughly contested, particularly through the work of critical political ecologists, in debates over the social construction of nature, and in the more recent material turn in human and resource geography (Bakker and Bridge 2006; see also Harvey 1996; Robbins 2004; Peet and Watts 2004; Demeritt 2002). I use this term because it is one of the ways that planners, policymakers, and managers have characterized urban forestry and urban agriculture, but remain cognizant that no 'thing' is a resource independent of how it is used.

regime (Gibbs and Jonas 2000; Jonas and Gibbs 2003).[2] As such, one could consider sustainability planning as nothing more than a "flanking mechanism" to neoliberalism (Jessop 2002; Brenner and Theodore 2002). Local sustainability initiatives can also be understood in the context of post-Fordist, competitive, global cities engaging in sustainability planning and investments in environmental quality as part of city image-making (Jonas and While 2007; Gibbs and Krueger 2007; While et al. 2004; Prytherch 2002). Brand (2007) argues that the environmental movement has been co-opted by urban growth regimes as local greening initiatives fail to address structural roots of problems, focusing instead on minor changes with detrimental effects for both social justice and the environment (628). Lake (2000) speaks to the limitations of municipal government in this arena: "Local government in the United States lacks the authority, the resources, and most importantly, the power to initiate and accomplish the fundamental transformations in systems of production and consumption that are required . . . to move the world toward the goal of truly sustainable development" (88).

While these critiques are valid, this project seeks to explore how local sustainability planning as currently practiced actually unfolds politically, discursively, and materially. It acknowledges the importance of the city and neighborhood scales (along with regional, national, and global scales) as political arenas that contribute to how New York City is made and 'remade' (Sites 2003). This dissertation will analyze the politics, discourses, and materiality of urban sustainability planning in New York City, focusing on two natural resource issue areas—urban forestry and urban agriculture. It

[2] Harvey (1996) offers a particularly dismissive critique: "And far too much of what passes for ecologically sensitive in the fields of architecture, urban planning, and urban theory amounts to little more than a concession to trendiness and to that bourgeois esthetics that likes to enhance the urban with a bit of green, a dash of water, and a glimpse of sky" (428).

examines incremental transformations of urban land use and land management that occur in the areas of urban forestry and urban agriculture. I select practices and plans that municipal governments, nonprofits, and community organizations deem related to "sustainability" and investigate how these practices came about, why they took the form they did, and what work they do in shaping the urban sphere. Critical scholars with an interest in the divergence of the empirical world from theorized ideal types have explored the notions of 'actually existing socialism' (Altvater 1993) and 'actually existing neoliberalism' (Peck and Tickell 2002). For this study, Krueger and Agyeman's (2005) perspective on 'actually existing sustainabilities' is particularly instructive:

> Bringing the concept of actually existing sustainabilities into the conversation requires a finer grained analysis into those policies that, in the US, reflect sustainable initiatives. Though requiring us to respect scale, it forces us away from macro-concepts to look at policies, practices and their implications for local places and their differences across space and between places….*We must consider that in these capitalist places alternative outcomes can exist* (416, emphasis added).

Thus, an approach guided by an interest in 'actually existing sustainabilities' allows researchers to examine *variation* within our urbanized, capitalist present.

First, I examine *how* these plans and practices came about. Even if plans are supported by a growth machine (Molotch 1976; Logan and Molotch 1987), we can scrutinize how they propose to manage or alter growth (Logan et al. 1997). Additionally, while urban regime theory and the growth machine thesis are two of the dominant explanatory frameworks of contemporary politics (Stone 1989; Mossberger and Stoker 2001; Logan et al. 1997), we can bring an added attention to the role of civil society through environmental nonprofits and community groups' roles in networked governance. Second, I explore *why* these plans are created and what rationales are used.

We can build on the work of Hajer (1995) and others to nuance Harvey, by examining the extent to which sustainability plans are products of multiple competing and overlapping discourses, including entrepreneurialism, neoliberalism, and environmentalism. Which values and whose interests are represented in the discourse of the plan become research questions, rather than starting assumptions. Third, I analyze the *effects* of these plans. These efforts can lead to physical changes in the socio-natural environment, the quality of which has a real bearing on the 'everyday'—or people's lived experiences (Lefebvre 2003; Amin and Thrift 2002). When Harvey sweeps "gentrification, innovation, and physical up-grading of the environment…consumer attractions…and entertainment" all together as "strategies for urban regeneration" (1989: 9), he gives little attention to the differences among these strategies and the ways their consequences are experienced in everyday life; but planting trees is not the same as building stadiums. Planting urban trees or developing urban farms changes the material metabolism and spatial form of cities; scholarship in the urban political ecology and more-than-human geography traditions argues that these changes are important to interrogate (Keil and Bourdreau 2006; Heynen et al. 2006; Bakker and Bridge 2006; Robbins and Marks 2010). Overall, this study makes an effort to adopt Amin and Thrift's "politics of hope" towards the possibility of change in the urban sphere (2002: 4). Finally, while it acknowledge that scale is socially constructed and politically contested, it nonetheless explores the importance of the local scale as a decision-making arena and site for policy intervention, in dialogue with the notion of 'the local trap' (Purcell and Brown 2005; Born and Purcell 2006; Purcell 2006).

Scrutinizing the pathways by which different outcomes of 'actually existing sustainabilities' are achieved requires careful attention to the dynamics of environmental governance and urban politics. While other formulations of state-led or civil society-led environmental policymaking exists, much current scholarship examines environmental governance as networked practices among state, civil society, and private sector actors and institutions (Rhodes 1996; Jordan 2008; B. Taylor 2009; Andrews and Edwards 2005; Pincetl 2003, 2010; Evans 1996; Agyeman and Angus 2003). Scholarship on urban politics analyzes who participates in the processes of agenda-setting and policymaking via diverse theoretical approaches and concepts, including: pluralism (Dahl 1961), urban regimes (Stone 1989; Elkin 1987; Fainstein and Fainstein 1983), and growth machines (Molotch 1976; Logan and Molotch 1987; Logan et al. 1997). In this study, I examine urban sustainability planning and natural resource management as networked practices. These plans represent the outcomes of political negotiations among different pieces of the variegated, bureaucratic state (Kjaer 2009; Brecher et al. 1993) and a range of civil society actors, from professionalized nonprofits to grassroots community based groups (Martin 2004; Pincetl 2003; Ferman 1996). Finally, the study expands the consideration of 'who' participates in planning by exploring how the materiality of natural resources (such as trees and vacant lots) also dialectically or co-constitutively shapes policymaking trajectories (Latour 2005; Castree 2005; Harvey 1996). Informed by urban political ecology, actor network theory (ANT), and more-than-human/post-humanist geography, this project explores how these particular assemblages of urban socio-natures are produced (Swyngedouw and Heynen 2003; Robbins and Marks 2010; Bakker and Bridge 2006).

***Problem Statement***

The purpose of this dissertation is to explore the ways in which sustainability planning and natural resource management occurs through a grounded study of 'actually existing sustainabilities' (Krueger and Agyeman 2005). It contributes to theoretical debates in the areas of environmental governance, urban politics, and urban political ecology. This study focuses on the case of New York City from 2007-2011 during the implementation of the city's long-term sustainability plan, PlaNYC2030. First I situate the case in the context of New York City's political, institutional, economic, and geographic context, particularly since the 1970s fiscal crisis. Then, I examine in depth two different natural resource issue areas—urban forestry and urban agriculture—with differing degrees of institutionalization in the formal sustainability plan (PlaNYC2030). This analysis compares and contrasts the discourses associated with these issues; reveals the ways in which these issues are approached by state and non-state actors; and examines how the physical constraints and abilities of non-human actants—including trees, sidewalks, buildings, lots, and farms—shape natural resource management practices. Because the plan was issued in 2007 and updated in 2011, I analyze the ways in which policymaking is adaptable or incremental–even while being comprehensive and long term. Thus, I treat agenda-setting not as a single moment in time, but as an ongoing negotiation among multiple, networked actors, (both human and non-human). This dissertation explores the following research questions: how are the politics of urban sustainability planning and implementation negotiated; what claims are made in that process; and with what effects on the transformation of urban land and natural resource management practices? In particular, I explore the issue areas of urban forestry and

urban agriculture in terms of how actors involved in governance, discourses of the environment and society, and the materiality of the socio-natural urban environment interact in these processes.

**Urban sustainability planning and natural resource management in New York City**

PlaNYC2030 is New York City's long term sustainability plan that was created in 2007 under the Michael Bloomberg mayoral administration. It creates an institutionalized framework for long term environmental planning through chartering the Office of Long Term Planning and Sustainability (OLTPS) and a law that requires the plan to be updated every four years. PlaNYC (issued in 2007) sets clear goals and targets to improve local quality of life in terms of: land, water, transportation, energy, air, and climate change (City of New York 2007). It largely focused on setting goals and targets that are achievable through municipal action alone (taking on issues that are within the jurisdiction and mandate of city agencies). A notable counter-example included the effort to institute congestion pricing in Manhattan, which required state approval, but subsequently did not pass (ICLEI 2010b). Finally, it commits substantial city government capital and human resources to these aims. PlaNYC presents an interesting nuance to critiques about neoliberal environmental governance – for it involves a substantial *increase* in government investment in sustainability and is therefore not fully consistent with the retrenchment of the state. In this way, it is an example of Peck and Tickell's (2002) 'roll out' neoliberalism that involves not outright state retrenchment, but new forms of governance institutions. Notably, it was created in a time of municipal surplus and economic growth, just prior to the global financial crisis of 2008. The update

to the plan, informally dubbed 'PlaNYC 2.0', was released in April 2011 and reflects the changed economic context through more modest goals and lack of commitment of new financial resources.

The main aim of PlaNYC is to accommodate growth in a way that ensures the livability (and thereby, economic competitiveness) of New York City. Thus it fits with a number of Harvey's (1989) propositions about the entrepreneurial city as well Logan et al.'s (1997) updated growth regime thesis. The plan starts from demographic projections that show the city increasing by 1 million residents by 2030 and proposes infrastructure upgrades, investments, and policies to manage that change (City of New York 2007). At its base, it is a comprehensive land use plan that was initially overseen by then-Deputy Mayor for Economic Development Dan Doctoroff and grew out of prior proposals for New York City as the host of the 2012 Olympics (ICLEI 2010b; Fuchs 2011). Nothing about PlaNYC is progressive to the point that it would alienate business interests. The composition of the Advisory Board to the plan is particularly telling about interests that were represented in the governing coalition at the policy-formulation stage: elected officials (2 members), business/real estate interests (6), environment, community advocacy, and planning (6); academia and philanthropy (2); and labor (1) (ICLEI 2010b, 20-21).[3] Critics claim that the plan serves the economic elite and business interests.

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[3] The PlaNYC Sustainability Advisory Board members were: **Elected officials:** Christine Quinn, Speaker of the New York City Council; James F. Gennaro, Council Member and Chair of the Committee on Environmental Protection; **Business/real estate community/design:** Steven Spinola, President, Real Estate Board of New York; Carlton Brown, COO and Founder, Full Spectrum; Robert Fox, Partner, Cook + Fox Architects; Elizabeth Girardi Schoen, Senior Director of Environmental Affairs, Pfizer, Inc.; Kathryn Wylde, President and CEO, Partnership for New York City; Daniel Tishman, Chairman and CEO, Tishman Construction Corporation, Chair Natural Resources Defense Council; **Environmental and Community Advocacy representatives:** Marcia Bystryn, Executive Director, New York League of Conservation Voters; Peggy Sheppard, Executive and Co-Founder, West Harlem Environmental Action Coalition (WE ACT); Andrew Darrell, Regional Director of NYC Office, Environmental Defense; Ashok Gupta, Program Director of Air and Energy, Natural Resources Defense Council; Robert Yaro, President, Regional Plan

At the same time, the policies represent real advances in local environmental quality for which a number of policymakers, activists, and civic environmental groups have advocated, including improvements in water quality, increase in urban tree canopy, increase in the number of parks, and increases in affordable housing. The plan has been widely praised in certain planning, academic, management, and local government circles; at a public panel on New York as a Sustainable City, geographer William Solecki (2011) called it a "transformative document". Solecki continued that New York City is being held as a "beacon of urban sustainability" nationally and globally. Political scientist Ester Fuchs (2011) posited that this is perhaps not least because of the phenomenon of rescaled urban governance in general and Mayor Bloomberg's role as the current chair of the C40 in particular. Locally, there is a fairly broad level of support and enthusiasm for the plan among environmental advocates. Often where there is critique, it is usually over a desire to expand the plan into new arenas (such as urban agriculture and solid waste management), rather than to condemn it wholesale. How the plan continues to evolve over time in the face of critique, implementation, and subsequent revision to the plan is a core question worthy of investigation.

PlaNYC's process has been publicly criticized for being too top-down and not participatory enough in its formulation, with public meetings functioning as no more than tokenism (See, for example, Angotti 2010a; Barrett 2007; Mandelbaum 2007). Others have argued that the construction of the advisory board and the public outreach process surrounding the plan made it "the most inclusive process in New York City in many

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Association; Elizabeth Yeampierre, Executive Director, UPROSE; **Academic community:** Ester Fuchs, Professor, Columbia University's School of International and Public Affairs; **Philanthropic community:** Michael Northrop, Program Director, Rockefeller Brothers Fund; **Labor community**: Ed Ott, Executive Director, NYC Central Labor Council (ICLEI 2010b: 21).

years" (Fuchs 2011). The plan was shepherded by Doctoroff and was predominantly the result of an internal process of inter-agency coordination, rather than collaborative governance, though it did include a formal public consultation processes (ICLEI 2010b). PlaNYC is not primarily the project of the electorate, nor is it the project of the city council. It is seen by many as Bloomberg's legacy that he crafted with the help of staff across various city agencies (Fuchs 2011; Holloway 2011). OLTPS is staffed primarily with young professionals, often with training in planning and environmental management. Bloomberg's leadership has been analyzed as a quintessential example of neoliberal governance, with his aims to "run the city like a business" and treat citizens as customers (Brash 2011). This project seeks to illuminate how Bloomberg, City Hall, and OLTPS' bureaucratic staff worked with a wider network of partners (other municipal agencies, local civil society groups, and even non-human actants) to craft and implement PlaNYC.

***Urban forestry***

In the case of urban forestry, MillionTreesNYC is a public-private campaign with the goal of planting and caring for 1 million new trees by 2017[4], and is one of the 127 initiatives in PlaNYC. It has generally been celebrated as one of the early successes of the plan (see, for example, ICLEI 2010b); more than $400 million has been committed to the project; and 500,000 trees were planted as of October 2011 (City of New York 2011a). It is best understood as a carefully negotiated collaborative governance arrangement between the state and civil society. The campaign is structured as a

[4] The original timeline of the campaign was 2007-2017. Because tree planting was running ahead of schedule, the timeline was revised in 2012 to end the campaign in 2015. Since this is a study of natural resource management in 2007-2011, however, I continue to report the ten year timeline.

partnership between the New York City Department of Parks and Recreation (DPR) and the nonprofit New York Restoration Project (NYRP). Through PlaNYC, the City of New York set a goal of "reimagining the public realm" (i.e. the sidewalk) with a measurable target of planting every available street tree planting opportunity (City of New York 2007). Also rolled into the campaign was an initiative to reforest/afforest 2,000 acres of 'natural area' parkland citywide. Simultaneously and separately, NYRP's celebrity founder (the performer Bette Midler) became interested in the idea of planting a million trees in New York City. NYRP had experience in fundraising, publicity, and outreach, and connections to prominent elites that could be harnessed into supporting this initiative. Once the goal of planting one million trees was jointly accepted, the City came to rely on NYRP to: raise outside funds to support a campaign that will last beyond the tenure of Mayor Bloomberg; plant trees on property other than that which is under the city's jurisdiction; and elevate the visibility of the campaign through elite contacts of its founder and board. Additionally, a broader set of stakeholders that reflect decades of urban environmental advocacy and stewardship were brought into involvement with MillionTreesNYC via a large Advisory Committee and several subcommittees (Tree Planting and Stewardship; Education and Programs; Community Outreach; Marketing and Public Relations; Public Policy Initiatives; and Research and Evaluation).

Because the campaign does not have the public funding to ensure the survival and thriving of the entire urban forest, volunteer labor has been enrolled to assist with watering, pruning, and maintenance of trees. This challenge stems from the way in which city funds were committed via PlaNYC – as primarily capital funding (for long lasting infrastructure, which can include trees) without a commensurate increase in the

expense budget to cover personnel and maintenance of all these new trees. To address the issue of reaching and training tree stewards citywide, MillionTreesNYC partnered with other groups with expertise (and overlapping interest) in urban forestry. The campaign awarded funding to these partners, effectively sub-contracting out portions of the education and stewardship functions of the campaign that were beyond the capacity and scope of DPR and NYRP's reach. The campaign also involves environmental education programs implemented by both DPR and NYRP. While these education efforts seek to increase environmental literacy in its own right, they also seek to cultivate the next generation of urban environmental advocates, as current schoolchildren will be the tree stewards of the future. In addition, the campaign has also been supported with funding from corporations (e.g. Toyota, BNP Paribas, Home Depot Foundation) and foundations (e.g. Bloomberg Philanthropies, David Rockefeller) as well as with volunteer labor from corporations and organizations participating in service days (MillionTreesNYC 2010).

The campaign asserts that one million more trees are good for the city, citing research about the multiple benefits of the urban forest. These benefits are often quantified monetarily, with a particular emphasis on increases in property value. According to public remarks made by then-DPR Commissioner, Adrian Benepe, a US Forest Service research application called STRATUM that analyzes the costs and benefits of each tree was used as one of the key rationales in convincing the mayor and his staff to include tree planting goals in PlaNYC. Of particular interest to decisionmakers was the impact of tree canopy on increasing real estate value. Nonetheless, it is important not to discount the narrative themes of ecosystem health, human health, and quality of life

benefits. Indeed, a large scale print ad campaign from MillionTreesNYC featured images of trees and people in the city, touting trees as "Zen masters" ("*Trees do more than you think. They promote relaxation and fitness, enhance our emotional and mental health, and even encourage us to drive a little slower") and "exercise partners" ("Trees do more than you think. While protecting us from the sun, they encourage outdoor play and exercise – helping in our fight against obesity").* While city leaders may have been convinced by economic arguments, the campaign employs a flexible discourse that is broad enough to incorporate diverse sets of actors with very distinct motivations to help support and implement the campaign.

***Urban agriculture***

In contrast, urban agriculture is entirely absent from the first iteration PlaNYC. There is no explicit goal related to local food production, and neither urban farms nor community gardens are mentioned in the body of the plan. At the same time, there is a long tradition of community gardening in New York City. DPR's GreenThumb program is one of the largest community garden programs in the country, with more than 500 gardens and approximately 20,000 gardeners citywide (GreenThumb 2010). These gardens have diverse histories, but for the most part they were created by residents in the 1970s and 1980s in the time of the city's last financial crisis. These resident-led efforts have always been supported by the City of New York through affordable leases, technical assistance, and free materials—such as soil, compost, and plants (Lawson 2005; GreenThumb 2010). Community managed gardens are also located on public housing grounds of the New York City Housing Authority (NYCHA), which has had a formal

resident garden program since the 1960s; there were approximately 650 NYCHA gardens as of 2009 (Bennaton 2009). School gardens on public and private lands have existed in New York City for over a century (Lawson 2005), but a new public-private partnership of the nonprofit GrowNYC and the Department of Education (DOE) has begun to facilitate and track school gardening. As of October 2010, there were 285 school gardens in the city, 70 of which were registered with the Grow to Learn; and by June 2013 there were 305 school gardens registered with Grow to Learn (Ackerman 2011; Grow to Learn 2013a). In addition to gardens, farmers markets have been organized in New York City since 1976; the Greenmarket program was created by GrowNYC. The most prominent and well known market is at Union Square Park in Manhattan, but there are now roughly 50 markets in all five boroughs (GrowNYC 2010).

Although difficult to pinpoint the exact date of origin, there appears to be a new, growing wave of interest in urban agriculture—and a broader interest in localizing food systems. New York City has new commercial rooftop farms, urban farms, school gardens/greenhouses, backyard chickens, beekeeping, and generally high media attention and excitement surrounding urban agriculture and local food production (Stein 2010; Wells 2010; Cardwell 2010; Salkin 2008; Ryzik 2009; Cohen et al. 2012). One notable difference is that some of these new models (both for-profit and non-profit) are selling their produce rather than dividing among members or donating (Kaufman and Bailkey 2000; Ackerman 2011). There is also an effort to create a larger scale, permanent farmers markets akin to the Ferry Building Marketplace in San Francisco, as well as a large scale wholesale farmers market to serve the restaurant industry (Severson 2008). Nationally, this coincides with rising attention to food issues through books like Michael

Pollan's *Omnivore's Dilemma* and documentary films like *Food Inc.*, *Fresh*, *King Corn*, and *Supersize Me*. Celebrity, gourmet chefs including San Francisco's Alice Waters of Chez Panisse and New York's Dan Barber of Blue Hill and Blue Hill at Stone Barns have been active voices in the attention to local, fresh, seasonal and organic food (Salkin 2008). This has coalesced with a contemporary interest in DIY, crafts, homesteading, and barter that has led to a dynamic local food movement in New York City that includes not only gardens and farms, but also homebrewing, artisanal cheeses, kombucha making, and so on—as highlighted in publications like *Edible Brooklyn* and *Edible Manhattan*.

Organizing and advocacy outside of the PlaNYC processes led to the development of a series of reports, visions, and plans on local food systems. Individuals, community based groups, and nonprofits are working in coalition with key public sector allies to bring food and agriculture into the municipal policy arena through an array of public meetings, documents, programs, and plans. Manhattan Borough President Scott Stringer issued *Food in the Public Interest* in February 2009 and *FoodNYC*: *A Blueprint for a Sustainable Food System* in February 2010, while New York City Council Speaker Christine Quinn issued a policy report entitled *FoodWorks: A Vision to Improve NYC's Food System* in November 2010. FoodWorks looks at NYC's local food systems in terms of: Agricultural Production; Processing; Distribution; Consumption; and Post-consumption. Notably, the 85-page document makes recommendations that are within the City of New York's locus of control (spatially, jurisdictionally), but also ones that are not. In terms of the former, it emphasizes encouraging more farmers markets and community supported agriculture (CSAs), as well as using government institutional purchasing power to support regional farms. In terms of the latter, it draws attention to

farm subsidies, food stamps, and other federal and state policies. Some of FoodWorks' policy recommendations were institutionalized through a series of local laws that were passed in the summer of 2011, while other recommendations remain aspirations and visions. Particularly of note to this case is Local Law 48, which calls for the creation of a publicly accessible database of all publicly owned vacant land that is potentially suitable for urban agriculture.

Both in response to public critique of the first iteration of the plan, as well as due to the changed political landscape around food issues, urban agriculture was subsequently incorporated into the 2011 updated PlaNYC 2.0. The plan included a brief crosscutting section on food and a specific initiative on enhancing urban agriculture and community gardening citywide (City of New York 2011a). The plan made commitments to conduct a citywide inventory of potential sites for food production; to create 129 new gardens on NYCHA grounds; to develop 150 school gardens through Grow to Learn; to increase membership in GreenThumb community gardens by 25%; and to create five new farmers markets. Yet, because PlaNYC 2.0 was released in 2011 under very different economic conditions, it makes no municipal budget commitments toward these goals. Tracing the roll-out of the Stringer, Quinn, and PlaNYC plans over time reveals the way in which narrative frames, ideas, and specific proposals are repeated, reiterated, and legitimized as food and agriculture become embedded—however nominally—in municipal policymaking arenas.

**Research Questions**

This study examines how the politics of urban sustainability planning and implementation are negotiated, what claims are made, and with what effects on the

transformation of urban land and natural resource management practices. In particular, I explore how actors involved in governance, discourses of the environment and society, and the materiality of the socio-natural urban environment interact in this process. I apply these research questions to comparative cases of two distinct issue areas with differing degrees of institutionalization in New York City's municipal sustainability plan: urban forestry and urban agriculture.

Before delving into my empirical research questions, it is necessary to situate PlaNYC in its historical, political-economic, institutional, and geographic context. In Chapter 3, I examine and describe (1) the local political-economic context from the 1970s fiscal crisis to the present; (2) the institutional configuration of local environmental governance in New York City, including both the municipal government and the network of civil society organizations; and (3) a brief overview of the geography and demographics of New York City as relevant to these cases. This background research draws upon secondary sources and the published literature, as well as already existing empirical datasets (as further described in the methods and data analysis section).

Building upon this background, I investigate four sets of research questions, which necessarily overflow the categorical tidiness with which they are presented. First, who are the actors involved in the politics and governance of urban forestry and urban agriculture and how do they participate in these practices? In particular, while the role of the mayor and other lead policymakers in urban politics has been thoroughly examined, what are the roles of bureaucratic officials in policymaking and of civil society in a formally state-led sustainability plan? How do civil society groups also foster urban forestry and urban agriculture practices outside of the context or confines of a municipal

plan? How do these actors work together through networked and hierarchical structures? Can we find evidence of the social production mode of power at work, whereby actors work to maintain coalitions that they have found previously useful? Which actors are bracketed out or excluded from the process? And how does policymaking and natural resource management unfold through multiple stages of initial goal-setting, implementation, and revision?

Second, I analyze the discourses of the environment and society that are created and deployed in sustainability plans (PlaNYC and PlaNYC 2.0), paying particular attention to how ideologies of environmentalism and neoliberalism overlap or compete. I seek to understand what formulation of 'sustainability' is explicit or tacit in these plans. Are facets of the environment, the economy, and social justice all discussed? In particular, I investigate whether discourses of local sustainability are utilized in advancing pro-growth agendas or inter-urban competition. This discourse analysis probes the ideological assumptions behind these claims and examines who stands to benefit or lose from their advancement. Looking beyond the formal plan, I compare and contrast the different discourses associated with urban forestry and urban agriculture that are prevalent in local campaigns. In the case of urban agriculture, which is not present in PlaNYC, I draw upon other sources to examine contemporary discursive framings. In particular, I analyze three policy reports: *Food in the Public Interest*, *FoodNYC: A Blueprint for a Sustainable Food System*, and *FoodWorks: A Vision to Improve NYC's Food System*. In the case of urban forestry, I examine references both directly in PlaNYC as well as in the MillionTreesNYC campaign website and materials.

Third, this study brings attention to how the materiality of natural resources and the socio-natural urban environment affect the trajectory of policymaking and management practices. While a full treatment of this question would benefit from multiple disciplinary perspectives and a level of integrated science beyond the scope of a single dissertation, I begin to examine how the physical constraints and abilities of biotic and abiotic actants, including trees, plants, sidewalks, buildings, roads and vacant lots, shape the plan and resource management practices. I examine community gardens and farms as resource use systems, which are unique assemblages of actors and actants. Finally, I explore the role of historic changes in the form of the socio-natural environment on current policies and practices. My first two research questions operate from an ontology that parses out separate social and natural domains, at least as a categorical device to facilitate exploration of different political and discursive dynamics. The third research question, however, necessitates a more holistic, non-dual approach.

Finally, this study has an inherently temporal dimension as it examines how urban forestry and urban agriculture programs change over time (politically, discursively, and materially). First, I offer the extended view of policymaking discussed above, which includes goal-setting, implementation, and revision. Next, I interrogate the causes and implications of the changes in scope and emphasis between the first iteration of the plan (PlaNYC, issued in 2007) and the second iteration of the plan (PlaNYC 2.0, issued in 2011). I examine practices of networked governance whereby civic and private actors influence, alter, or shape the plan's treatment of urban forestry and urban agriculture. And I reveal what discursive shifts are detected between the first and second iterations of

the plan. Finally, I explore how external shifts in the economy and societal values affect planning and natural resource management.

## Methods and Data Analysis

### *Case Selection and project background*

An argument can be made that no city is exactly comparable to New York in its size, diversity, and political and economic configurations. New York City is the largest metropolitan area in the United States, with a population of more than 8 million in the five boroughs and more than 18 million in the Metropolitan Statistical Area (U.S. Census 2010). It also has a long tradition of a large, centralized, 'liberal' and interventionist municipal government that traditionally provided certain services and material support to the working class (Bellush and Netzer 1990; Mollenkopf 1992; Freeman 2000). By focusing on the politics of one city at one moment in time, I hold roughly 'constant' key structural and institutional factors, such as the state of the economy and mayoral leadership—all of which are examined in chapter three on the political, economic, institutional, and geographic context of New York City. These factors are often examined as crucial to understanding urban politics, how power is operating in this field, and—more broadly—how the urban is constructed. Moreover, from a relational ontology perspective, no two hybrid-city-assemblages are ever comparable. Instead, what is important is to reveal the particular assemblage of actants and to offer a "micro-level focus on…the relations between them that constitute our world" (Castree 2005: 229). Thus, limiting the scope of my inquiry to one city is simply a necessary, but ultimately arbitrary practice of issue-bracketing. The idiographic examination of the politics and

policymaking of a single city also has a long tradition in the research of urban governance (Pierre 2005).

While any number of large, North American cities with sustainability plans and large-scale investments in green infrastructure (including, for example, Philadelphia, Chicago, or Toronto) could have been selected for research, I am uniquely situated to reflect on the politics of sustainability planning and practices of natural resource management in New York City. Qualitative research acknowledges the situatedness and subjectivity of researchers as crucial to shaping the framing and findings of a project (See, for example, Dowling 2005; Said 2000; Haraway 1991; Rose 1997). I have been living and working as a researcher with the USDA Forest Service at the New York City Urban Field Station since 2002. The mission of the field station is "to improve the quality of life in urban areas by conducting and supporting research about social-ecological systems and natural resource management" (USDA Forest Service 2013). Through this work, I am exposed to the concerns of municipal leaders and policymakers as well as bureaucrats and operational staff who work to create and shape urban natures. The Forest Service is not a land owner or manager in New York City, but rather serves as a convener, adviser, and research entity in partnership with public, nonprofit, and private managers. In this urban context, Forest Service researchers focus not just on street trees or forest stands – but also on the entire city as an urban forest across a diverse matrix of open space sites including parks, community gardens, private yards, rooftops, and the Public Right of Way.

My interest in the networked governance of New York City's urban environment is fundamentally shaped by my involvement in Urban Field Station research. Since 2005,

I am one of the co-principle investigators on the Stewardship Mapping and Assessment Project (STEW-MAP), which is a citywide census of civic environmental organizations that examines the social and spatial relations among urban actors involved in caring for the urban environment (USDA Forest Service 2007; Fisher et al. 2012). In a second stage, our team conducted in-depth interviews with 14 organizations that serve as key connectors in the stewardship network about their histories of environmental organizing (Connolly et al. 2013). As part of my pre-dissertation background research, I generated two questions for the semi-structured interview protocol about these organizations' involvement in PlaNYC2030 and with city agencies and policies more broadly (See Appendix 1, questions 4 and 5). These data were utilized in corroborating and validating my interest in the two issue areas of urban forestry and urban agriculture and to help refine my research questions. While many respondents were engaged in or at least familiar with the changes in the city's urban forestry practices and the MillionTreesNYC campaign, they identified the absence of gardening and farming from PlaNYC as an oversight or missed opportunity on the part of municipal government.

Access to informational gatekeepers is another key asset in conducting qualitative research (Dunn 2005). My professional role and research program puts me in direct involvement with government and civic leaders in the environmental field in New York City. The Urban Field Station is a hybrid institution, a partnership between the federal government (USDA Forest Service) and the municipal government (DPR). Indeed, DPR is the lead agency in many of the open space, greening, and forestry efforts within PlaNYC; and the municipal community gardening program, GreenThumb, is a program of DPR. Representatives of DPR spoke with me directly, gave me access to their staff,

and helped connect me with contacts in other city agencies, the mayoral administration, and external partners. I also engaged institutional contacts with nonprofit organizations, community groups, and activists that I have developed through STEW-MAP, longitudinal research on community gardens, and the publication I co-edited, *Restorative Commons: Creating Health and Well-being through Urban Landscapes*. Finally, I am a member of the Advisory Committee to the MillionTreesNYC campaign and a member of the research and evaluation subcommittee. In that capacity, I helped to organize meetings, workshops, and symposia around the integration of research and practice in the campaign and issues of urban forestry, green infrastructure, and natural resource management[5]. As such, I have been involved in formal and informal conversations about the trajectory and implementation of the campaign since its launch and have access to both current and former leaders of the effort.

I examine the domains of urban forestry and urban agriculture in New York City during the time of PlaNYC, from 2007-2011, through two in-depth case studies. The selection of these issue areas was grounded in my situated understanding of these natural resource management issues, my access to gatekeepers, and informed by background research. This research design enables me to examine the differences between and similarities among two different issues with varying degrees of institutionalization in the city sustainability plan. And it allows for exploration of how politics and discourse both *produce* and *respond to* different degrees of institutionalization within the plan.

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[5] I served on the organizing committee and acted as a presenter and participant for three major conferences and workshops. In 2009, a research workshop entitled "MillionTreesNYC, Green Infrastructure, and Urban Ecology: Building a Research Agenda"; a public symposium attended by more than 200 researchers and practitioners in March 2010 "MillionTreesNYC, green infrastructure, and urban ecology symposium"; and a workshop focused on green jobs and the MillionTreesNYC Training Program in summer 2010 "Supporting Success: Making the Transition to Green Collar Jobs" (MillionTreesNYC Advisory Board 2009; Maddox et al. 2010; Svendsen and Lu 2010).

***Secondary sources and existing datasets***

In order to answer the background research questions about the New York City context, I conducted a review of the literature about New York City political economy, institutions, and governance. While my focus is on the state of the political economy in the time of PlaNYC's creation, implementation, and revision, I nest that period in the longer arc of New York City's political economic history since the 1970s fiscal crisis (see, for example, Tabb 1982; Shefter 1985). The description of local politics and institutions draws upon secondary sources such as Berg's (2007) book on New York City politics, Brash's (2011) book on the Bloomberg administration, and Mollenkopf's (1992) description of the Koch years. In order to describe the formal PlaNYC process, I reviewed primary planning documents (including PlaNYC, Annual Progress Reports, PlaNYC 2.0, and the PlaNYC website) as well as 'grey literature', such as ICLEI's (2010b) report on the process behind PlaNYC. To describe the local demographics in New York, I used census data, including information about population size, racial and ethnic composition, poverty rates, and unemployment rates. Statistics about geography, land use, and land cover data were drawn from publicly available sources, including city and federal datasets. Finally, data about networks of civil society environmental organizations in New York City was drawn from STEW-MAP (USDA Forest Service 2007 Fisher et al. 2012; Connolly et al. 2013). I analyzed descriptive statistics about the number of civic groups, their network ties (including measures of the number of in-degree ties and betweenness centrality), and their particular substantive involvement with urban forestry and urban agriculture. This background research sketches out the context of New York City that surrounded the creation of PlaNYC.

***Interviews***

Answering research questions 1-4 requires a qualitative approach with multiple methods and sources of data. As a primary research method, I conducted semi-structured interviews with municipal and nonprofit leaders in sustainability planning, parks and recreation, forestry, and agriculture. I began my interviews with key participants in PlaNYC (including DPR and the OLTPS), MillionTreesNYC (including NYRP and selected members of the advisory committee), GreenThumb, GrowNYC, and the Food Systems NYC network, and utilized a snowball sampling methodology until saturation was reached. I interviewed 56 subjects; 50 of these were one-on-one interviews, and three were interviews with two subjects together. All of the interviews lasted from between 30 minutes and 3 hours, with the average being around one hour. In addition, I drew upon a subset of the semi-structured interviews that were conducted with representatives of key civic environmental 'bridge' organizations from the STEW-MAP research project. This subset of nine STEW-MAP interviews was selected based on recommended interviewees from my snowball sampling method. When subjects suggested that I interview someone for whom I already had extensive data on organizational history, network partners, and engagement with PlaNYC interviews, I drew upon that already existing dataset, rather than expose subjects to potential interview fatigue. In total, interview data are drawn from 65 subjects.

Table 1.1 shows the how research subjects were divided across issue area and sector. Of the 65 total subjects, 22 (33.8%) focused on urban forestry, 31 (47.7%) focused on urban agriculture, and 12 interviews (18.6%) were with individuals with expertise and insights spanning both domains. In terms of sector, 30 (46.2%) respondents

worked at civic groups (either formal nonprofits or community-based groups); 26 (40%) were public sector employees (city, state, and federal agencies or working for elected officials); and nine (13.8%) worked in private sector businesses. Of these, by far the two most frequently represented organizational types were nonprofit organizations (17, or 26.2%) and municipal agencies (15, or 23.1%). The table shows that, overall, I interviewed a greater number of subjects in the urban agriculture case than the urban forestry case, as well as relatively more public sector employees for the forestry case and more civic actors for the agriculture case. This distribution is reflective of the snowball sampling method and the principle of seeking saturation in interview content. I gathered suggestions of people with whom I should speak from prior interviewees and followed the network of actors; thus, this distribution is shaped by who participates in the forestry and agriculture arenas. A more diffuse, civic network of groups is engaged in urban agriculture than urban forestry, which is strongly municipally-led, a finding that will be discussed further in Chapter 8, drawing in particular on the network partner information I gathered in the interviews.

Table 1.1: Interview respondents by issue area and sector

| | **Issue area** | | | |
|---|---|---|---|---|
| **Sector** | **Forestry** | **Agriculture** | **Both** | **Total** |
| **Public** | 12 | 6 | 8 | 26 |
| **Civic** | 6 | 20 | 4 | 30 |
| **Private** | 4 | 5 | 0 | 9 |
| **Total** | 22 | 31 | 12 | **65** |

Because of the differences in institutionalization of these two issue areas, distinct protocols were required to solicit information on urban forestry and urban agriculture; see Appendix 2 for these protocols. All participants gave their informed consent to

participate in the study as confidential subjects and gave permission to be audio recorded (the study was approved under IRB #11-714M). The interviews covered: involvement in PlaNYC processes (from creation, to implementation, to revision and creation of PlaNYC 2.0); organizational ideology and values; program activities from 2007-2011; and partnership networks. In discussing networks, I also paid particular attention to what types of groups were *not* mentioned by respondents, in an effort to understand how issues were bracketed and whether or not groups were excluded. Overall, the interviews focused primarily upon the politics of agenda-setting and implementation (question 1) and the temporal aspect of what drove changes to the plan (question 4), but also provided information on the discourses of the environment associated with the plans and campaigns (question 2); and the role of the materiality of the socio-natural environment in shaping policymaking (question 3).

These interviews were meant to be opportunities not only for 'data collection' but for situated, reflexive learning. The interview recordings were transcribed in full, comprising a total of 1,576 pages of transcription. In addition to the transcript record, immediately following each interview, I wrote detailed field notes that summarized salient points, questions that arose, and issues for follow-up. These field notes were all maintained in a single running document, with color coding to connote the differences between summarizing my respondents' statements and my own reflections or questions from the data. Insights from early interviews were then used to iteratively shape and refine successive interviews. I often posed questions to subjects that built from 'hunches', hypotheses, and interim findings in order to gauge the reliability of these

insights with knowledgeable insiders. This enhanced the rigor of my qualitative approach (Dunn 2005; Bradshaw and Stratford 2005).

The qualitative analysis software, NVivo, was used to store, code, and analyze the data for emergent themes. Beginning with my field notes document, I generated an outline of key concepts and information from the interviews. The major sections of the outline were used, along with my initial research to create nine initial thematic codes (‘parent nodes’ in Nvivo) that were applied to all of the transcripts, these were: ‘discourse’, ‘economy’, ‘governance and politics’, ‘information and data’, ‘materiality and non-human actors’, ‘networks’, ‘natural resource management and implementation’, ‘organizational structure’, and ‘temporal change’. In addition, I created an auto-coded theme “PlaNYC” for any direct references to the plan itself; as well as a placeholder theme, ‘memorable quotes,’ for storing particularly rich, evocative, counterintuitive, or interesting quotes to which I returned. Table 1.2 presents the percentage coverage of these nodes (by character counts) for interviews belonging to the forestry case, the agriculture case, and both.

Table 1.2: Percent coverage of NVivo parent nodes by case

| | % Coverage | | |
|---|---|---|---|
| Node | Agriculture | Forestry | Both |
| DISCOURSE | 56.82 | 18.37 | 22.83 |
| ECONOMY | 52.15 | 28.51 | 17.79 |
| GOVERNANCE + POLITICS | 43.92 | 25.92 | 29.31 |
| INFORMATION + DATA | 45.58 | 38.19 | 16.23 |
| MATERIALITY + NON-HUMAN ACTORS | 38.30 | 42.68 | 17.92 |
| NETWORKS | 47.14 | 28.23 | 22.61 |
| NR MANAGEMENT + IMPLEMENTATION | 34.54 | 46.02 | 17.50 |
| ORG STRUCTURE | 50.63 | 21.12 | 22.69 |
| PLANYC (autocoded) | 170.25 | 110.77 | 112.16 |
| TEMPORAL CHANGE | 36.83 | 40.42 | 19.19 |
| memorable quotes | 45.60 | 26.00 | 26.53 |

Then, in a second pass-through of each of these themes, I further sub-coded the themes in more detail ('child nodes' in Nvivo) in an emergent fashion. Thus, my approach is one of grounded theory – whereby the thematic categories emerged directly from my data (Creswell 1997; Dey 1999; Miles and Huberman 1994; Strauss and Corbin 1998). However, my method was somewhat more structured by using the intermediate analytical step of generating overarching themes from both the field notes and the initial research questions. I considered my analysis complete once I stopped reorganizing, moving, consolidating, or changing these sub-themes / child nodes.

***Network data***

In addition to coding transcripts for any thematic reference to networks, I collected consistent information from each interviewee about their core partners for visualization using Social Network Analysis (SNA) tools. These data provide insights into question 1 on who participates in the governance networks of urban forestry and urban agriculture, and serve to triangulate the qualitative data I present in the case studies. SNA is a quantitative method rooted in graph theory that provides a way to visualize and analyze complex networks (Wasserman and Faust 1994). Much SNA research is based on highly structured analysis of "complete networks," wherein all participants in a network are enumerated and surveyed, such that every tie between every single actor is documented, until a complete network matrix is collected. However, other recent research examines "ego networks"—the sets of ties closely linked to a set of egos (respondents) and uses SNA more qualitatively, as a way to begin to visualize a component of the network that one is studying. The limitation of the latter is that one

cannot use many of the most powerful analytic tools to understand the structure and characteristics of the total network, because one does not know the nature of ties from un-surveyed members of the network (Hanneman and Riddle 2005). One can, however, begin to understand the relations and ties of the preliminary egos in one's study, understand something about the relative positioning of these egos, and get an impressionistic sense of the local networks surrounding those egos. (Marsden 1990; Wellman 1979; Scott 2000; Burt 2007; Connolly et al. 2013)

I collected data on the most crucial partners of each of my 65 interview subjects. Because I built my interview sample using a snowball sampling methodology where I asked subjects to identify additional interviewees until I reached saturation of topics covered, one could think of these networks as being representations of all the core participants in these natural resource issue areas. In order to collect network data, I asked each of my interview respondents to identify at minimum their top three partners (or "alters" in social network lexicon) in each of the following sectors: government, civil society, and private industry. This methodology has been used in the study of civic associations and urban environmental stewardship groups (Baldassari and Diani 2007; Connolly et al. 2013).

The data on network partners was taken from the transcripts and entered into Microsoft Excel for cleaning and data management. First, because 12 respondents covered both topic areas, these respondents are included in both networks. Thus, the forestry network draws on responses from 34 individual interview respondents; and the agriculture network draws on responses from 43 individual interview respondents. Second, these data were further combined to reflect organizational ties, such that

responses from all the individuals working within a single organization were combined as a single entry, with duplicates removed. In the case of DPR, distinctions were made between different programmatic divisions (leadership; MillionTreesNYC; Partnerships for Parks; Central Forestry and Horticulture; Natural Resource Group; and GreenThumb) and in the case of GrowNYC, a distinction was made between GrowNYC in general and the Grow to Learn program. This led to 36 organizational respondents in the agriculture network and 14 organizational respondents in the forestry network. Third, if respondents named more than three partners, I did not truncate their answers, and I kept track of all of these partners, thereby allowing the respondents to direct the shape and composition of the network I represent. Fourth, to the greatest extent possible, I asked respondents to offer precise names of exact organizational partners. But in some cases, organizations worked with dozens to hundreds of groups of a certain type, such as churches, community gardens, business improvement districts, and corporate volunteers. Because I sought to represent the widest array of partners that are including in these networks, I did not remove any of these general responses. Fifth, I cleaned the data to standardize all the organization names and general response categories.

I generated two separate diagrams for the forestry network and the agriculture network using UCINET and NetDraw (see Chapter 8, Figures 1-3) (Borgatti et al. 2002). In all of the diagrams, I color coded the network such that blue nodes represent government groups; yellow nodes are civic groups; and red nodes are business groups. The size of the node reflects the number of ties, both in-degree (meaning the number of groups that identified working with that group as an alter) and out-degree (meaning the number of groups identified as partners/alters by that organization). I present the nodes

in the orientation provided by the NetDraw algorithm, only moving nodes to allow for legibility of labels.

***Discourse analysis***

I reviewed organizational documents and websites to provide insights into discursive framing of the environment and society (research question 2), as well as any shifts in these discursive frames (question 4). I read and analyzed the plans and websites of PlaNYC, PlaNYC 2.0, and MillionTreesNYC to determine the discursive framing of urban forestry. Similarly, I reviewed *FoodNYC*, *Food in the Public Interest*, *FoodWork*s, and PlaNYC 2.0 to examine the discursive framing of urban agriculture. Although *FoodNYC* and *Food in the Public Interest* and *FoodWorks* are distinct efforts from PlaNYC, they are municipally-led efforts to articulate a vision and set goals, strategies, and policies related to local food systems—and therefore strengthen the intertextuality of my analysis (Waitt 2005). All documents were read, coded, and analyzed in NVivo for emergent themes. Discursive themes identified include several *urban themes*: competitive city, greening the city, urban challenges; *environmental themes*: environmental quality, environmental justice, green infrastructure, sustainability, tree benefits; *social and economic themes*: education, neoliberalism, neighborhood improvement - livability – stabilization, social justice, strengthen local economies; *food related themes*: anti-hunger - food security - food access, food systems, healthy food, local food, and urban-rural linkages.

This discourse analysis focuses on the broad ideological contours and attendant power relations of these plans and documents. Waitt (2005) offers insights on this

approach, "The methodological strength of discourse analysis lies in its ability to move beyond the text, the subtext, and representation to uncover issues of power relationships that inform what people think and do" (165-166). Questions I asked of these texts include: What view of the environment is being portrayed? Of sustainability? What assumptions are built into the plan and campaigns? To what extent do these plans and campaigns align with hegemonic ideologies of neoliberalism and growth? To what extent do they reflect values of social justice or ecological health? These are examples of areas of interest informed by the literature. In addition, I followed Rose (2001) and Waitt (2005) in allowing categories, patterns, inconsistencies, and silences to emerge from the texts themselves.

***Participant observation***

Finally, I utilized participant observation of organizational meetings and fieldwork involved in the implementation of urban forestry and urban agriculture practices, which contributed to answering research questions 1-4. As a member of the Advisory Committee of MillionTreesNYC since 2007, I participated in numerous planning meetings related to the development and implementation of that campaign and I draw upon my own participant observations from these meetings. Attendance and involvement in these meetings provides rich grounding in the discursive, political, (and to a lesser extent) material aspects of the campaign. Attending these meetings over the course of 2007-2012 provided ongoing insights into temporal changes in practices.

Additional fieldwork I conducted was crucial to exploring question 3—the role of the material in shaping policymaking and natural resource practices. In terms of urban

forestry, I shadowed foresters and public contractors as they selected sites for new trees and received trees in delivery from regional nurseries. My interviews with these subjects also covered the processes of planting trees and engaging in routine maintenance and care. I also conducted participant observation of volunteer planting days, a public tree giveaway, and 'Mulchfest'–a public composting event. Volunteer planting days occur at a minimum of once per spring and once per fall in park sites across the five boroughs, as part of the reforestation effort associated with the campaign. While I did not physically travel to the nursery sites where trees are matured, or the tree farms in Oregon where many of the starts originate, I did conduct interviews focusing on the role of these distant sites in the actor-network.

For the urban agriculture case, I also engaged in site visits, attended meetings, and toured gardens and farms. I attended several citywide conferences, including the 2011 American Community Garden Association's national conference, which was held in New York City; the 2012 GreenThumb GrowTogether– an annual event that is open to the public and drew more than 600 community gardeners for hand-on workshops and a resource fair; and the 2012 Brooklyn Food Coalition's Brooklyn Food Conference. Informed by the recommendations of my interviewees, I also selected 21 urban farms, community gardens, school gardens, and gardens on public housing grounds (NYCHA sites) to visit and conduct observations of their resource management practices. Some of these site visits were self-organized, others took place in informal groups of practitioners and researchers, and others were organized as part of formal tours (such as the 2011 ACGA bike tour of agricultural and livestock sites in Brooklyn). These sites were located in Brooklyn, Queens, the Bronx, and Manhattan–every borough except for Staten

Island, which has relatively few community gardens in contrast to the others. In addition to serving as sites of food production, several of these garden spaces served as food distribution sites and included farmers' markets and CSA pickups.

***Ethical issues***

This research complied with all Human Subjects protocols and was certified through the Rutgers University IRB. Since the focus of the study was generally on organizational-level data, rather than individual information, no sensitive personal information was collected and there were no risks to the participants. All the procedures of informed consent and confidentiality were strictly followed. When interacting with subjects, I was transparent about my role not just as a Rutgers student, but also as a researcher and employee of the USDA Forest Service Northern Research Station. I shared my positioning because it might influence the way in which the research subjects chose to interact with me. When meeting subjects, I introduced them to background on my previous work and invite them to explore the New York City Urban Field Station website (www.nrs.fs.fed.us/nyc) so that they could place this project in the context of my previous and ongoing work.

Because this study closely examines the practices of the city agencies and nonprofit organizations with which I work, I consider this research embedded in larger discussions among a community of practitioners and activists focused on the urban environment of New York City. I sought to be transparent in my research interests and questions while remaining open to input from the research subjects. In an effort at developing rapport and in an attempt to provide useful information to my subjects in

exchange for their time, I aimed for interviews to be conversational in nature. Ultimately, I hope that the data and analyses contained herein contribute not only to a theoretical discussion about urban environmental governance, but also can assist in the programmatic, policy-relevant, and everyday choices faced by civic organizations and municipal agencies. My normative intent of this empirically-grounded research project is to inform future practice and steer it towards being more socially just and environmentally sound.

**Outline of the dissertation**

This chapter provides an introduction to the study, including the problem statement, research questions, and methods and data sources used. Chapter two explores relevant literatures on environmental governance, urban politics, discourse, and urban political ecology. It cuts across a wide swath of disciplines including human geography, urban studies, and political science to examine diverse theoretical framings and empirical investigations of how contemporary urban natures are constructed. Chapter three situates the study in the context of New York City, starting with basic information about local demographics and physical geography. Homing in on the period of 1970 to the present, I examine the political economic history, institutional structures, and key public and civic actors involved in the governance of New York City's unique urban environment. Then I turn to the empirical case studies. Chapter four examines the politics and discourses of urban forestry, presenting the case of MillionTreesNYC from its conception by municipal bureaucrats as a part of PlaNYC, to its construction as a formal public-private partnership with a local nonprofit. Chapter five investigates material practices and temporal change

in the urban forestry case, exploring the implementation of the tree planting campaign as it broadly engaged members of the public, widely transformed the city's physical environment, and encountered internal and external forces of change. Chapter six places the recent emergence of interest in urban agriculture and food systems in the context of the history of community gardening in New York City since 1970. It explores the vibrant material practices and varied discourses employed by civic practitioners engaging in urban agriculture from the 2000s to the present. Chapter seven then examines the ways in which civic and municipal actors working outside the boundaries of PlaNYC iteratively embedded urban agriculture and food policy into municipal policymaking and planning efforts. Chapter eight synthesizes across these two cases, making thematic comparisons of politics and governance, discursive construction, and material practices. Finally, chapter nine closes with conclusions and areas for further research. This study reveals that even within a single city over a relatively narrow period of time, we find substantive differences in the urban forest assemblage and the urban agriculture assemblage. As Timothy Mitchell (2002) notes, "theory lies in the complexity of the cases" (8); the detailed cases and the synthesis across them are offered as presentations of the complex processes involved in the construction of urban natures.

## Chapter Two - Political, discursive, and material dimensions of the governance of urban socio-nature

"…there is nothing unnatural about New York City."
--David Harvey, *Justice, Nature, and the Geography of Difference* (1996: 186)

This chapter situates the dissertation in a diverse set of literatures from human geography and other social science approaches. Multiple perspectives from geography, urban studies, political science, sociology, and natural resource management are useful as entry points for understanding the complex, contested, and multivalent construction of urban nature as it threads through the processes of sustainability planning and natural resource management. Given my research questions that cover politics and governance, discourse, and materiality, I explore debates and conversations surrounding each of these conceptual areas. If we truly view urban nature as an assemblage, we necessarily note that these domains are mutually constitutive. But for the purposes of clarity, I review each concept in turn and start arbitrarily, as I must.

Because what is being 'governed' in this case is the urban environment, I explore two different sets of literature on environmental governance and urban politics. First, questions of environmental governance largely center on the role of the state, civil society, and the private sector, and the interactions between these sectors and across scales (local, regional, national, global). Scholarly approaches to these questions can be philosophical, or rooted in social theory—particularly state theory, or can be more empirically-grounded—as is much of the research on natural resource management. The concept of networked environmental governance serves as both a metaphor and an analytic approach. Networks are threaded throughout this study, from the research questions, to the methodologies employed, to the case narratives and social network

analysis (SNA) visualizations I create. I employ the concept with a critical eye, however, examining tensions within the network as well as moments when the network is insufficient in its explanatory power.

Second, urban politics literature has evolved in the United States through a decades-long discussion centered on the question of who has the power to govern the city.[6] I review the literature of urban regimes, regulation theory, and growth machines, noting also the antecedents and theoretical backdrops of pluralism, elitism, and Marxism. From both urban regimes and growth machines we are directed to attend to the role of the mayor and the local business elite. This study adds an enhanced emphasis on the role of bureaucrats and the various formal and informal groups within civil society that focus on the urban environment. Finally, a 'three dimensional' view of power takes into account decision-making, agenda-setting, and ideology—all of which are explored here (Lukes 2005).

Politics operates through domains other than just the visible interplay of strategic actors (individuals, organizations, and coalitions); it is discursively constructed, materially tethered, and historically and geographically contingent. If we accept the notion of three faces of power, we must explore the role of 'discourse as ideology' in the urban political sphere—and particularly in the construction of urban nature (Lees 2004). This Gramscian approach draws attention to hegemonic views of the environment and society, how they are concretized in institutions, by whom, and with what effects. One

[6]The urban politics literature is not exclusive to the United States, as it has been explored and advanced by scholars in the UK, Europe, and elsewhere. I pay particular attention, however, to the scholarship centering on American cities and the politics therein, noting the extensive cross-fertilization of ideas across the Atlantic. Notions of urban regimes and the growth machine first originated in American scholarship, whereas explorations of governance and 'the 3rd way' originated in the UK and Europe (See, for example, Mossberger and Stoker 2001; Davies 2005; Jonas and Wilson 1999).

almost cannot discuss contemporary urban or environmental life without encountering the concept of neoliberalism—indeed it has reached hegemonic status as an academic concept and pursuit! This study explores where we see neoliberal discourses in play within sustainability plans and natural resource management practices, while at the same time revealing counter-hegemonic challenges to that ideology from both within and outside of the state. It also pays particular attention to 'environmental claims making'—such as valuation, quantification, and commodification—within the planning and natural resource management spheres (Davidson and Frickel 2004).

An expanded view of the politics and practices of the construction of urban nature necessitates an attention to the role of nonhuman actors, including trees and plants, soil, water, sun, the atmosphere, and the built environment—such as roads, buildings, and infrastructure. Scholarship with a material turn (both Marxian and non) as well as flat ontological approaches like Actor Network Theory and assemblage geography are grappling with new epistemologies, methodologies, and ways of writing that change how we make accounts of phenomena. Via these approaches, cities are seen as hybrid matrices of 'urban socio-nature' that are *always* politically contested entanglements of humans and nonhumans. Finally, normative approaches and perspectives are threaded throughout these literatures and embedded in my own positioning.[7] Urban geography and nature-society geography have rich, critical traditions that question the state, the economy, and the role of the public 'all the way down'. Urban political ecology is one

[7] Although I do not ally myself with any particular standpoint and am a theoretical pluralist, I do seek to be transparent about my normative aims. Fraught as it may be, I think that the notion of 'sustainability' offers a starting point for talking about the multiple dimensions that we must consider in the long term viability of our cities. I aspire to live, work, and share in cities that are vibrant, healthy, diverse, and inclusive; I hope that future generations and distant populations' ability to do the same is not hindered by our pursuit of that end.

approach that has brought criticality to the construction of urban environments, exploring the role of labor in the transformation of nature and posing the questions of who gains and who loses within these processes and terrains. In addition, the applied work of city management, planning, and policymaking has strong, progressive traditions in New York City through agencies and organizations that seek to address injustice and service the underserved via policies and programs.

**Environmental governance: state-led, civil-society led, and networked**

Davidson and Frickel (2004) define environmental governance as "attempts by governing bodies or combinations thereof to alleviate recognized environmental dilemmas" (471). Previous scholarship on environmental governance examines state-led efforts that include planning, bureaucratic, and regulatory operations in the areas of parks, forestry, natural resources, and transportation (Koontz et al. 2004; Berke and Mante Conroy 2000; Lake 2000). The urban planning and public policy literatures offer considerable critique to state-led planning efforts that lack avenues for public deliberation or that are byproducts of singular 'rational' visions of the city, such as those of Le Corbusier or Robert Moses (Scott 1998; Dryzek 1990; Healey 1997; Fischer 2000; Forester 1999). Political ecology scholars scrutinize and critique state natural resource management practices (see, for example, Peluso 1992; Neumann 1998, 2004; Kosek 2006). Scott argues that throughout history, the role of the state has been to try and control, simplify, narrow, centralize, and rationalize nature "in order to isolate a single element of instrumental value" (1998: 21). Indeed, Scott applied his optic to the development of scientific forestry and industrial agriculture as quintessential cases of

rationalizing nature. Others have drawn attention to the fact that we cannot or should not think of the 'state' as a unitary entity. Even places with a strong managerial state—like the United States—have bureaucratic and jurisdictional fragmentation to which we must attend (McCarthy 2002).

Scholars and philosophers have long reflected on the role of civil society in expanding democratic arenas and promoting deliberative democracy (Tocqueville 1969; Dewey 1954; Cohen and Arato 1994; Habermas 1989; Calhoun 1992; Young 2000) and this discussion has recently focused on the environmental realm. Some research examines 'civic innovation' or civil society-led environmental stewardship efforts—such as community gardens—that emerge both in response to local crises and/or to the desire to improve local quality of life (Sirianni and Friedland 2001; see also Boyte 2004; Lawson 2005; Von Hassell 2002). Environmental philosopher Andrew Light (2001, 2003) calls for local participation in urban environmental management. He believes that participation will enrich decision-making and promote an ethic of caring about the natural world. Peet and Watts (2004) offer an expanded view of political ecology research that investigates civil society environmental organizations and social movements for their radical, progressive and "emancipatory potential" (16; See also Escobar 2008; Keck and Sikkink 1998; Dorsey 2003).

Indeed, there are myriad examples from rural areas and the global south and, more recently, urban areas and the global north of community forestry and community-based natural resource management that seeks to empower local resource managers (St. Martin 2005; McCarthy 2005; Murphy-Dunning 2009; Schroeder et al. 2006; Burch and Grove 1993; Weber 2000). Community gardens are often celebrated as quintessential

examples of local, citizen-led land management (Svendsen 2009; Stone 2009). Scholars have argued that community gardens and local food justice movements can nurture democratic citizenship, civic values, and participation in advocacy or policymaking among their members (Levkoe 2006; Baker 2004; Saldivar-Tanaka and Krasny 2004)—including among groups that are traditionally marginalized, such as the mentally ill or low income populations (Parr 2007; Armstrong 2000). Alternative Food Networks (AFNs) and Alternative Food Institutions (such as urban farms, community supported agriculture, and farmers' markets) present consumer food options and nurture political and discursive spaces that differ from the global, corporate food system (Hendrickson and Heffernan 2002; Holloway et al. 2007; Allen 2010). From a more radical perspective, some scholars advance the idea of Autonomous Food Spaces that operate through communities of mutual aid, beyond the bounds of capitalism or the state (Wilson 2013). At the same time, there is a rich discussion within scholarly and activist communities that critiques the claims surrounding AFNs, questions their 'alternativeness' and the frequent privileging of the local scale, and notes their limitations (see, for example DuPuis and Goodman 2005; Born and Purcell 2006; Hinrichs 2003).

In investigating *networked environmental governance*, I draw on concepts of social networks. Networks have been thought of as a "governing structure" (or "mode of governance") for allocating resources and coordinating decision-making that can be contrasted with other structures or modes, such as hierarchy (e.g. bureaucracy) and markets (Rhodes 1996; Jordan 2008). Indeed, Rhodes defines governance as self-organizing inter-organizational networks, and claims that "focusing on governance can blur, even dissolve, the distinction between state and society…. A key challenge for

government is to enable these networks and to seek out new forms of co-operation" (666). According to Kjaer, however, we should not think of networks as functioning in the absence of hierarchy:

> A first step in strengthening governance theory…is to recognize that governance is basically the handling of rules through which public policies are pursued. Understood in this way, governance may take the form of networking, but it may also rely on hierarchy or on market mechanisms. Therefore, a first step is to recognize that…the role of government in governance is an empirical question. Having taken this step, the next is to better theorize what rules of governance can be applied when and in which particular context. As demonstrated, network solutions are not always adequate and it is too soon to entirely abandon the state hierarchy. Networks also exist in the shadow of hierarchy (2009: 148).

In part, Kjaer is responding to Evans (1996) and others' optimistic portrayal of "state-society synergy" by noting that participants in governance networks have different resource bases, differing degrees of power, and differing interests, all of which can lead to conflict. She cautions against an understanding of governance that overlooks or under-theorizes the role of power and assumes that participation leads to consensus (Kjaer 2009: 142). Davies (2005) goes further to posit a dialectical relationship between hierarchy, markets, and networks. In essence, he notes that while governments have attempted to devolve some authority outward to non-state actors, this has been countered by the fundamentally antagonistic nature of markets, which necessitates a need for a strong hierarchical state, which—in turn—can stifle networks.

Rocheleau and Roth (2007) argue that networks serve as metaphors, models, and theories to a broad set of social and natural sciences. In sociology and political science, much work has gone into connecting the literature, concepts, and approaches in the study of social movements with that of social networks (Diani and McAdam 2003). Research has looked at organizational alliances (Ansell 2003); ties among organizations that share

members (Carroll and Ratner 1996; Cornwell and Harrison 2004); and the presence, structure, and effects of "civic networks"—which are defined as "the web of collaborative ties and overlapping memberships between participatory organizations, formally independent of the state, acting on behalf of collective and public interests" (Baldassari and Diani 2007: 736). Recent scholarship has explicitly applied SNA in examining: networks of environmental stakeholders (Prell et al. 2009); communication patterns and resource exchange (Crona and Bodin 2006); links between social networks and resilience to climate change (Newman and Dale 2004); and organizational networks of urban civic environmental organizations (Ernston et al. 2008). Specific to New York City, researchers conducted a citywide survey of civic environmental groups to identify their organizational foci, geographic turf, and social networks with government, business, and civil society. This network of groups works in diverse areas of the urban environment, including parks, street trees, and community gardens (Fisher et al., 2012; Connolly et al. 2013; USDA Forest Service 2010).

Debates continue as to whether this expansion of actors involved in networked governance is a good thing. On one hand, scholars have critiqued civil society on grounds of legitimacy, accountability, representation, and transparency (Syngedouw 2005; Heynen and Perkins 2007; Peluso 1992). Swyngedouw argues that civil society's role in decision-making alters the definition of participation in politics from that of citizenship to that of stakeholder; he claims that governance arenas are full of "unauthorized actors" (citing Beck 1999: 41) and that there is an "absence of codification" (2005: 1999). In a strong critique, Peluso (1992) argues that civil society is not a panacea, illustrating how global civil society can support nation-states' fortress

conservation practices—including militarization—and can conflict with and oppress local communities. In an urban forestry case, Heynen and Perkins (2007) criticize the nonprofit Greening Milwaukee for its selective serving of certain residents (e.g. planting trees with homeowners but not with renters). In terms of urban agriculture, Kurtz (2001) notes that there is wide variation in meanings of 'community' in community gardens, and shows that exclusions can occur. Bouvier-Daclon and Senecal (2001) argue that 'community' gardens are products of the community in name only and generally result in socializing among only a few individuals or small groups. Numerous scholars have probed the accountability, representation, and self-determination of environmental justice groups and other local social movement organizations, asking: "who speaks for whom?" (Lake 1996; Getches and Pellow 2002; Bryner 2002; Schlosberg 2003, 2007). Looking beyond organizations to networks, Gustavsson et al. (2009) question accountability in a case of a Swedish climate change governance network, arguing that "the blurring of hierarchies and indistinct roles and responsibilities within the network makes it difficult to exert accountability" (70).

On the other hand, researchers have argued that civil society groups *do* have multiple sources of accountability. Wapner (1995) claims there are multiple sources of accountability for civil society organizations, including: members, donors, boards, advisory councils, partners in their network, community groups, and even states. Edwards and Hulme (2002) argue that global non-governmental organizations have two sources of accountability: upward accountability to donors and downward accountability to members. It is crucial to parse out the differences among civil society actors, which range from grassroots social movements; to local, informal civic associations focused on

lifestyle and leisure; to formalized nonprofit service providers (See, for example, Salazar 1996; Carmin 1999). The internal governance, decision-making processes, sources of accountability, and programmatic practices of these groups differ widely, particularly in terms of their degree of professionalization (see, for example, Newman and Lake 2006, Fisher et al. 2012; Andrews and Edwards 2005).

Some scholars claim that networked and collaborative governance is good for democracy, good for cities, good for citizens, and good for the environment. B. Taylor (2009) investigates environmental social movements in Appalachia and argues that grassroots civil society organizations have more flexible spatio-temporal frameworks than do fragmented and bureaucratic government agencies, such that the former see the interconnection among ecological and economic issues more clearly than do the latter. Taylor disputes the claim, however, that networks themselves *produce* democratic effects, pointing instead to the importance of networks embedded in *place*. Her description merits quoting at length:

> I argue that the greatest successes in democratic action and deliberation came when citizens were able to understand themselves (despite diversity) to be in the same boat—civically and ecologically. This sense of common ground did not arise simply from civic networks. However, multiple civic networks greatly amplified citizen capacity to act and to reason together…. [N]etworks did not, in themselves, provide the substrate for citizens to come together…. Rather, it arose from a collective stewardship of place. These civic labors integrated deliberation and imagination, reason and feeling, science and stories, in an effort to care for the long-term well-being of the social and environmental matrices of particular places—creating a collective recognition of a shared world that provided grounds of political legitimacy to carefully crafted democratic public spaces (B. Taylor 2009: 841).

Generally, scholars in the communicative school have argued that collaborative governance arrangements that include deliberation among civil society actors are not only more democratic, but also can lead to more effective solutions—such as in the case of

environmental mediation (Dryzek 1990; Healey 1997; Susskind et al. 1983; Susskind and Cruikshank 1987). Wide ranging literatures from political science, sociology, planning, and urban studies have investigated the benefits of civic engagement and participatory planning in supporting healthy, just, and diverse urban communities as well as in providing benefits to the citizens themselves, including self-fulfillment and satisfaction (see, for example, Peterman 2000; Lichterman 1995, 1996; Wuthnow 1991, 1998).

**Urban politics: regimes, regulation, and growth machines**

Urban political theory seeks to understand the operation of power in local governance. Pluralists like Dahl (1961) pioneered the approach of looking at the decision record of public officials to understand who governs. This was subsequently critiqued, most famously by Bachrach and Baratz (1962), who argued that covert forms of conflict are products of a more pervasive, 'second face' of power. Thus, if we are interested in power's operation, we must attend to setting the agenda and framing what issues come to the table as crucial steps in the political process. Lukes (2005) expanded further on this critique by disputing the belief that lack of conflict signals consensus. He proposed a three-dimensional concept of power that includes both the powers of agenda-setting but also influencing values, wherein "*A* may exercise power over *B*…by influencing, shaping or determining his very wants" (Lukes 2005: 27). Thus, Lukes, drawing upon Gramsci, brings the concept of ideology into view—which will be discussed in the next section on discourse. These fundamental debates about power thread throughout the contemporary literature of urban politics.

Urban regime theory has made a strong contribution to understanding the ways in which reasonably stable partnerships, political alliances, and coalitions between the state and—in particular—the private sector shape policymaking at the local scale (Mossberger and Stoker 2001; Stone 1989, 1993; Elkin 1987). Numerous scholars have pointed out, however, that urban regime approaches do not give sufficient attention to the role of foundations, nonprofits, and other civic groups in local politics—and have worked to bring these actors into local political accounts (Martin 2004; Pincetl 2003; Ferman 1996). Both pluralism and urban regimes can also be critiqued for insufficient attention to the role of the bureaucracy, as opposed to solely elected officials, in urban governance (Kjaer 2009). Throughout Stone and Dahl's accounts the mayor remains the central figure of the state, along with some other elected officials. Yet, the technical formulation and implementation of policies necessitates the participation of numerous, unelected bureaucrats throughout the agencies of the state – and it is often these bureaucrats that serve as the point of interface with other regime participants (particularly professionalized nonprofits and various interest groups) (Brecher et al. 1993). First, Dahl himself predicted that the changing nature of urban problems (including their increased technical complexity) might lead to a rise in the role of bureaucrats:

> Physical and economic deterioration in downtown areas; the flight to the suburbs; the overloading of all public facilities because of rising population, higher incomes, and more automobiles….the ugliness, limitations, and inconveniences of the metropolitan sprawl; changes in esthetic standards; growing intolerance of civic corruption—all these and still other changes will probably give new importance in the politics and policies of city governments to technicians, planners, professional administrators, and above all to professional politicians with capacities for building durable coalitions out of traditionally non-cooperative and even mutually suspicious social strata. The new men in local politics may very well prove to be the bureaucrats and experts—and the politicians who know how to use them (Dahl 1961: 62).

Indeed, Campbell (1996) argues that planners have a role to play in the pursuit of sustainability. *Procedurally*, planners can bring to bear skills of conflict resolution, translation, and GIS for visualizing problems; and *substantively*, their training in land use, design, and technical solutions are of particular relevance. Second, bureaucrats may be significant for their *normative* commitments. Keil and Boudreau's (2006) study of Toronto found, "there is a sustained progressive impetus among the newly amalgamated city's 40,100 employees based on their history of social engagement…to the more current social, (multi) cultural, and environmental civic activism that motivates people to be public workers" (56). Thus, we need to modify Dahl's analysis of the way in which voting by the electorate informs policymaking; he gives too much weight to the franchise of suffrage. And we also need to modify Stone's conception of the regime by expanding the number of players, appreciating the importance of bureaucrats, and complicating the process from formulation, to implementation, to ongoing monitoring and revision.

Despite these critiques, urban regime theory has become one of the dominant frameworks for understanding urban politics in the United States (Mossberger 2009). One of the lasting conceptual contributions of this line of inquiry is Stone's (1989) notion of a social production mode of power, which is defined as "'power to' accomplish goals rather than 'power over' others" (229, quoted in Mossberger 2009: 43). Stone argues that

> Governing capacity has to be created and maintained….Transaction costs mean that established relationships have great value in facilitating future cooperation. Hence once formed, a relationship of cooperation becomes something of value to be protected by all participants (1993: 3, 8).

In the introduction to his Atlanta case study he expands further,

> People who know one another, who have worked together in the past, who have shared in the achievement of a task, and who perhaps have experienced the same crisis are especially likely to develop tacit understandings. If they interact on a

> continuing basis, they can learn to trust one another and to expect dependability from one another (Stone 1989: 4).

This form of power focuses on trust, reciprocity, and coalition-maintenance and is a useful concept to bring to the examination of networked governance.

While urban regime theory attempts to acknowledge the political-economic context that gives business elites a privileged place in the governing coalition, it does not turn its attention directly to the way in which the capitalist mode of production itself shapes urban governance (Lauria 1997; Painter 1997). For this, we must call upon regulation theory. Regulation theorists examine changes in urban governance in relation to changes in the political economy. The transition from national state-led government to multi-scaled networked governance involves both (1) an expansion of actors in the decision-making arena, and (2) concurrent shifts in the scales of those arenas. Scholars argue that this shift resulted from the 1970s financial crises, decline in federal funding to cities, change in technologies and communication systems, economic restructuring toward post-industrialism, and the end of Keynsianism (Harvey 1989; Jessop 2002). Lauria argues that urban regime theory and regulation theory have "complementary strengths and weaknesses" and can inform each other: regime theory doesn't do enough to connect local processes to wider institutional contexts, while regulation theory underestimates the significance of local actors and can't explain the emergence of regulatory mechanisms (1997: 7-8). Gibbs and Jonas (2000) concur with Lauria that regime and regulation approaches used jointly can offer particular insights on local environmental policymaking. Under post-Fordist, rescaled urban governance they argue that: (1) environmental policies are being viewed as compatible with economic development, which could be leading to weaker forms of sustainability; (2)

environmental policymaking has become more inclusive, networked, and participatory, and therefore involves broader sets of actors in processes of local governance; and (3) it is worth examining how competing ideologies and discourses of environmental protection or economic development get employed in local politics.

In terms of expansion of actors in the governance arena, the market and civil society play crucial roles in political decision-making (Bulkeley 2005). Jessop (1994, 2002) focuses on the 'hollowing out' of the state. Similarly, Wolch (1990) posits the concept of the 'shadow state', whereby with the retrenchment of state welfare services, civil society takes up some of the functions of the state and operates as a para-state apparatus (Wolch 1990). Lake and Neuman (2002) apply this concept to a local pilot study of nonprofit organizations in Newark, critiquing the shadow state on the grounds of creating 'differential citizenship' through uneven provision of social services. Perkins (2009) argues, however, that the shadow state concept is less applicable to environmental management than it is to social services – for environment quality (including parks, open space, and urban forests) was never an entitlement in the way that welfare was, and it has always been an area of localized governance and state-civil society interaction. Indeed, Pincetl (2003)—drawing upon Cranz (1982), Foglesong (1986), and Rosenzweig (1983)—illustrates this as she traces the role of civic actors in the long history of urban park and open space planning and development processes. Writing about the current Million Trees Los Angeles initiative, she describes the public-private collaboration as a "coproduction" of the city and various nonprofits:

> The Mayor's Office in Los Angeles depends on the nonprofit sector to implement the program; it also funds its implementation and derives legitimacy from the program's deployment. At the same time, city funding supports the diverse group

> of participating nonprofits—they have become interdependent, shaping each other in the process (Pincetl 2010: 237).

In a New York City case, Scobey (2002) traces the role of real estate interests and landed elites in creating the institutions and landscapes that define New York City (e.g. the street grid, Central Park). He reveals how these are intensely political acts of spatial transformation with long histories dating back to the early-to-mid-19th century, even prior to the great city-building Progressive Era. It is clear that public, civic, and private actors are shaping the urban sphere, but we can question whether the 'expansion' of actors is anything new or whether the metaphor of 'hollowing out' is completely fitting in this case.

In terms of the changes in scales of governance arenas, there has been concurrent upscaling (as in the example of the European Union) and downscaling (as in the rise of cities and regions) (Swyngedouw 2005; Gustavsson et al. 2009). Harvey (1989) argues that this shift has driven a change in strategies of urban governance from 'managerialism' to 'entrepreneurialism'. Local sustainability initiatives can thus be understood in the context of post-Fordist, competitive, global cities engaging in sustainability planning and investments in environmental quality as part of city image-making (Jonas and While 2007; Gibbs and Krueger 2007; While et al. 2004). Notably, Harvey argues that this relation does not end with the strategic shift to entrepreneurialism. Rather, this shift goes on to dialectically shape urban form, institutions, and politics in ways that will have consequences for capitalist society's future operation. Overall, in these more structural accounts, power is stratified by class—and the logic of capital accumulation drives much of the 'results on the ground' in terms of urban form and policies.

The growth machine hypothesis must be understood through its dialogue both with pluralists and with structural Marxists (Molotch 1976; Logan and Molotch 1987; Logan et al. 1997). Logan and Molotch sought to articulate a 'middle way' between deeply structural and actor-less accounts of urban geography favored by traditional Marxists, but also to counter the pluralist explanation of urban politics that missed the second face of power. They describe the production of urban inequality (within and between cities) as a competition of use and exchange values that is led, prodded, and cajoled by a particular set of landed elite actors and institutions that can benefit from growth:

> In many cases, probably in most, additional local growth under current arrangements is a transfer of wealth and life chances from the general public to the rentier groups and their associates. Use values of a majority are sacrificed for the exchange gains of the few. To question the wisdom of growth for any specific locality is to threaten a benefit transfer and the interests of those who gain from it (Logan and Molotch 1987: 98).

Thus, they argue that the question of *whether or not to grow* is not 'on the agenda' of urban politics and is therefore not available for scrutiny by pluralist-leaning academics. Instead, local politics determines *how to grow*; as such, land use planning and development is the substantive arena that dominates local politics (Logan et al. 1997). They offer a detailed analysis of political elites, the rentier class, the media, utilities, and educational and cultural institutions all of which benefit from the 'city as growth machine' (Logan and Molotch 1987). Their initial thesis has spawned decades of research in urban geography (Jonas and Wilson 1999). It is important to consider how the growth machine thesis applies or is altered in the recent era of 'smart growth' and sustainability planning. For example, Jonas and Gibbs (2003) investigate local sustainability campaigns in the UK and conclude that the growth/economic development

agenda, rather than a sustainability agenda, is the real driver of policy change. Schmelzkopf (2002) examined the conflict over community gardens in New York City in the mid-1990s during the Rudolph Guiliani mayoral administration via this lens. She argues that the city government's entrepreneurialist stance saw gardens' use values inhibiting exchange value that would come from developing garden sites into housing, which led to the city's proposed taking and auction of hundreds of gardens.[8] Overall, Logan et al. (1997) review and assess 20 years of research and argue that "the principal effect of growth machines is to bend the policy priorities of localities toward developmental, rather than redistributional goals" (605).

**Discourse, ideology, hegemony**

Scholars have drawn attention to the construction, deployment, and material effects of varied discourses. These discourses are important to scrutinize because they offer insights to the values and priorities of those that espouse them. Lees (2004) describes this examination of 'discourse as ideology' as falling in the Gramscian tradition; it has been widely used in the study of urban governance and urban regimes (see, for example Beauregard 1993; Mele 2000). Thus, which discourses ascend to hegemonic status is a reflection of existing power relations. Hegemony is being exercised when certain views come to be taken for granted as 'common sense', even when these views might be detrimental to those that acquiesce to them (Crehan 2002; Loftus and Lumsden 2008). Gramsci's understanding of ideology is not of some value

[8] Many scholars have written on the subsequent local social movement that arose to contest the city's actions (see, for example Von Hassell 2002). Of particular relevance to the question of rescaling, Smith and Kurtz (2003) argue that the gardeners were successful in their resistance by using a "politics of scale" to shift the conflicts from isolated, individual garden sites into a citywide coalition, and by using print media and the internet to draw in allies from outside New York City.

system that floats above the social realm, but rather ideology is made concrete through practice and is fixed (albeit temporarily) into social institutions (Loftus and Lumsden 2008). Althusser (1971) built on Gramscian concepts in his development of the notion of 'ideological state apparatuses' (ISA) that serve to maintain the current class order through ideological disciplining. While Althusser focused primarily on the role of schools (the educational ISA) in shaping ideology, Gramsci himself discussed a broad set of civil society institutions. Thus, municipal agencies creating long term plans or nonprofits managing programs shape not only policy trajectories, but also the built form of the city, which, in turn, reinforces particular ideologies about the city, the environment, growth, and capitalism.

Davidson and Frickel (2004) note that "environmental social scientists adopting a constructivist perspective turn their attention to the processes of *environmental claims making*— how social and political understandings of nature and environmental problems are crafted, contested, and legitimated" (477, emphasis added). Using this approach, scholars argue that discourses about 'nature' and the city are actively in use in the realm of planning and politics (See, for example, Harvey 1996; Lake 2003, Kaika 2005; Fischer and Hajer 1999; Keil and Boudreau 2006). Myriad claims have been made by planners, resource managers, and scientists about the properties of the urban forest, often focusing on benefits of improved air quality, energy savings, enhanced neighborhood walkability, increased real estate value, and mitigation of urban heat island effect (see, for example, Nowak et al. 2010 for a review of research on urban forests). In terms of urban agriculture and community gardens, claims range just as broadly—with perhaps a greater emphasis on social dimensions, including access to fresh produce, redressing of food

injustice, provision of neighborhood open space, educational opportunities, and the importance of community resource management, to name just a few (see, for example, Ferris et al. 2001; Schmezlekopf 1995; Tranel and Handlin 2006; Twiss et al. 2003; Wakefield et al. 2007; Stone 2009; Svendsen 2009; Murphy-Dunning 2009; Brdanovic 2009). Harvey (1996) asserts,

> …all ecological projects (and arguments) are simultaneously political-economic projects (and arguments) and vice versa. Ecological arguments are never socially neutral any more than socio-political arguments are ecologically neutral. Looking more closely at the way ecology and politics interrelate, then becomes imperative if we are to get a better handle on how to approach environmental/ecological questions (182).

Hajer (1995) argues that environmental politics *is* discursive, a struggle amongst competing framings and definitions of 'the environment'. He says that we must examine the interaction between discursive formations and institutional contexts to reveal how storylines generate political effects. Thus, the debate over the concept, definition, and attainability of 'sustainability' or 'sustainable development' *is* politics at work. Jordan (2008) argues that—starting with the Brundtland report—sustainability gained prominence precisely because of its fuzzy or flexible nature, which allowed for ideological compromise amongst the aims of the global north and global south. Hajer extends this claim, arguing that sustainability sets up a paradox:

> Hence sustainable development should also be analysed as a story-line that has made it possible to create the first global discourse-coalition in environmental politics. A coalition that shares a way of talking about environmental matters but includes members with widely differing social and cognitive commitments. The paradox is that this coalition for sustainable development can only be kept together by virtue of its rather vague story-lines at the same time as it asks for radical social change (1995: 14).

Numerous scholars have written on the discourses of sustainability in its many variants such as ‘sustainable development’, ‘sustainable livelihoods’ or ‘just sustainabilities’, with differing degrees of emphasis on the environment, the economy, and social justice, noting inherent tradeoffs among these three poles (see, for example Agyeman et al. 2002; Agyeman and Evans 2004; Campbell 1996). While sustainability is the dominant *storyline* at work, Hajer claims that the dominant *discourse* since the mid-1970s is ‘ecological modernization’, which he defines as: “the discourse that recognizes the structural character of the environmental problematique but none- the- less assumes that existing political, economic, and social institutions can internalize the care for the environment” (1995: 25). Harvey (1996) quips that “the discourse of ‘ecological modernization’ is precisely about trying to respond to environmental issues by way of profitable enterprise” (151). Thus, part of ecological modernization’s power and appeal is its compatibility with neoliberalism.

Neoliberalism is considered a hegemonic discourse and ideology that emphasizes markets and individual responsibility as the means for achieving efficient outcomes in a wide variety of domains (Brenner and Theodore 2002; Gibbs and Jonas 2000; Brand 2007). The relationship between neoliberal ideology and the urban scale has been thoroughly explored. Brenner and Theodore (2002) claim, “the point is not only that neoliberalism affects cities, but also that cities have become key institutional arenas in and through which neoliberalism is itself evolving” (ix). Peck and Tickell (2002) argue that neoliberalism and entrepreneurialism have co-evolved, with neoliberalism naturalizing growth, market logics, and competition.

Neoliberal ideology also shapes views of nature and the environment and, in turn, the practices of urban environmental management. McCarthy and Prudham note a paradox: "neoliberalism and modern environmentalism have together emerged as the most serious political and ideological foundations of post-Fordist social regulation…and environmental concerns also represent the most powerful source of political opposition to neoliberalism" (2004: 275). Perkins (2009) argues that a Gramscian understanding of hegemony illuminates how local environmental groups support the dominant neoliberal mode.[9] However, Bulkeley (2005) argues that urban sustainability can sometimes be an "alternative to…the neoliberal economic project" (Bulkeley 2005: 889). Keil and Boudreau (2006) argue that the neoliberal regime in Toronto during the 1990s had the unexpected side effect of producing a strengthened urban ecological agenda. For, elites "left their environmental flank unprotected" to rising environmental activism, which led to the development of a new "sustainability fix" via Toronto's environmental plan (41).

Recent work in the urban political ecology tradition seeks to connect the discursive and the material: "The material production of environments is necessarily impregnated with the mobilization of particular discourses and understandings (if not ideologies) of and about nature and the environment" (Heynen et al. 2006: 7). Harvey (1996) complicates this picture even further, arguing:

> Discourses internalize in some sense everything that occurs at other moments…. Discourses express human thought, fantasy, and desire. They are institutionally based, materially constrained, experientially grounded manifestations of social

[9] Brand (2007) argues that "environmentalism has been a constitutive part of neoliberal urbanization" (618). Using Foucault's (1991) concept of governmentality, he argues that neoliberal discourses work to create 'green subjects' claiming, "the environment is employed as a means of constructing citizens' sense of themselves and their obligations, in a manner perfectly attuned to the individualizing demands of neoliberal urban transformations" (Brand 2007: 628). While the issue of governmentality and green subject-making is certainly relevant and can be seen in the cases explored here, I primarily use a Gramscian understanding of power, hegemony, and ideology.

> and power relations. By the same token, discursive effects suffuse and saturate all other moments within social processes (affecting, for example, beliefs and practices as well as being affected by them) (80).

Clearly, the way we understand 'nature' fundamentally shapes our policies and practices of how we build and manage our cities – and is an important area of focus when the object of inquiry is sustainability policymaking and natural resource management practices.

**Urban political ecology and more-than-human perspectives**

Recent scholarship in urban political ecology and more-than-human geography lend important conceptual tools for thinking through local politics and practices of urban sustainability in terms of (1) *the production of uneven urban environments* and (2) *renaturing urban theory*—through the notion of metabolism and other non-dual ontological approaches to socio-nature.

First, the question of who gains and who loses as a result of resource management practices is an abiding concern of both environmental justice activists and scholars of political ecology (Robbins 2004). Initially, environmental justice was concerned with fairness in the spatial distribution of environmental hazards by racial group (Bullard 1990), wherein space was thought of in a Cartesian way. Later, the question of distributional equity was extended to environmental amenities, including access to open space, parks, and the urban forest (Walker 2009). The amount of parkland per capita, average distance to parks, and percentage of urban tree canopy per unit area continue to be common metrics used in urban natural resource management—including in PlaNYC 2030, which set a goal that all New Yorkers live within a 10 minute walk of a park (See,

for example, Harnik 2000; City of New York 2007). Over time, environmental justice has broadened and deepened theoretically. Now, environmental justice is defined with respect to distribution, recognition, and procedure (Schlosberg 2007); and geographies of inequality are explored across various axes of class, race, ethnicity, gender, nationality, social networks, and institutional contexts (Walker 2009). Synthesizing this broad field, Bryner (2002) proposes five theoretical frameworks for defining environmental justice: civil rights; distributive justice and ethics; public participation; social justice; and ecological sustainability. Heynen et al. (2006) argue that environmental justice's roots in practice, as opposed to theory, explain its lack of interrogation of capitalism as the underlying social process that explains the production of uneven urban environments.

Urban political ecology is presented as an alternative theoretical approach that examines the processes, networks, and metabolisms that create uneven urban environments (Swyngedouw and Heynen 2003; Heynen et al. 2006; Swyngedouw 2006). Building on the work of other Marxist scholars, such as Smith (1984) and Harvey (1996), Swyngedouw and Heynen (2003) argue that environmental inequality is fundamentally the product of capitalist forces at work—thus these questions of outcomes are fundamentally linked to structure of the political economy. Urban political ecology approaches have been applied to a number of different questions and cases, including: suburban lawns (Robbins and Sharp 2003; Robbins 2007), urban forestry (Heynen 2003), water politics and water systems (Kaika 2005; Swyngedouw 2004), and urban parks (Brownlow 2006). Brownlow's (2006) study investigates Philadelphia's parks as "material landscapes whose physical conditions are similarly inscribed with the histories of urban social relations and power" (229). He tracks how changes in racial

demographics correlate with changes in levels of funding for parks, as well as changes in security/patrolling and ecological management practices. Also of relevance to this study, Matthew Gandy's (2002) *Concrete and Clay* offers an account of New York City's socio-natural history that examines the discursive, material, and political struggles that shape this city. Finally, the scalar dimension of justice is of particular interest to geographers. Question of justice can be posed at multiple scales—from the body, to the neighborhood, to the region, to the globe (Walker 2009). Heynen et al. (2006) argue that from an urban political ecology perspective,

> …there is no such thing as an unsustainable city in general, but rather there are a series of urban and environmental processes that negatively affect some social groups while benefitting others (See Swyngedouw and Kaika 2000). A just urban socio-environmental perspective, therefore, always needs to consider the question of who gains and who pays and to ask serious questions about the multiple power relations – and the networked and scalar geometries of these relations – through which deeply unjust socio-environmental conditions are produced and maintained (9).

Second, scholars argue that one of the conceptual contributions of urban political ecology is to "re-nature urban theory" by contesting the division between nature and society and examining urbanization as a driver of environmental change (Heynen et al. 2006: 2). In particular, Marx's notion of metabolism of nature is one concept that has been brought to the forefront by urban political ecology. By viewing the interaction of humans, their labor, and the physical environment as one of 'metabolizing nature', we begin to break down binaries of built/natural environments that treat the city as other-than-natural (Swynegedouw 2004; Keil 2005; Heynen et al. 2006). Metabolism is the process whereby humans use their labor to transform 'nature' into other things we can use (and later, exchange) (Foster 2000). Using the notion of metabolism, the city is a

product of metabolized nature (or, as it is called by Smith (1984), second nature), and the distinction between built and natural is a false binary. Thus, if sustainability planning alters the physical land use and the form of cities, including by creating productive (and sometimes socialized) spaces such as urban farms and community gardens, it alters the metabolic relation between humans and nature (see also McClintock 2010). Nature has been and is constantly being transformed by humans (Swyngedouw and Heynen 2003), and "there is nothing *unnatural* about New York City" (Harvey 1996: 186 emphasis original). Although not writing from an explicit urban political ecology perspective, Scobey (2002) presents an historical account of the development of New York City's landscapes (Central Park) and built environment (the street grid) as formations that are part of a sociospatial dialectic. Building on the Marxist theorization of Harvey, Lefebvre, and Soja, he reveals the interplay of cultural values of "bourgeois urbanism", political contestation among elites, urban institutions, and the built form of the city.

Emerging out of the tradition of science and technology studies and influenced by sociologist Bruno Latour, Actor Network Theory (ANT) is a theoretical approach with a non-dual, relational ontology that radically departs from other modes of analysis. Rather than starting from a view that certain conceptual categories or variables matter, and seeking to identify how they operate in a particular case, ANT starts from the particulars of the case and allows insights to emerge from the story. Latour offers three basic 'litmus tests' for whether something is ANT. It must: 1. Treat non-humans as actors; 2. Refrain from treating the 'social' as an explanatory force; and 3. Aim to 'reassemble the social' rather than simply deconstruct it (2005: 10-11). Notably, in this approach, non-humans are required to "do something and [not] just sit there"—meaning that they cannot be

simply the material substrate upon which humans act (Latour 2005: 128, quoted in Robbins and Marks 2010). To cite a few examples, ANT has been applied by geographers to the study of biodiversity conservation in the UK (Lorimer 2006); tubewell diffusion in India (Birkenholtz 2009); and practices of African elephant conservation and science (Whatmore and Thorne 2000). Looking at the urban forest, a city planner might argue that trees are part of the urban environment that contribute to resident quality of life; a Marxist approach might add that these trees have a role in attracting residents/labor to reproduce themselves in that location; an approach guided by Marxism and ANT goes even further, as Perkins (2007) does, to argue that trees actively *labor* in this context. Similarly, looking at gardens, Power (2005) demonstrates how planted species, pests, and weeds operate as subjects, "drawing people and plants into a relation of care" (48, quoted in Robbins and Marks 2010). To this already complex tale, I would add the need to consider abiotic actors, including buildings, sidewalks, and shadows.

The literature presents a lively debate over whether and how ANT is compatible with other theories, including ecological Marxism and urban political ecology. Swnygedouw (2006) notes that both Marx and Latour call for a re-unification of nature and society. Swyngedouw and Heynen (2003) argue that because of urban political ecology's interest in multiple spheres (cultural, aesthetic, social, and biophysical), there is an explicit engagement with non-human actors and a compatibility with ANT. Holifield (2009) compares the usefulness of ANT and urban political ecology for understanding questions of environmental injustice; he praises the ability of ANT to help ask new questions, shed new light on topics, and lead to different conclusions other than simply that environmental inequalities are the product of capitalism, domination, and its

attendant structural conditions. Castree (2002) seeks to reconcile ecological Marxism with ANT. Castree revisits ANT's primary critiques of mainstream scholarship—that it reifies nature/society binaries, reifies local/global binaries, and fails to give agency to nonhumans—and assesses these against non-ANT Marxist scholarship. He concludes that a relational form of Marxism and a weak form of ANT—contra Whatmore's (1999) strong version of ANT—can be powerfully united. Splitting the difference would yield intellectual benefits, Castree argues:

> This weaker version of ANT suggests a green Marxism more "modest" than those I have discussed so far in this essay, but one still able to talk about socionatural relations in our world as pervasively capitalist (but not exclusively so), as structured and enduring (but not in a reductionist or totalising way) and as disproportionately driven by "social" actions and relations (even as those actions and relations could not persist without "natural" agents and relations). Such a green Marxism would thus offer us a critical cognitive map that discloses capital–nature relations in all their generality and materiality. However, crucially, it would not theorise capital as an all-powerful global force standing outside, over or above ecologies and corporealities. (2002: 136).

There are, indeed, fertile examples of scholarship that bring the traditions of political ecology and ANT together, such as Paul Robbins' (2007) investigation of the American lawn and Harold Perkins' (2007) study of Dutch elm disease mentioned above.

Thus far, I have presented an oversimplified account of ANT as the sole approach to questioning nature/society binaries. Robbins and Marks (2010) show that ANT and Latour's contributions are just one in a number of threads in the fast-growing field of assemblage geographies (dubbing Latour's approach 'symmetrical', alongside Haraway's 'intimate', Marx's 'metabolic' and Mitchell's 'genealogical' approaches) (see also Escobar 2008). Relatedly, Bakker and Bridge (2006) explore a number of approaches to the "re-materialization of human geography", including work on commodities, corporeality, and hybridity. I raise these examples not to join in the fray of trying to

create a typology of this emerging field, but to show some of the rich strains of theorization and empirical work currently being practiced. Indeed, Bakker and Bridge (2006) argue that this material turn can help to re-enliven human geography as production of nature and social construction of nature frameworks are beginning to reach 'diminishing returns'. The challenge they pose is crucial to bear in mind:

> …how to express the causal role of material without straying into object fetishism or without attributing intrinsic qualities to entities/categories whose boundaries are 'extrinsic'—defined, at least in part, socio-culturally? How, in other words, can we insist on the importance of 'things' without treating them solely as things? (Bakker and Bridge 2006: 14).

They also add a temporal dimension in that "the 'things' (commodities, bodies, biophysical processes) that make a difference in the way social relations unfold are not pre-given substrates that variably enable and constrain social action, but are themselves historical products of material, representational and symbolic practices" (Bakker and Bridge 2006: 18). Conducting research in this messy, mongrel, hybrid world is not easy. All of these approaches grapple with the new language, research methods, and writing styles that a non-dual approach requires.

**Key themes from the literature**

Scholars of urban politics wrestle with the questions of: who governs, via what institutional mechanisms, and in what contexts? Despite their myriad differences, the best examples of scholarship from pluralist, urban regime, and growth machine approaches all offer careful examination and analysis of members of governing coalitions—often placing particular emphasis on the mayor, local business interests, and the electorate. This study builds upon urban regime theory, particularly through the

notion of the social production mode of power. And it seeks to address regime theory's blind spot towards the role of civil society by placing attention on the role of nonprofits and community groups in local environmental policymaking and natural resource management. The role of bureaucrats is also investigated, because of their potentially crucial role in complex, technical acts of policymaking across the variegated, local state. In response to the growth machine thesis, it investigates whether and how sustainability plans seek to manage, accommodate, or alter growth.

This study brings insights from governance theory by seeing governing coalitions as less a fixed set of strategic players and more a fluid form of networked governance. But I note that this network always exists alongside other governing structures, including hierarchy/ bureaucracy. Use of the network metaphor must proceed cautiously, without ignoring issues of power, inequality, exclusion, and accountability. I see compatibility between the concept of networked governance and the social production mode of power from regime theory—whereby coalitions are actively built and maintained, and are valuable once established. Both encourage an analysis of policymaking as a range of active practices from formulation to implementation to adaptation. Agenda-setting—the second face of power—occurs as an ongoing negotiation among cross-sector actors.

While examining the micropractices of local politics is crucial, regulation theorists and critical scholars more generally remind not to privilege a single scale and to place local politics in broader context. This builds on the long tradition of political ecology research that Rocheleau (2008) described as moving from tracing 'chains of explanation' to mapping 'webs of relations' (724). As such, chapter 3 covers the institutional, political, and economic context of New York City, placing the cases in a

longer historical arc. Moreover, the discursive terrain is one of the means by which links are forged between places (including across spaces and scales). So, in local policymaking, assumptions are made, narratives are crafted, and arguments are justified in ways that always build upon or reference the claims, narratives, and arguments of others. (Perhaps all the more so in a time of rescaled, inter-urban competition). The particular claims related to urban forestry and urban agriculture in New York City are analyzed for their associations with the myriad, varied strains of entrepreneurialism, neoliberalism, and environmentalism. Commensurate with the normative aims of much environmental justice activism and political ecology work, the discourse analysis seeks to reveal the often unstated ideological assumptions upon which local practices rest and to interrogate who might benefit from these claims. By examining discourses that are put forth in environmental policies and that make recommendations about the socio-natural environment, this approach recognizes and seeks to explore the inherent linkages among the discursive, the political, the institutional, and the material.

Much of the literature on urban politics and governance fails to fully attend to the material realm. This study addresses that gap by continuing the project of "re-naturing urban theory" that has begun by urban political ecology scholars and of 're-materializing' resource geography (Heynen et al. 2003). It investigates the physical opportunities and constraints that the existing socio-natural urban environment place on policymaking and practice. Both biotic actors (trees, plants) and abiotic actors (buildings, sidewalks) are taken into account and investigated for their role in resource management practices. This study also examines links between the material and the discursive, by attending to what

claims are made about the biophysical properties, benefits, and importance of non-human actors.

And vice-versa, this study brings a detailed sense of urban politics into nature-society (and political ecology) scholarship. While political ecology has always, inherently, purported to offer a political focus, it has a relatively longer tradition in rural and global south contexts (McCarthy 2002; Robbins 2004; Walker 2003). Therefore, political ecology does not always engage with the theories and traditions of urban politics and urban governance. This project offers an opportunity to bring these literatures into productive conversation. In sum, this project is a critical examination of the practices of urban forestry and urban agriculture in a contemporary, North American, global city. But it is critique couched in openness to possibility, interest in practice, and commitment to incremental change. Proceeding from the notion of 'actually existing sustainabilities', I examine the political, discursive, and varying material dimensions of transformations of urban land in New York City in the first decades of the 21st century.

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## Chapter Three - Contextualizing the greening of New York City

As William Sites (2003) notes,

> The urban terrain is shaped from above, from below, and...from in between. Thus, at certain moments…international economic forces will be seen to contract the political space for national and local policy; at other moments, however, neighborhood-based actors emerge to influence the direction of city policies; at still others, a city crisis spurs and helps to shape major reordering of national urban priorities (xix).

This chapter situates the cases of urban forestry and urban agriculture within New York City's demographic, geographic, institutional, and political-economic contexts in order to understand some of the major forces at play from above, below, and in-between. Demographic data provides a sense of the city's size, density, diversity, and change over time. The geography of the city—in terms of land use, land cover, and the distribution of tree canopy, parks, gardens, and vacant land—is relevant to understanding the physical conditions in which these case studies are unfolding. The formal, institutional structure of New York City's municipal government is also discussed, detailing the roles of the mayor, the city council, the borough presidents, and the community boards. I briefly examine some of the key changes in New York City's political economy since the fiscal crisis of the mid-1970s. Particularly, I consider the role of changes in political economy on the creation of urban nature from 1970-2007, before describing more recent efforts at sustainability planning and green infrastructure investment covered in this study (2007-2011). Then I examine the role of the municipal government—both the mayoral administration and the city agencies—in the creation and implementation of PlaNYC. The state does not act alone in environmental governance and natural resource management; it operates in networked relations with the private sector and civil society.

Thus, I close with an examination of the role of civil society in urban environmental stewardship, again from 1970 to the present era of PlaNYC.

**Demographics and physical geography**

New York City has the largest population of any city in the United States, with 8,175,136 people residing in the city as of the 2010 census, making planning and local sustainability initiatives larger and more complex than those of many other domestic cities. Indeed, the next-largest city in the nation is Los Angeles, which has less than half the population of New York City (NYC DCP 2011). As well, the city has a high population density, with 27,013 people / sq mi as of 2010 (compared to a national rate of 87.4 people / sq mi). That density places incredible demands on the infrastructure, open spaces, and services of the city, but also allows for efficiencies in some areas. In terms of socioeconomic status, the median household income is $51,270 and 19.4% of people are below the poverty level for 2007-2011 (compared to $52,762 and 14.3% nationally). Thus, there is a higher poverty rate in New York City than the United States as a whole. There is also a high degree of income inequality; New York City has both more people that make less than $20,000/year and that make more than $1 million / year than the nation (NYC Comptroller 2012). Educationally, 33.7% of people over age 25 have a bachelor's degree (compared to 28.2% nationally), while 79.5% have a high school diploma (compared to 85.4% nationally) for 2007-2011 (U.S. Census 2013). These data suggest further bifurcations in the population of New York: with more college-educated residents than the national average, but fewer high school graduates than the national average.

It is also an incredibly diverse city racially, ethnically, and linguistically. As of 2010, New York City was 44% white (33.3% white non-Hispanic), 28.6% Hispanic or Latino, 25.5% black (22.8% black non-Hispanic), 12.7% Asian, and 4% multiracial. This compares to a national breakdown of 78.1% white (63.4% white non-Hispanic), 16.7% Hispanic or Latino, 13.1% black,5% Asian, 2.3% multiracial, and 1.2% American Indian/Alaskan Native (U.S. Census 2013). These demographics have changed over time, as indicated in Table 3.1, which shows New York City's racial and ethnic composition over the period from 1970-2010.[10] Overall, the total population of the city is increasing over time, except for a dip in 1980 due to the 1970s economic crisis, which will be discussed below. We can also see a relative decrease in the white non-Hispanic population over time, with increases in Hispanic, black, and 'other' racial groups. New York City is known as a city of immigrants, with 36.8% of the population foreign-born and 49% of the population of New York City speaking a language other than English at home. As of 2011, the top 10 countries of origin amongst foreign-born residents of New York City were: Dominican Republic, China, Mexico, Jamaica, Guyana, Ecuador, Haiti, Trinidad & Tobago, India, and Russia (NYC OIA 2013). This diversity plays a role in the political sphere through the building of complex racial and ethnic coalitions, but also places unique demands on city bureaucrats for creating and maintaining forms of urban nature (parks, open spaces, forests, and waterfronts) that can serve everyone.

[10] It is important to note that there have been many changes in the way in which race and ethnicity are tracked in the US Census; in particular questions related to Hispanic origin and multiple races have shifted dramatically over this period. Notably, the 2000 census was the first year in which respondents could select more than one race (Haub 2012).

Table 3.1: Population of New York City (1970-2010) by race and ethnicity

| Year | Total | White | White (non-Hispanic) | Black | Black (non-Hispanic) | Other | Hispanic (of any race) |
|---|---|---|---|---|---|---|---|
| 1970* | 7,894,862 | 6,048,841 (76.6%) | 4 969 749 (62.9%) | 1,668,115 (21.1%) | N/A | 138,236 (1.8%) | 1,278,630 (16.2%) |
| 1980* | 7,071,639 | 4,294,075 (60.7%) | 3,668,945 (51.9%) | 1,784,337 (25.2%) | N/A | 749,902 (10.6%) | 1,406,024 (19.9%) |
| 1990* | 7,322,564 | 3,827,088 (52.3%) | 3,163,125 (43.2%) | 2,102,512 (28.7%) | 1,847,049 (25.2%) | 852,714 (11.6%) | 1,783,511 (24.4%) |
| 2000+ | 8,008,278 | 3,806,508 (47.5%) | 2,801,267 (35%) | 2,274,049 (28.4%) | 1,962,154 (24.5%) | 1,084,303 (13.5%) | 2,160,554 (25%) |
| 2010# | 8,175,133 | 3,797,402 (46.5%) | 2,722,904 (33.3%) | 2,228,145 (27.3%) | 1,861,295 (22.8%) | 1,254,858 (15.3%) | 2,336,076 (28.6%) |

N/A – not available

**Sources:** *Gibson, Campbell and Kay Jung. 2005. "Historical Census Statistics On Population Totals By Race, 1790 to 1990, and By Hispanic Origin, 1970 to 1990, For Large Cities And Other Urban Places In The United States." Washington, DC: U.S. Census Bureau, Population Division. Working Paper No. 76. February 2005. Accessed online via: http://www.census.gov/population/www/documentation/twps0076/twps0076.html (17 June 2013)

+ US Census Bureau. 2000 Census, SF-1, Matrices P7 and P9. Accessed online via American Fact Finder: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_00_SF1_QTP5&prodType=table (17 June 2013).

# US Census Bureau. 2010 Census. DP-1: Profile of General Population and Housing Characteristics. Accessed online via American Fact Finder: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1 (17 June 2013).

Physically, the city covers 302.6 sq mi of land area and encompasses 165.8 sq mi of water (U.S. Census 2013). The city is comprised of five boroughs: Manhattan, Brooklyn, the Bronx, Queens, and Staten Island (see Figure 3.1). Prior to city consolidation in 1898, only Manhattan and the Bronx were a part of New York City, while the other areas were comprised of a number of distinct municipalities (Burrows and Wallace 1999). To this day, if Brooklyn was its own city, it would be the fourth largest in the nation, with a population of 2,504,700 as of 2010 (U.S. Census 2013). Aside from Bronx, which is a part of the mainland United States, all of the other boroughs are islands, with Brooklyn and Queens a part of Long Island. Thus, the city is surrounded by water—the New York Harbor and the Hudson River Estuary—which includes the

Hudson River, the East River, the Harlem River, and the Kill Van Kull. Surface water quality, though it is not a focus of this study, is thus an abiding concern of local environmentalists and political leaders alike – and it is certainly a component of PlaNYC (City of New York 2007).

The city is highly developed with a mix of residential, commercial, institutional, open space, and industrial uses and relatively few areas of vacant land. Excluding streets and bodies of water, there are 153,605 acres of land area in the city as of 2010. Of this area, 27.3% is 1-2 family homes, 12.2% is multi-family residential, 3% is mixed use (residential/commercial), and 4% is commercial or office space citywide. In terms of non-residential and non-commercial uses, 27% is open space and recreational (including public parks, playgrounds and nature preserves, cemeteries, amusement areas, beaches, stadiums and golf courses), 7.1% is transportation and utilities, 6.9% is public facilities and institutions, 3.6% is industrial and manufacturing, 1.3% is for parking, and 1.8% has no data. Finally, just 5.8% of the total lot area is currently classified as vacant land. Of course, these uses are not spread evenly throughout the city. For example, there are a greater degree of multifamily, commercial, and mixed use towers in Manhattan and many more 1-2 family homes in Staten Island, Eastern Queens, Southern Brooklyn, and northwest Bronx (NYC DCP 2010). Though many popular images of New York City focus on the skyscrapers of Manhattan, it is important to bear in mind the suburban-style development of many portions of the outer boroughs, as well as the prevalence of mid-rise apartment buildings, mixed use areas, and even industrial zones within the city.

Figure 3.1: Map of New York City with boroughs and water identified


Map created by: Will Seegers, UVM Spatial Analysis Lab. Data Source: Esri, DeLorme, NAVTEQ 2013.

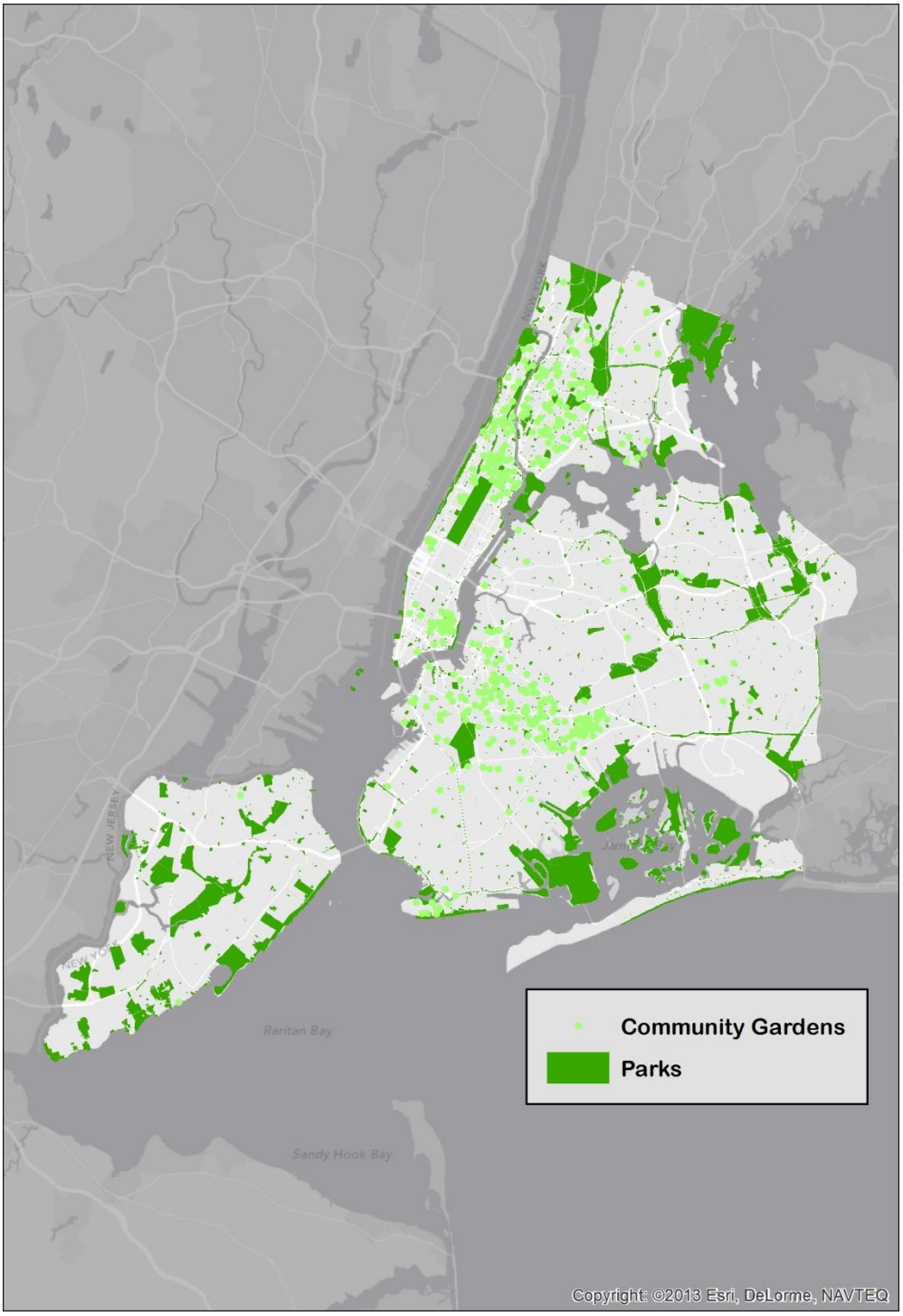
Because of the salience to the case studies, a comparison of the boroughs' open space, vacant land, and total lot area is presented in Table 3.2 below. Other than the street tree planting in the public right of way and tree giveaways to homeowners, the majority of the trees planted in the MillionTreesNYC campaign have been sited in existing open spaces, primarily Department of Parks and Recreation (DPR)-managed parks. Citywide, there are 29,000 acres of open space under DPR's jurisdiction, including 1800 parks (City of New York 2011c). Current urban agriculture activities occur primarily in the more than 500 community gardens citywide, which are classified as open space. See Figure 3.2 for the spatial distribution of parks and gardens citywide. Efforts are underway to identify potential future sites of urban agriculture on vacant lands (Ackerman 2011; 596 Acres 2012; City of New York 2011a). It is important to note that vacant land can be publicly or privately held and be slated for or subject to future development. See Figure 3.3 for the spatial distribution of vacant land citywide.

Table 3.2: Comparison of New York City borough's open space, vacant land, and total lot area (land area excluding roads and major bodies of water).

| | **Open Space** | **Vacant Land** | **Total Lot Area** |
|---|---|---|---|
| **Bronx** lot area<br>(% of boro) | 6,598<br>(31.6%) | 763<br>(3.7%) | 20,876 |
| **Brooklyn** lot area<br>(% of boro) | 13,182<br>(34.5%) | 1,204<br>(3.2%) | 38,194 |
| **Manhattan** lot area<br>(% of boro) | 2,767<br>(25.4%) | 282<br>(2.6%) | 10,877 |
| **Queens** lot area<br>(% of boro) | 10,968<br>(20.6%) | 2,423<br>(4.6%) | 53,170 |
| **Staten Island** lot area<br>(% of boro) | 7,950<br>(26.1%) | 4,230<br>(13.9%) | 30,488 |
| **NEW YORK CITY** lot area<br>(% of city) | 41,466<br>(27%) | 8,902<br>(5.8%) | 153,605 |

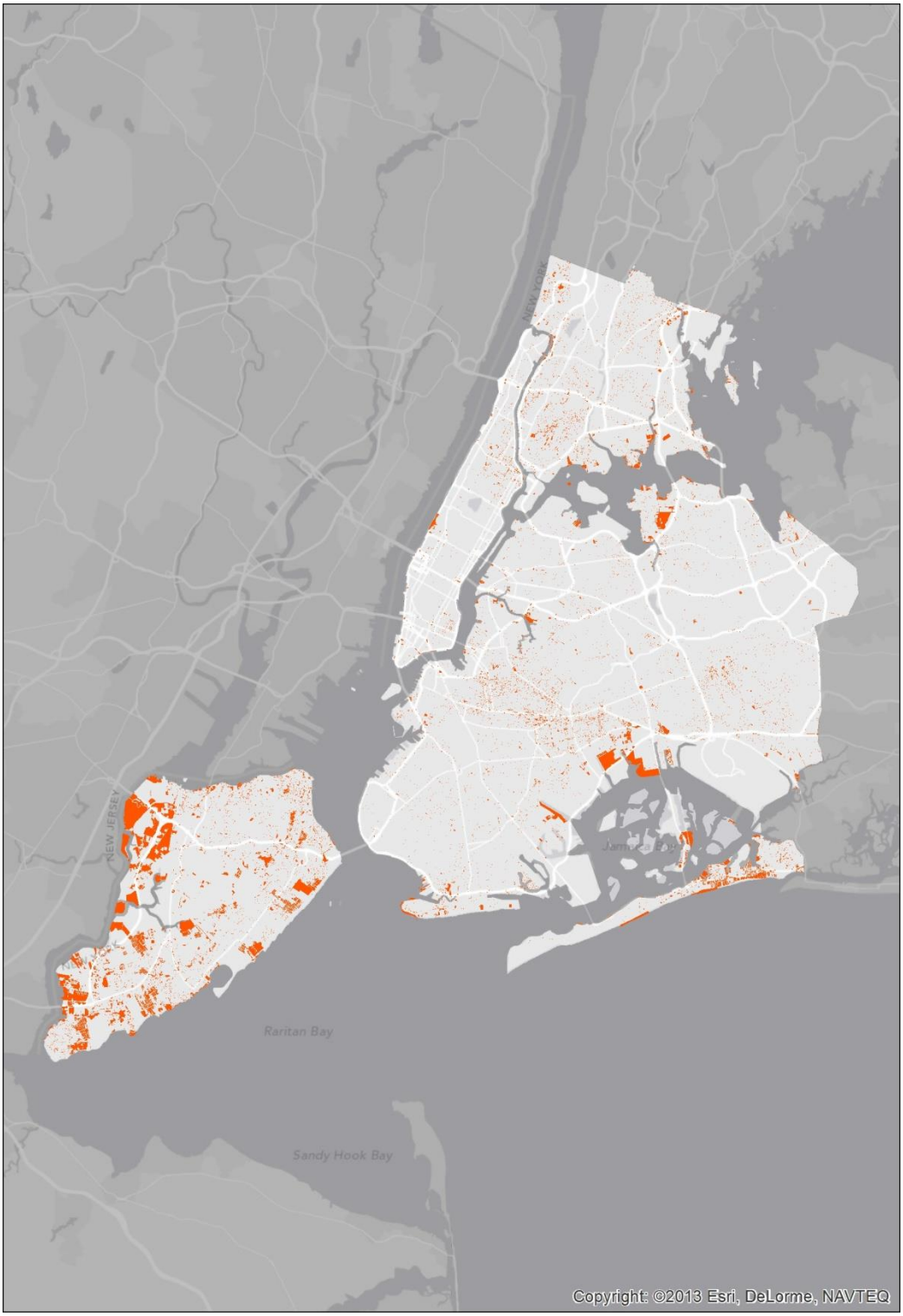
**Source:** New York City Department of City Planning. 2010. "2010 Primary Land Use: Each Borough's Lot Area by Land Use Type." Accessed online at: http://www.nyc.gov/html/dcp/pdf/landusefacts/landuse_tables.pdf (10 June 2013).

Figure 3.2: Map of New York City's Parks and Community Gardens




Map created by: Will Seegers, UVM Spatial Analysis Lab.
Data Sources: Greenthumb. 2013. New York, NY: New York City Department of Parks & Recreation. Available via: https://data.cityofnewyork.us/Environment/Greenthumb/86sd-4yhi. [September 10, 2013]; Parks. 2013. New York, NY: New York City Department of Parks & Recreations. Available via: https://data.cityofnewyork.us/Housing-Development/Map-of-Parks/jc79-4imn. [September 10, 2013]; US GDT Federal Park Landmarks. Redlands, CA: ESRI and Geographic Data Technology, Inc. 2002; New York City State Parks. City of New York, NY.

Figure 3.3: Map of Vacant Land in New York City




Map created by: Will Seegers, UVM Spatial Analysis Lab.
Data Source: PLUTO. 2013. New York, NY: City of New York Department of City Planning. Available via: http://www.nyc.gov/html/dcp/html/bytes/dwn_pluto_mappluto.shtml. [September 10, 2013].

In wide ranging cultural contexts and media outlets, New York City is sometimes referred to as a ‘concrete jungle’. In addition to land use, we can characterize the city by its land cover—tree, grass, shrubs, surface water, and impervious surfaces (including roads, buildings, and other pavement). These land covers sometimes conform to the land uses (e.g. open space is generally tree and grass, industrial is generally impervious). In other cases, we see that vegetation cover and land use have a more complex relationship (e.g. there is a great deal of tree canopy in the public right of way of the sidewalk, as well as on the private front and backyards of 1-2 family homes). Figures for existing and ‘possible’ urban tree canopy by borough and citywide are presented in Table 3.3, below, along with grass/shrub and impervious surface cover. Note that ‘possible’ tree canopy is calculated by taking total area and subtracting surface water, existing tree canopy, roads, and buildings (O’Neil-Dunne 2012). These data help characterize how extensive New York City’s urban forest is and across what spatial distribution. It shows that relatively suburban Staten Island has both absolutely and proportionately more urban tree canopy than the other boroughs. Although densely built, Manhattan’s proportion of urban tree canopy (19%) is less than the citywide average, it is still relatively higher than the rates of Brooklyn (15%) and Queens (18%). These data provide evidence that there is ‘room’ within the city of New York to expand its urban forest (or potentially urban agricultural uses as well).

Table 3.3: Comparison of New York City existing land cover (tree canopy, grass and shrub, and impervious surface) and possible tree canopy by borough

| | **Tree Canopy** | **Grass and Shrub** | **Impervious Surface** | **Possible Tree Canopy** |
|---|---|---|---|---|
| **Bronx** acreage (% of boro land) | 6,139 (23%) | 4,352 (16%) | 15,728 (58%) | 11,014 (42%) |
| **Brooklyn** acreage (% of boro land) | 6,953 (15%) | 5,768 (13%) | 30,415 (67%) | 18,543 (42%) |
| **Manhattan** acreage (% by boro land) | 2,823 (19%) | 1,089 (7%) | 10,411 (71%) | 4,253 (30%) |
| **Queens** acreage (% by boro land) | 12,542 (18%) | 12,916 (18%) | 41,682 (59%) | 30,843 (45%) |
| **Staten Island** acreage (% by boro land) | 10,842 (29%) | 9,8450 (27%) | 14,820 (40%) | 17,324 (48%) |
| **NEW YORK CITY** acreage (% of city land) | 39,298 (20%) | 33,975 (17%) | 113,057 (58%) | 82,840 (43%) |

**Sources:** University of Vermont Spatial Analysis Laboratory in cooperation with the USDA Forest Service Northeastern Research Station. *Land Cover Metrics, New York City Boroughs Without Water, New York City.* Burlington, VT: University of Vermont Spatial Analysis Laboratory, 2008.

O'Neil-Dunne, J. 2012. A Report on the City of New York's Existing and Possible Tree Canopy. USDA Forest Service Northern Research Station. Prepared for City of New York. 10 pp. Accessed online via: http://www.fs.fed.us/nrs/utc/reports/UTC_NYC_Report_2010.pdf (10 June 2013).

## Governance structure

Institutionalized political power rests heavily in the hands of the mayor in New York City, particularly since the Charter revision of 1989, which eliminated the former Board of Estimate that shared authorities with the mayor (Berg 2007). Now, the mayor is the head executive of the city and all of the municipal agencies report to that office, with commissioners of departments appointed by the mayor. The mayor has the authority to create, reorganize, or terminate new executive agencies – as was the case with the creation of the Office of Long Term Planning and Sustainability (OLTPS), which oversees the implementation of PlaNYC (City Charter 2009). The mayor has broad

authorities—with oversight from the comptroller and the city council—to set policies and to *propose* the capital and expense budgets for the city (Berg 2007). One key piece of reporting on the city's performance is the Mayor's Management Report, which is required by the Charter to be released to the public and the city council in final form in September of each year. The report tracks stated goals for the upcoming year and performance of agencies in the year prior (City Charter 2009). In terms of 'soft power', or informal power, the mayor is often viewed as the 'opinion leader' of the city—with the power of the "bully pulpit" and the access to media platforms to share and publicize his or her opinions (Berg 2007).

The mayor's legislative counterpart is the city council, which includes a public advocate and 51 other councilmembers elected to represent as many council districts. The Charter revision of 1989 was responsible for expanding the number of councilmembers from 35 to 51, and was seen as increasing the diversity of the council (Berg 2007). Councilmembers elect from among their ranks a speaker, who presides over council affairs as well as often serving as one key point of contact between the legislature and the executive office. The primary role of the council is to pass local laws and resolutions, as well as to serve as a check and balance against the power of the mayor. Thus, the council *reviews and approves* the budget proposed by the mayor, reviews the performance of city agencies, and has the power to call public hearings as it deems fit (City Charter 2009). The council also has authority over zoning, land use, and franchises—though it is important to note that the City Planning Commission also makes recommendations on zoning and land use (Berg 2007).

Given New York City's history as several distinct cities, up until consolidation in 1898, the five boroughs—Manhattan, Brooklyn, Bronx, Queens, and Staten Island—retain a vestigial role in city governance. Each borough is headed by a borough president, who has some responsibility for land use review in his/her borough as well as rights to budgetary review (City Charter 2009). Borough presidents can also propose capital improvements for up to 5% of the city's total capital budget and can appoint one member each to the City Planning Commission. Their main authority over land use comes via the Uniform Land Use Review Process (ULURP), which—with certification by the Department of City Planning—begins at the community level via the community boards, then progresses to the borough president's office, and then to the city council. The Charter revision of 1989 contemplated elimination of the borough president's office, but this action was strongly opposed by the outer boroughs and did not pass. The borough presidents' formal political role remains somewhat limited, though they, too, possess the power of the 'bully pulpit' to a certain extent (Berg 2007; respondent 39).

The city is subdivided into a wide variety of spatial units. Some of these are political jurisdictions, such as federal congressional districts (12) and city council districts (51). A local law was passed in 1975 that created 59 community districts to serve as the smallest unit of governance and the most direct means for residents to engage in neighborhood-scale planning and decision-making. These community boards consist of up to 50 unpaid members and they cover issues of land use, zoning, neighborhood planning, and make recommendations to city agencies about local budget priorities (NYC DCP 2013a; NYC CAU 2013). They focus primarily on local concerns, with an advisory role on citywide governance: "It is important to note that while community boards serve

as advocates for their neighborhood, they do not have the ability to order any City agency or official to perform any task. Despite this limitation, boards are usually successful in resolving the problems they address" (NYC CAU 2013).

PlaNYC did not use the existing community district boundaries, but rather created 198 new 'neighborhood' geographies, see Figure 3.4 (City of New York 2007). These neighborhoods were designed to be at a finer scale than the community districts, but a coarser scale than census blocks. In order to use census-based demographic data, they encompass entire census blocks and do not split them, and were updated in 2010 with the latest census data and renamed 'neighborhood tabulation areas', with a total of 195 areas (For complete metadata, see: www.nyc.gov/html/dcp/html/bytes/meta_nynta.shtml). The boundaries of New York City's named neighborhoods are informal, always changing, and contested, yet they have visible identities and local salience and social meaning. PlaNYC acknowledges that some of its neighborhoods may not align with historically defined and socially perceived neighborhoods, because of the necessity of not splitting census blocks (NYC DCP 2013b).

Figure 3.4: Map of PlaNYC 'Neighborhood Tabulation Areas'


Map created by: Will Seegers, UVM Spatial Analysis Lab.
Data Source: New York Neighborhood Tabulation Areas (NYNTA). 2013. New York, NY: City of New York Department of City Planning. Available via: http://www.nyc.gov/html/dcp/html/bytes/dwn_nynta.shtml. [September 10, 2013].

**Political economy since 1970**

Following the political ecology traditions of "progressive contextualization" and "chains of explanation", this section places the production of nature in New York City in its political economic context (Blakie and Brookfield 1987; Vayda and Walters 1999). While the broad arc of political-economic history in New York City extends over centuries and across multiple scales to include its pre-colonial, colonial, mercantile, and industrial history (see, for example, Burrows and Wallace 1999), the most crucial period to consider for this study extends from the 1970s to the present. This period is characterized by post-industrial restructuring and transformation that shapes New York's role as a global city in a globalized economy (Sassen 2001; Savitch and Kantor 2002; Sites 2003). This economic context sets very real limits and constraints on the range of policy actions that local political actors can pursue (Sites 1997; Peterson 1981). Furthermore, numerous scholars consider New York City's 1975 fiscal crisis as a political-economic turning point locally and globally, noting that this crisis is part of the cyclically crisis-prone nature of capitalism (Shefter 1985; Sites 1997; Jessop 2002; Polanyi 1944 [2001]; Harvey 2005). From the 1970s, New York City faced declines in the manufacturing base, the rise of the service economy, a rapid population outflow to suburban surrounds, a subsequent decline in the municipal tax base, and widespread housing abandonment and arson (Gandy 2002; Berg 2007; Harvey 2005; Mollenkopf and Castells 1992; Sullivan 1992; Brecher et al. 1993). As noted in the demographic section above, even with substantial continued immigration to the city, the overall city population declined from 1970-1980 and did not rebound until the real estate and development boom

of the 1990s (NYC DCP 2011). These changes fundamentally reoriented the spatial organization, demographic patterns, and social structure of the city.

It is important to note, however, that many of the federal policies that helped encourage the suburbanization of the entire country and the form of New York City's open spaces date to the Depression and pre-War years, far preceding the specific, New York City economic downturn. These include the Home Owners Loan Corporation of 1933 that led to mortgage redlining by race; the Interstate Highway Act of 1956, which subsidized the creation of a national highway system; the National Housing Act of 1934, which authorized the creation of the Federal Housing Administration to support the homebuilding industry; and the GI Bill of 1944, which similarly supported the homebuilding industry and provided veterans with access to homes via the Veterans Administration (Jackson 1985). So, too, did the Robert Moses era of top-down, centralized, car-dependent planning and road building leave an indelible mark on the New York City landscape. Particularly in a study that focuses on parks and open space in New York City, one must acknowledge Moses' legacy in the creation of so many of the parks and beaches in the city and region—as well as the parkways, highways, and bridges connecting these sites (Caro 1975; Gandy 2002). Indeed, Brecher et al. (1993) note:

> …the [NYC Parks] department's inventory of facilities was expanded through Robert Moses's entrepreneurship and with the help of substantial federal funding in the form of Depression-era public works projects. As a result, since Moses left office in 1960, parks commissioners have consistently faced the task of maintaining a large system with limited local resources. There is a mismatch between the size of the city's park system and the size of the department's budget that causes much of the system to be in a state of neglect (13-14).

In the 1970s, sustained municipal budget deficits coupled with borrowing for municipal operations eventually led to the near-default of the city on its loans. This near-

bankruptcy had major consequences for the overall governance of the city through the creation of new public authorities that were not responsible to the electorate (Shefter 1985). Shefter's (1985) detailed analysis of the fiscal crisis reveals that its origins were as much political as economic; for mayoral candidates to succeed in being elected, they had to put together grand, multi-racial, multi-ethnic, cross-class coalitions that rested upon municipal spending in public wages, services, and capital projects. Post-crisis, when the federal government refused to offer New York City a key bailout (although it later acquiesced), the *New York Post* headline "Ford to City: Drop Dead" epitomized the sense that the city was being left to its own failures (Roberts 2006; Shefter 1985). Overall, Brecher et al. (1993) identify four different periods of distinct policy and budgetary regimes in New York City from 1960-1990:

> From 1961 to 1969 total spending increased and so did the share for redistributive purposes; from 1969-1975 total spending continued to rise, but there was less redistribution and more borrowing; from 1975 to 1983 there was reduced spending and reduced borrowing; from 1983-1989 spending again rose but it was allocated primarily to nonredistributive purposes.
>
> The model for explaining fiscal policy changes includes three broad factors—the performance of the local economy, intergovernmental interventions, and power relations among local interest groups… Applying this model to expenditure decisions over the four periods reveals that the role of intergovernmental aid was the dominant force shaping expenditure policy during the 1960s, but for the two decades after 1969 local political decision have been far more significant than either intergovernmental interventions or local economic forces. This was true during both the retrenchment of the 1970s and the expansion of the 1980s (9-10).

While other urban scholars have focused on housing policy and local development practices (Sites 1997), I note the ways in which the economic downturn influenced the production of nature in New York City. The most commonly cited consequences for open space management were the ways in which massive budget cuts led directly to declines in the staffing, maintenance, and safety of New York City parks,

including sustained challenges with addressing graffiti and vandalism (Brecher et al. 1993). Most visibly, planned capital investments in Central Park that were called for in a 1973 master plan were postponed (NYC DPR 2013a). In 1974, as a strategy to ease the park maintenance burden, the city transferred more than 13,000 acres of land around Jamaica Bay and the Staten Island coast to the National Parks Service, which now comprises the federal Gateway National Recreation Area (Brecher et al. 1993). Gandy describes the long-term nature of these municipal declines in funding:

> Since the park budget cuts of the 1970s, there has been growing inequality in access to and quality of public spaces across the city. By the early 1990s New York ranked nineteenth among major American cities in terms of per capital public expenditures on its park system (far below Lows Angeles or Chicago, for example) and was left with just half the park staff it had in 1960 (Gandy 2002: 104).

Table 3.4 presents DPR's operating expenditures for selected years from 1970-1990, revealing a fairly steady decline from 1975-1984, with an increase in the budget in the second half of the 1980s. At the same time, the spatial inequalities in the way that parks were managed also helped to catalyze the local environmental justice movement in New York City to focus on access to quality open space as a crucial area of concern (Svendsen 2009, 2010; Francis et al. 1984; Fox et al. 1985).

Table 3.4: NYC DPR Operating Expenditures in Constant Dollars, Selected Fiscal Years, 1970-1990 (dollars in thousands)

| Fiscal Year | Total Operating Expenditures* | Personnel Services | Other-than-personnel services | Other** |
|---|---|---|---|---|
| 1970 | 168,461.6 | 12,683.9 | 16,031.2 | (253.6) |
| 1975 | 173,174.9 | 148,878.4 | 24,296.4 | 0 |
| 1978 | 189,913.5 | 171,272.3 | 20,723.5 | (2,082.1) |
| 1979 | 176,738.4 | 154,324.7 | 22,413.5 | 0 |
| 1980 | 170,029.8 | 144,050.6 | 25,979.1 | 0 |
| 1981 | 159,672.1 | 133,532.7 | 26,139.6 | 0 |
| 1983 | 150,414.6 | 128,083.7 | 22,330.8 | 0 |
| 1984 | 148,212.9 | 128,687.0 | 24,291.4 | (4,765.6) |
| 1985 | 176,384.4 | 153,147.2 | 28,908.5 | (5,671.5) |
| 1986 | 177,706.9 | 152,050.4 | 31,786.1 | (6,129.5) |
| 1987 | 181,174.2 | 157,316.2 | 30,087.1 | (6,229.1) |
| 1988 | 183,341.4 | 156,742.1 | 32,735.3 | (6,136.0) |
| 1989 | 176,279.8 | 153,699.5 | 30,790.1 | (8,209.8) |
| 1990 | 169,008.7 | 147,690.0 | 31,129.6 | (9,810.8) |

**Source:** (taken from Brecher et al. 1993: 310, table 14.4)
* excludes fringe benefits in all years and pensions after fiscal year 1979
** includes miscellaneous expenditures and interfund agreements

The fiscal crisis, broader economic decline, and housing abandonment also triggered a rise in community gardening practices, often led by civil society (Francis et al. 1984; Lawson 2005). Many of the thousands of vacant lots across the New York City landscape of the 1970s and 1980s—particularly in the South Bronx, Lower East Side, and Bushwick—were the result of arson (Sullivan 1992). Intrepid neighborhood residents worked to reclaim vacant lots, fight back against drug sales and prostitution, and create local open spaces for area residents. The more than 500 gardens currently in New York City display a spatial distribution informed by the disinvestment of the 1970s (see Figure 3.2). The individual efforts of gardeners are well-documented within the contemporary discourse of community gardens. What is perhaps less explored are the network of civic organizations and institutions that emerged out of this period to support gardening and

greening efforts (which are further discussed in the section on civil society, below). Many of these organizations have grown and persist to the present day, serving as key nodes in the stewardship network (Fisher et al. 2012; Connolly et al. 2013).

The 1980s and early 1990s saw the continued rise in inequality across New York City, with the metaphor of the 'dual city' encapsulating the differences between the Wall Street, yuppie, elite, and the low-income communities of color ravaged by disinvestment, crack cocaine, and AIDs. This economic period of the dual city saw the political transition from Mayor Ed Koch (1978-1989) to the first African American mayor of New York City, David Dinkins (1990-1993) (Mollenkopf and Castells 1992). In 1989, the rape and brutalizing of a white woman in Central Park, allegedly by a group of black youths[11], came to serve as an incredibly racially divisive moment in the city – and furthered the sense that New York City's parks were unsafe (Filipovic 2012; Knight-Ridder newspapers 1989; Mollenkopf 1992). At the same time, the city was able to increase its capital spending on parks and open space, starting in the 1980s. According to a history of the NYC DPR:

> As the city reentered the municipal bond market in 1981, Mayor Koch issued his first ten-year capital plan. The plan proposed a $750 million commitment to rebuild the city's parks. For the first time in years, the Parks Department was also building up its permanent work force, which had fallen to under 2,500 workers in 1980 from over 5,200 in 1965 (NYC DPR 2013a).

This mayoral and executive agency commitment was also mirrored by the support of community boards for parks and open space, which made parks maintenance their number one priority—surpassing police patrols for the first time in 1986 (NYC DPR 2013a).

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[11] Although four of the five men confessed to the crime, they later recanted these confessions. Decades later, in 2012, DNA evidence exonerated the "Central Park Five" and led to three of them bringing a lawsuit against the City of New York.

The development boom of the mid-to-late 1990s was coupled with and encouraged by the mayoral leadership of republican Rudolph Giuliani (1994-2001) (Sites 1997; Berg 2007). Giuliani had an emphasis on aggressive enforcement of 'quality of life' violations (loitering, drunk and disorderly, jay walking, graffiti) in ways that were praised by some for reducing crime but also criticized as anti-homeless, intolerant, and racist (Grogan and Proscio 2000; Smith 1998). Inspired by James Q. Wilson's "broken window theory", Giuliani argued that these smaller violations led to a disordered public sphere that signaled a lack of caring and invited further, more serious crimes (Wilson and Kelling 1982). This administration was notoriously pro-development, with Giuliani criticizing community gardeners as "stuck in the era of communism" (Lefer 1999). When the mayor attempted to auction off several hundred garden sites for housing development, this triggered a community garden crisis that is described in Chapter 6. In addition to Giuliani, the production of urban nature was shaped in this period by Henry Stern, who was the eccentric commissioner of the DPR from 1983-1990 and 1994-2000. A 1995 *New York Times* profile described Stern's leadership under Giuliani and the democratic Koch:

> Mr. Stern… presides over a Parks Department that has been under siege for 25 years. He battles daily to save an empire of 1,500 properties and more than two million trees from further budget cuts at a time when layoffs will soon reduce his roster of full-time workers to a record low of 2,400. He had twice that many when he was Parks Commissioner in the last decade. Yet Mr. Stern is managing to adjust to a job that has changed with the social, economic and political fabric of New York City in the 1990's.
>
> In the 1980's, as a liberal under a Democratic mayor, he was like a general in charge of a personal army, commanding generous public spending for city parks. Today, under a Republican mayor, he must manage the citizens groups and donors who help the parks in lean times. He has also swallowed budget cuts without publicly taking on the Mayor who gave him his job (Bumiller 1995).

Overall, Giuliani established a revanchist form of governance that reduced taxes, cut public services and heavily policed the streets of New York, serving certain citizens (suburban, white, wealthy), while ostracizing and criminalizing others (homeless, poor), and transforming the public realm in the process (Berg 2007; Smith 1998; Harvey 2005).

From a critical perspective, current Bloomberg-era efforts at local sustainability planning can be understood as more sophisticated and subtle modes of state engagement in the perpetuation of capital accumulation. Jessop (2002) scrutinizes contemporary state forms and argues that we are currently living in a 'fix' he calls the Schumpeterian Post-national Workfare Regime. With the collapse of Fordist manufacturing in the United States and the rise of globalization, Schumpeterianism emphasizes the role of competition, the entrepreneur, and innovation (Jessop 2002). This pattern is evidenced in New York City's economy, which has seen a precipitous decline in manufacturing and a rise in services, entertainment, finance, and advertising (Berg 2007; Sassen 1991; Harvey 2005). With the footloose nature of both capital and labor, the city works to attract residents and businesses that it deems as desirable (e.g. educated, wealthy, "creative class"). One of the ways that government can attract people is by providing amenities, which includes trees, open space, and green infrastructure (as well as other services not examined here, such as schools). Jessop's emphasis on post-nationalism squares with the fact that it is *municipalities* that are developing these plans and green infrastructure campaigns, as they compete amongst each other to create livable places and to be seen as "green" and desirable. Finally, the shift from states to regimes is also evidenced in this case via the use of public-private partnerships and multi-sector Advisory Boards. These

institutional structures allow for crossing land jurisdictions, raising private funding, and leveraging the expertise and inputs of a wide network of actors.

As noted in the narrative of PlaNYC itself, economic and demographic conditions were extremely different in 2007 from 30 years prior in the mid-70s, allowing for a substantial increase in municipal government spending. In spring 2007, the city budget was in surplus—as it had been for the prior four years; population and in-migration were booming; and the national economy was strong (until the fourth quarter of 2007) (ICLEI 2010b; City of New York 2007; Zarolli 2007). PlaNYC starts from demographic projections that show the city increasing by one million residents by 2030 and proposes infrastructure upgrades, investments, and policies to manage that change. The plan sought to sustain that growth in a way that ensures the livability and, economic competitiveness of New York City by committing millions of dollars in municipal capital investments in infrastructure, housing, transportation, and open space (City of New York 2007). Thus we can examine PlaNYC as the latest form of growth-promotion of the entrepreneurial urban regime—albeit one that has more thoughtful attention to aspects of environmental quality and public health than prior schemes (Harvey 1989; Logan et al. 1997; Sites 1997).

**Municipal government involvement in sustainability planning and natural resource management**

Municipal decision-making can in some cases be opaque or hidden from view. While legislation and budget changes have formalized processes for public comment and input, high level strategic decisions often have already been made long prior and behind

closed doors, with public comment sessions held after the fact constituting 'rationalization', rather than rationality (Flyvbjerg 1998). Critics claim that the PlaNYC planning process was top-down, technocratic, and anti-democratic (Angotti 2010a, 2010b). Indeed, PlaNYC is not a traditional 'plan' that would be held to the processes of public planning which, for example, the Department of City Planning, is held (Angotti 2010b; respondents 12, 46). Despite the name, it is a set of strategic initiatives originating out of the executive branch of local government—the mayor's office in coordination with the local public agencies. This section provides insights into the less-visible processes in the development of the plan, including key leadership, original framings, participating entities, and turning points. This background on PlaNYC is crucial to understanding the more detailed political processes that are described in each of the case chapters.

***Bloomberg administration***

The early origins of PlaNYC are tied to the Bloomberg administration's (2002-2013) policies regarding economic development, rezoning, and a desire to accommodate/foster a growing city population. Indeed, some of the long-term thinking about New York City land use was initially developed by Dan Doctoroff, who founded the nonprofit NYC2012 to head New York's bid to host the 2012 Olympics. Doctoroff, a former private equity fund manager, later became Deputy Mayor for Economic Development under the Bloomberg administration from 2001-2007, and is currently director of Bloomberg LP (ICLEI 2010b). The (failed) Olympic bid is a quintessential example of the sort of localized, place-based competition that Harvey (1989) predicted

for managerialist cities. Through the process of making the bid, the committee (and Doctoroff) became aware of large potential development parcels in the outer boroughs, including the Brooklyn waterfront, which informed the administration's economic development strategies (Buettner and Rivera 2009). The Bloomberg administration has taken an aggressive stance towards rezoning and making available low-cost financing to developers in order to foster real estate development; as of 2009, fully one-fifth of the city had been rezoned (Buettner and Rivera 2009). Indeed, rezoning is one of the crucial strategies used to support the PlaNYC housing-related goals (both to increase the sheer amount of available housing stock, as well as to create explicitly affordable housing) (City of New York 2007). Bloomberg's pro-development position has included his endorsement of controversial and high profile projects such as Hudson Yards on the west wide of Manhattan, the new Yankee Stadium in the Bronx, Citi Field in Queens, and Atlantic Yards in downtown Brooklyn, considerations and critiques of which are beyond the scope of this study (Buettner and Rivera 2009; Brash 2011).

Some critics have argued that PlaNYC was a way of making Bloomberg's development agenda more palatable (respondents 12, 31, 39). Others disagree, noting that the mayor already had the "political juice to rezone half the city"; and felt that PlaNYC was an earnest attempt at creating a more livable, environmentally sustainable city. As evidence of this, the respondent noted that Bloomberg had a shift from his first term to his later terms toward a more environmentally-oriented disposition in his overall policy agenda (respondent 34). From being the mayor that significantly cut the recycling program in 2002, to becoming the first to introduce recycling of all hard plastics and a citywide composting initiative in 2012, his policy changes before and after the creation of

PlaNYC present evidence of this shift (respondent 49). Interviewees speculated on the origins of this change in attitude. One cited Bloomberg's viewing of Al Gore's climate change movie, *An Inconvenient Truth*, in which the vulnerability of New York City to climate change was put in plain terms (respondent 34). Another noted that Doctoroff became a personal advocate for trees and greening after an environmental justice bike ride of the South Bronx (respondent 47). The origins and motivations are surely more complex than these single events, but it is possible that salient storytelling and first-hand experience played a part in mobilization. Regardless of the origins, though, Bloomberg has evolved over his three terms to develop an environmental legacy and to be perceived by many as a 'green mayor' (respondents 10, 11, 26, 41).

From the earliest days of his campaign, Bloomberg positioned himself as a 'mayor-as-CEO' who would "run the city like a business" (Brash 2011). Yet over the course of implementing PlaNYC, commentators have claimed that his environmental work will be one of his biggest legacies (Navarro 2009). These two claims may not be in as much tension as they initially appear. Even before it was identified as a 'sustainability' initiative, PlaNYC had a focus on infrastructure development, land use planning, economic development, and supporting the continued growth of the city in order to compete with other cities (Buettner and Rivera 2009; ICLEI 2010b). In 2006, the city hired two consulting firms at a cost of more than $1.5 million to explore scenarios for how the city could accommodate a projected increase in population by one million residents by 2030. Following these reports, Doctoroff convened a series of high-level inter-agency meetings where city agency heads described different initiatives that

were implementable in order to meet long term goals, which led to the creation of the Strategic Land Use Plan in the summer of 2005 (ICLEI 2010b; respondents 26, 27).

Overall, the culture of work in this planning phase was characterized by practices brought over from the private sector. This included long work days that lasted into the evenings, multi-hour meetings with aggressive questioning of rationales, demand for quantitative evidence, and the use of private consultants. During the grueling 20 months in the lead-up to the launch of PlaNYC, public agency staff described being 'put through the ringer' in 4-6 hour meetings with City Hall staff led by Doctoroff (respondent 26). In addition, private consultants from the McKinsey Group were hired to conduct assessments of various sectors involved in PlaNYC—including transportation and energy—and to help with the development of the PlaNYC Sustainability Advisory Board (respondents 41, 47). However, despite some critical scholars' claims to the contrary (Angotti 2010a), PlaNYC is *not* just 'a McKinsey plan'. Numerous sources corroborated that McKinsey did not contribute to the Open Space chapter and that the goals articulate there were tied very closely to earlier proposals advanced by DPR (respondents 26, 41, 47). Nonetheless, it is worth noting that Rohit ('Rit') Aggarwala was selected to lead of the PlaNYC planning effort and later became the head of OLTPS. Aggarwala had previously worked at McKinsey and was selected for his quantitative reasoning, analytical style, and ability to lead this complex sustainability initiative (ICLEI 2010b, respondent 34).

Under Bloomberg, Doctoroff, and Aggarwala, goal setting involved a careful political calculus regarding what was 'actionable' rather than 'aspirational' (respondents 28, 38, 40, 50, 52). Amongst policymakers and staff that were interviewed, the

juxtaposition of these two types of plans—using this language—was a consistent discursive refrain. There was a shared sense that anyone could make a plan that would 'sit on a shelf' and be ignored, but what makes PlaNYC unique is that recommendations have largely been selected and vetted for their "do-ability" and the effort has real funding allocations put towards initiatives (respondent 41). Thus, there was a tendency to favor initiatives that could be monitored and evaluated quantitatively on an annual, quarterly, monthly, and even daily basis. Overall, the administration was committed to being "data driven" and focused on metrics (respondents 27, 2, 28, 35, 47, 49).

On the rare occasions that PlaNYC went beyond the jurisdictional authorities of the mayor and the local public agencies, it met resistance that sometimes led to failure. The most visible example of this came through the proposed congestion pricing scheme for Lower Manhattan (inspired by that of London), which required state approval that it ultimately did not receive. Another initiative that faced some acute resistance from real estate developers and building managers was the regulation that banned the use of home heating oil #6 and #4. Indeed, knowing that congestion pricing might potentially fail, the Bloomberg staff sought to balance that effort with some noncontroversial 'easy wins' – such as the investment in citywide tree planting (ICLEI 2010b; respondents 13, 23, 28). One reporter claimed that Bloomberg has had relatively more success with "smaller gestures" (Navarro 2009).

The administration began not only to develop the plan itself, but also to develop a strategy for institutionalizing it within city government. A *New York Times* article commended this institutionalization, noting: "Steve Howard, founder of the Climate Group, a London-based organization pushing for an international agreement on climate

change, called Mr. Bloomberg 'a rock star mayor' for putting his environmental plan 'in the DNA of government'" (Navarro 2009). In February 2006, a new agency was created: OLTPS, which would provide strategic direction to the entire initiative and promote inter-agency coordination in the long term. By June 2006, Aggarwala was appointed to head OLTPS and served until 2010, later replaced by David Bradgon—who was recruited from work in regional conservation efforts in Portland, OR where he served as Director of the Metro Council. Bragdon characterized this agency as different from a conventional planning agency, in that it does not focus on spatial or land-use planning, but rather strategic planning. It operates "beyond the confines of functional agencies" and makes its primary aim coordination amongst existing agencies (Bragdon 2011). Of significance to the longevity and implementation of a plan with goals that extend beyond the tenure of the mayoral administration, the city council passed Local Law 17 in 2008, which amended the New York City Charter and the administrative code of the city of New York. This law formally institutionalized the OLTPS, the role of its director, and the presence of an advisory board. It also requires: annual reporting on a set of sustainability indicators (alongside the already implemented Mayor's Management Report); updated population projections every four years; and updated goals and initiatives every four years. Finally, while PlaNYC began as a mayoral initiative, it necessarily engages with city council in a whole host of ways. It seeks funding for new programs, it calls for local laws and resolutions, and it recommends zoning changes (City of New York 2007). Thus, despite the strong Bloomberg imprimatur and heavy leadership from City Hall in the *plan*, the implementation of the various PlaNYC

*initiatives* is a broader effort that engages other facets of the municipal government. Most central to the implementation are the various city agencies, to which I turn now.

***City agencies***

Berg (2007) highlights the crucial role of New York City's bureaucrats in shaping the implementation of policies and laws:

> The primary role of the city's executive branch is to implement the laws and programs created by the legislative branch in conjunction with the chief executive or responsibilities granted in the city charter…. Bureaucrats whose function it is to implement and administer the law, and particularly those at the street level who interact with the public in the process of delivering a service, exercise considerable discretion in their implementation activities. Due to the choices that bureaucrats can make in the process of implementing the laws and programs of the city's political system, they can greatly influence the direction and shape as well as the success or failure of public policy (244).

While the language of 'sustainability' and the comprehensive, long-term scale of planning seen in PlaNYC may be relatively new, municipal agencies in New York City have longstanding program areas, jurisdictional authority, and mandates to work on the issues covered in the plan: land use, water quality, air quality, housing provision, open space/parks and recreation (City Charter 2009). Nearly every city agency could be found to have some link to this plan, as illustrated by the appendices to the plans that key each initiative to the relevant agency (City of New York 2007: 146-155). The agency most directly engaged in the two case areas of urban forestry and agriculture investigated in this study is DPR. As such, it is important to understand a bit about the mission, scope, and size of that agency and its various divisions.

DPR is one of the largest and most sophisticated urban natural resource management agencies in the country. It is the contemporary evolution of the city's

history of open space management and authorities that date all the way back to the Dongan Charter of the City of New York in 1686 (NYC DPR 2013a). It has broad bureaucratic authorities, dating to the 1989 charter revision:

> The charter mandates that the Department of Parks and Recreation "manage and care for all parks" and "maintain the beauty and utility of all parks" (New York City Charter Revision Commission, Chapter 21, Section 533). Given that there is no other legislation specifically addressing how the city's parks should be managed, the bureaucrats in the Department of Parks and Recreation who administer the city's parks have considerable discretion in responding to their mandate (Berg 2007: 245).

As of FY2010, DPR includes a staff of 7,242 (full time and full time equivalent) employees, annual expenditures of $382.7 million and annual revenues of $59 million (NYC MMR 2011). The current scope of agency operations in the Mayor's Management Report offers a quick overview of DPR's work:

> DPR maintains a municipal park system of more than 29,000 acres including nearly 1,800 parks, nearly 2,500 greenstreet sites, over 1,000 playgrounds, more than 800 athletic fields, more than 550 tennis courts, 54 outdoor swimming pools, 12 indoor swimming pools, 31 indoor recreational centers, 12 field houses, six community centers, more than 600 comfort stations, 14 miles of beaches, 13 golf courses, six ice rinks, five major stadia, 17 nature centers, 13 marinas and four zoos. The Department is also responsible for approximately 650,000 street trees and two million park trees, 23 historic house museums and more than 800 monuments, sculptures and historical markers (NYC 2011c: 109).

The agency is divided into multiple administrative divisions, many of which are engaged in implementing different aspects of PlaNYC.

The urban forestry case study focuses primarily on the DPR division Central Forestry, Horticulture, and Natural Resources, which was created in the late 2000s as a merger of Central Forestry and Horticulture (CFH) and the Natural Resources Group (NRG). CFH was directly responsible for conducting the analyses of Urban Tree Canopy loss citywide, as well as the tree census and the STRATUM analyses that made claims

about the economic benefits of urban trees. These data were crucial in convincing city leaders that a major citywide tree planting strategy could become one of the core components of PlaNYC, as will be further discussed in Chapter 4. DPR has responsibility for managing the street tree planting city wide, through a system of central foresters, borough-based foresters, and city contractors that do the work of installing new trees. Also included under CFH are several programmatic groups: the Greenstreets program (renamed the green infrastructure division), which creates gardens in the public right of way; a trees and sidewalks group that repairs damage to sidewalks cause by trees; a GIS group that provides analytic capabilities; a horticulture group; a contract management group that oversees city contractors that install trees citywide; and a research division. NRG was founded in 1984 to manage New York City's 'natural areas' or 'wild spaces'—including "upland forests, maritime forests, meadows, fresh water and tidal marshes, lakes, ponds, and rivers" (NYC DPR 2010: 8).

The urban agriculture case study is primarily affected by the DPR division GreenThumb, which is the citywide program that supports community gardening. Created in 1978, GreenThumb supports more than 500 gardens citywide, serves approximately 20,000 gardeners, and is one of the largest community gardening programs in the country (GreenThumb 2010; Stone 2009). These gardens have diverse histories, but for the most part they were created by residents in the 1970s and 1980, as will be further described in Chapter 5. These resident-led efforts have always been supported by the City of New York through affordable leases, technical assistance, and free materials (such as soil, compost, and plants) (Lawson 2005; GreenThumb 2010). Prior to GreenThumb being managed via DPR, it was an office of the Department of

General Services (now called the Department of City Administrative Services) that functioned primarily by offering short-term leases to community members as a means of dealing with the vacancy explosion in the 1970s . Although it is a program of DPR now, GreenThumb continues to operate somewhat distinctly—particularly in its funding stream, which comes from federal Community Development Block Grants (respondent 6; Mees and Stone 2012). Indeed, it is worth noting that there is no mention of community gardens in the City Charter's description of the authorities of DPR, although there is explicit mention of parks, squares, public places, and playgrounds (City Charter 2009). [12]

Along with DPR, several other agencies are relevant to the implementation of urban forestry and urban agriculture. The Department of Transportation (DOT) has jurisdiction over the Public Right of Way and is involved in the public plaza program, a PlaNYC initiative. The Department of City Planning is involved in re-writing parking lot zoning regulations to require trees and creating new development zoning regulations to require a dense spacing of new sidewalk trees (City of New York 2007). The New York City Housing Authority (NYCHA) is also relevant as a potential planting site for new trees; as a large-scale landlord within the city it was approached early by the MillionTreesNYC leadership. In terms of urban agriculture, PlaNYC 2.0 targets an expansion of 129 new resident gardens on NYCHA land. So, too, is the Department of Education (DOE) engaged, through its partnership in the Grow to Learn school gardening initiative. The Sanitation Department (DSNY) has historically provided leaf litter and

[12] Other divisions within DPR besides CFH, NRG, and GreenThumb include: Capital Projects, which is responsible for the physical development of new parks and the restoration of existing parks; planning; parklands; management and budget; revenue/concessions; public programs; Green Apple Corps (a public service program); marketing and special events; the Urban Park Service (enforcement); borough offices, and more (NYC DPR 2013b).

compost to community garden sites; and cuts to this program were targets of advocacy for the PlaNYC 2.0 revision (City of New York 2011a). Numerous other agencies are involved in food policy efforts that are beyond the scope of urban agricultural production, per se, but focus on food processing, distribution, sale, and consumption. Again, DOE has played one of the early key roles in this effort through the school food procurement program, which is being revised to incorporate more regional foods in public school menus. The Office of the Food Policy Coordinator – which was created by the mayor in 2007—plays a coordinating role locally. Other local food policy documents have called for the coordinator position to be expanded to a full New York City Food Policy Council (Stringer 2009, 2010; NYC Council 2010). Moreover, one of the oft-cited challenges to developing and implementing a comprehensive food policy citywide is that so many of these functions are dispersed throughout numerous agencies.

**Civil society involvement in environmental stewardship**

PlaNYC was also shaped by the precedents, projects, and partnerships initiated by many of the thousands of civil society groups in New York City. This includes those groups formally involved in the Advisory Board to PlaNYC (a mix of government and civil society representatives that was created in June 2006 at the same time as the handoff from Doctoroff to OLTPS). The composition of the Advisory Board was: elected officials (2 members); business/real estate interests (6); environment, community advocacy, and planning (6); academia and philanthropy (2); and labor (1) (ICLEI 2010b, 20-21).[13] One

[13] The PlaNYC Advisory Board members were: **Elected officials:** Christine Quinn, Speaker of the New York City Council; James F. Gennaro, Council Member and Chair of the Committee on Environmental Protection; **Business/real estate community/design:** Steven Spinola, President, Real Estate Board of New York; Carlton Brown, COO and Founder, Full Spectrum; Robert Fox, Partner, Cook + Fox Architects;

respondent specifically lauded the advisory board for not just being comprised of allies, but for inviting potential critics into the inner circle of the process (respondent 49). PlaNYC was also informed by a citizen engagement process that was rolled out in a series of public fora from January to March 2007 (ICLEI 2010b). This process has been criticized by some for being too top-down and not participatory enough, with public meetings functioning as no more than tokenism (See, for example, Angotti 2010a). Some critics went so far as to claim that all of the "green" elements of the plan were merely a "marketing overlay" for a growth plan for the city (respondent 52). Others have argued that the construction of the advisory board and the public outreach process surrounding the plan made it "the most inclusive process in New York City in many years" (Fuchs 2011). Indeed, one respondent involved in the formulation of the plan from the early stages said that the administration was surprised and pleased by the enthusiastic reception that the plan received from the public; they were prepared for much more opposition to the expenditure of public funds and instead received the opposite (respondent 26).

Beyond the scope of this formal public engagement process is a wider network of groups working independent of or alongside city agencies on urban environmental issues. For example, the text of the PlaNYC initiative that commits to "Green the Cityscape" specifically cites the precedent of the Municipal Art Society's 1902 call to residents of

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Elizabeth Girardi Schoen, Senior Director of Environmental Affairs, Pfizer, Inc.; Kathryn Wylde, President and CEO, Partnership for New York City; Daniel Tishman, Chairman and CEO, Tishman Construction Corporation, Chair Natural Resources Defense Council; **Environmental and Community Advocacy representatives:** Marcia Bystryn, Executive Director, New York League of Conservation Voters; Peggy Sheppard, Executive and Co-Founder, West Harlem Environmental Action Coalition (WE ACT); Andrew Darrell, Regional Director of NYC Office, Environmental Defense; Ashok Gupta, Program Director of Air and Energy, Natural Resources Defense Council; Robert Yaro, President, Regional Plan Association; Elizabeth Yeampierre, Executive Director, UPROSE; **Academic community:** Ester Fuchs, Professor, Columbia University's School of International and Public Affairs; **Philanthropic community:** Michael Northrop, Program Director, Rockefeller Brothers Fund; **Labor community**: Ed Ott, Executive Director, NYC Central Labor Council (ICLEI 2010b: 21).

Brooklyn Heights to green their neighborhoods by planting street trees and gardening in planters and window boxes (City of New York 2007: 38). This example is by no means an exception. For centuries, civic groups have played a crucial role in all aspects of the urban environment, including shaping the cityscape, influencing policy, and advocating for change (Svendsen 2010; Gandy 2002). While many have traced the lineage of civic engagement in the urban environment to the Progressive movement of the 1890s, Scobey (2002) extends the timeline even further to include an earlier era of Victorian, 'bourgeois urbanists' who fundamentally shaped New York City through institutions like the park board, open spaces like Central Park, and physical practices and logics, like the street grid (see also Cranz 1982).

The full history of urban, civic environmentalism in New York City is well beyond the scope of this study, but it is important to examine the wave of civic groups that emerged starting in the 1970s, with the simultaneous rise in environmental consciousness associated with Earth Day and national environmental legislation, such as the Clean Water Act, the Clean Air Act, and the Endangered Species Act (Mertig et al. 2001) as well as the concurrent local turning point already discussed: the urban fiscal crisis. The organization Green Guerillas was founded by Liz Christy in 1973 (and later incorporated in 1976). Initially Christy used 'seed bombs' to re-green vacant lots in the East Village and Lower East Side and later founded the first community garden in that area. The Green Guerillas were later instrumental in community organizing efforts during the garden crisis of the 1990s and they remain an active and critical node in the citywide network of community gardens (respondent 59). Similarly, in 1975, Trees New York was founded as a consortium of groups in direct response to the fiscal crisis and the

city's inability to care for its urban forest. This consortium later incorporated as a nonprofit in 1982 and persists as one of the main civic environmental umbrella groups focused on the urban forest today (respondent 63). Another organization spoke directly about its founding in response to the fiscal crisis, in order to encourage resident engagement in neighborhood improvement through tree pruning, trash removal, and gardening:

> [Our organization was founded] during the City's fiscal crisis with the idea that jobs held by City employees who had lost their jobs would be filled by ordinary citizens. Obviously not police or fire or medical people, but very simple stuff like caring for street trees or serving meals in a senior center, or--I'm told that because of the reduced sanitation runs, people actually brought their garbage down in buildings, and it had to be centrally located because there were maybe only five pick-ups in that neighborhood, rather than 25. People were bringing their garbage down, other people were picking it up, taking it to the corner of 38th and Lexington—those kinds of very simple things. [The founders] put an ad in the *Times*. They apparently got 5,000 volunteers the first day. So, that's how the organization started… (respondent 57).

This era of rising environmental awareness was also when the Park Slope Food Cooperative—a member-owned grocery store that currently has over 15,000 members—was formed (NYC Council 2010). Thus, the fiscal crisis affected not only the material form of urban open spaces, but also the organizational landscape of groups that engage in these issues.

Throughout the 1970s in New York City, there are diverse examples of civil society groups, municipal leaders, and local elites developing collaborative governance efforts. First, in 1970, Mayor Lindsay approached Marian Sulzberger Hieskell (of the Heiskell family, owners of the *New York Times*) about forming a public-private partnership to support New York City's local environment. Out of this initial concept, the Council on the Environment of New York City (CENYC, which changed its name to

GrowNYC) was formed by Executive Order of Mayor Lindsay (respondent 58). This hybrid entity describes itself as "a privately funded citizens organization in the Office of the Mayor" and has a board that includes both private individuals as well as appointees of the mayor (GrowNYC 2012). In 1974-5, CENYC created its Open Space Greening Program, and hired Liz Christy to help develop that program. In turn, Christy recruited the wealthy banker and philanthropist Richard Abrons to help support the program—and he remained involved in the board for 30 years.

Civic environmental organizations and networks continued to proliferate and mature in the 1970s and 1980s. By 1976, CENYC began its Greenmarket program of farmers markets, with the Union Square Greenmarket being one of the earliest participating sites (respondent 58). Second, as previously described, GreenThumb, the municipal program to support the burgeoning community garden movement, was created in 1978. Third, responding to a perceived need for coordination amongst the many neighborhood-based and citywide greening organizations in New York City, the Neighborhood Open Space Coalition was founded in 1980 (Lawson 2005). As well, the respondent quoted above described the maturation of its organization from coordinating individual volunteers to working as a node serving small community groups:

> And then in the '80s, maybe five years later, we began focusing on low income neighborhoods, which is where we are now. So we provide small cash grants to neighborhood groups beginning between $500 and $3,000. Sometimes larger. Sometimes up to $10,000. These are generally not 501(c)(3)s. They can't have any paid employees. They're civic associations, tenants' organizations, they're gardening clubs. There are a lot of block associations. And sometimes they're just people who want to get together and deal with the problem; they aren't even an organized group… (respondent 57).

Finally, building upon the momentum of these locally-rooted efforts, national programs began to emerge to support the community gardening movement. For example, the

American Community Gardening Association was founded nationally in 1978 and the USDA Cooperative Extension Urban Gardening Program was operating in 23 cities as of 1976 (Lawson 2005; McMillan 2010).

During the 1980s and early 1990s, in response to the declining quality and safety of parks, these sites were increasingly managed through public-private partnerships. Mayor Koch took the first steps towards privatization of certain parks functions by bringing in contracted concessioners to operate certain facilities, and by transferring the operation of zoos to the New York Zoological Society (now the Wildlife Conservation Society) (Brecher et al. 1993). The public-private partnerships of the Central Park Conservancy (formed in 1980) and Prospect Park Alliance (formed in 1987)—as well as more recent efforts like the Friends of the High Line (formed in 1999)—are all attempts to harness private support for parks in the face of shrinking municipal budgets (Gandy 2002; Svendsen 2010; City of New York 2012a). Critics note, however, that these partnerships, which are not evenly distributed across all New York City parks citywide, exacerbate a 'two-tiered' park system, whereby wealthy neighborhoods can afford to form 'friends of' groups that can enhance scant public spending, whereas poorer neighborhoods cannot (Harden 1999; D. Taylor 2009; Svendsen 2010).

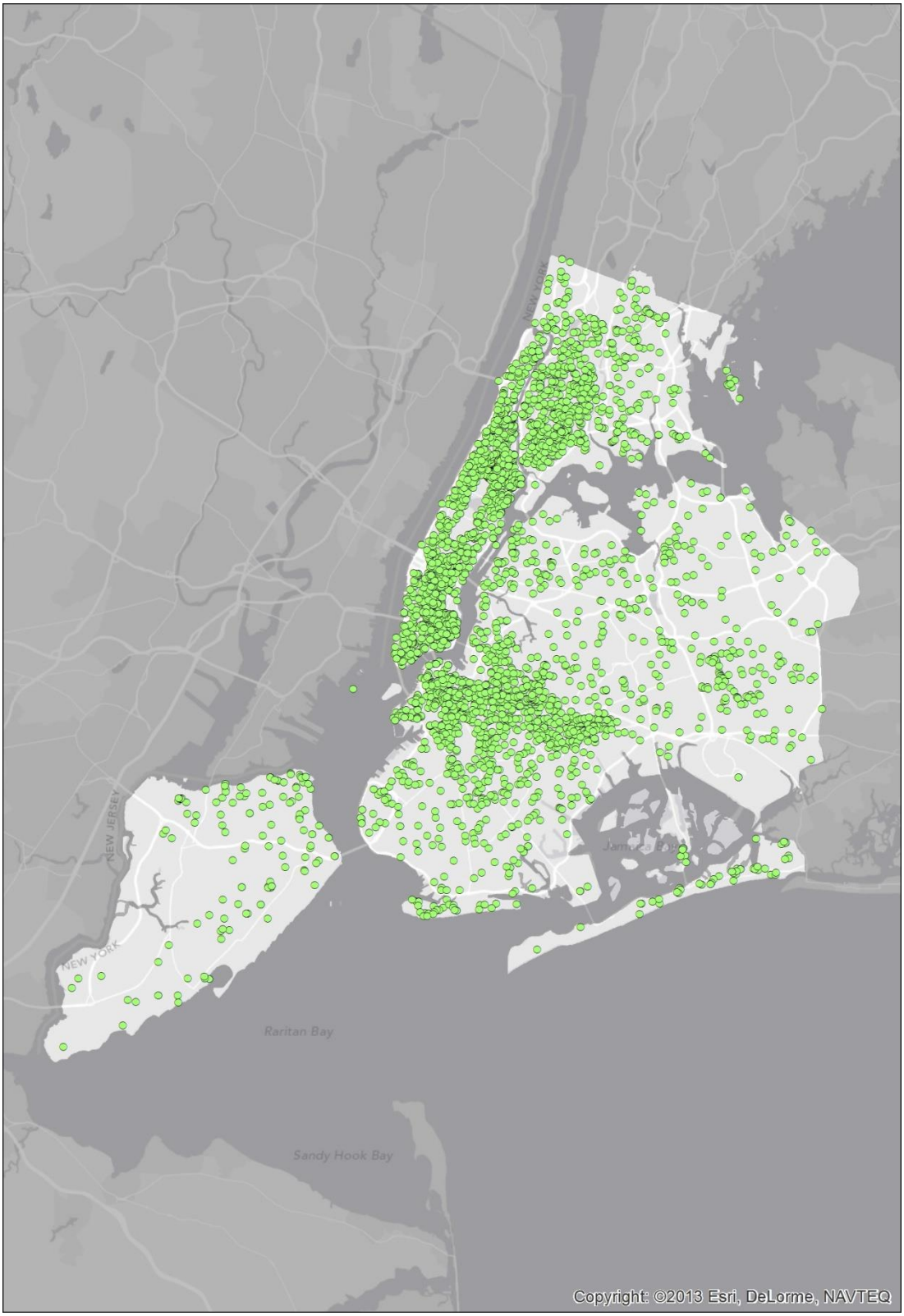
Continuing to the present day, several public-private partnerships support open space and the urban environment *citywide*, rather than at specific parks sites. These include the New York Tree Trust (formed in 1994) and Partnerships for Parks (formed in 1995), both of which are public-private partnership between DPR and the City Parks Foundation. The former helps supports maintenance, care, and planting of trees, while the latter helps incubate local, community-based groups to bring private and community

support to local parks. As well, the Historic House Trust (formed in 1989) is a private nonprofit that helps support and manage historic homes and museums on DPR land. Most recently, in 2012, DPR incubated the private nonprofit Natural Areas Conservancy to support the city's 'natural area' parks, with private funding from the Tiffany & Co Foundation and the Doris Duke Charitable Foundation (NYC DPR 2012a).

***Current stewardship networks***

A recent study helps to understand the size, scope, and composition of the contemporary civic environmental stewardship network in New York City. The Stewardship Mapping and Assessment Project (STEW-MAP) surveyed more than 2,000 civic groups citywide, creating a socio-spatial map of stewardship citywide (visit the map at http://www.oasisnyc.net/stewardship/stewardshipsearch.aspx) (USDA Forest Service 2007). The study defines stewardship broadly as including civic groups that do any of the following: conserve, manage, monitor, advocate for, or educate the public about local land, air, water, waste, energy, or toxics issues. It includes the entire range of civic groups from multi-million dollar formal and/or museum-based environmental nonprofits to completely grassroots, non-501c3 community gardens, clubs, block associations, and other informal groups. For the complete methodology of the study, see Fisher et al. (2012) (see also the survey instrument in Appendix 3). See Figure 3.5 for a map of the spatial distribution of these stewardship groups, with clear clustering in Central Brooklyn, the South Bronx, and throughout Manhattan and a lower density of groups in more suburban areas of Queens and Staten Island.

Figure 3.5: Map of civic stewardship groups in New York City




Map created by: Will Seegers, UVM Spatial Analysis Lab.
Data source: STEW-MAP database. USDA Forest Service 2007.

The degree of professionalization of these groups is rather low, in terms of both paid staff and budget size (Fisher et al. 2012). The majority of these groups (58%) have either zero or one staff member working at the organization. However, the data are bimodal, as 19.7% of groups reported having eleven or more paid staff members. In addition, the majority of all of the civic stewardship groups have a budget of less than $10,000 (54.2%); on the other end of the spectrum, 11.6% of the organizations reported having an annual budget that was greater than $1 million. Creating an index of professionalization from these two measures, Fisher et al. (2012) found that 65% of the groups scored low, about a fifth scored high, and the remaining 15% scored medium.

Knowing the types of sites in which these groups work provides information on how they interact with and shape the material urban environment, including the urban forest, urban agricultural sites, and other types of recreational open spaces and the built environment. Fisher et al. (2012) examined how degree of professionalization varied across site types, including community gardens and green buildings. They found that groups that work on green buildings are more likely to be more highly professionalized, whereas groups that work on community gardens are more likely to score low on the professionalization index. This squares with the understanding of community gardening as a grassroots movement, whereas green buildings are created through real estate development practices requiring technical and financial expertise. Following on these published analyses, I further explored the distribution of stewardship organizations' work across the urban socio-natural environment. Parks-based groups are prevalent (41.3%), as are groups that work on 'natural areas' (17.3%)—which are the sites that DPR's Natural Resources Group maintains, and groups working on school yards (11%). In

terms of urban agriculture, 41.7% of groups in the study worked on community gardens, while another 11.4% work on vacant lots and just 6.5% on urban farms. In terms of urban forestry, 23.8% of groups steward street trees, and another 17.3% work in the public right of way (which includes greenstreets and plazas in the roadway). Of potential relevance to both forestry and agriculture are groups that work in and around buildings, including front and back yards (11.8%), apartment grounds (8.1%), courtyards (5.9%) and rooftops (4.5%), while 7.5% of groups referenced working specifically on 'green' buildings (USDA Forest Service 2007).

The network data reveal that although these groups are often small, they are not working in isolation. Respondents to the study were asked to identify their top three partners in different sectors: government, civil society/other civic groups, businesses, and schools (Connolly et al. 2013). From these data, distinct network graphs by sector were developed. Overall, this descriptive network analysis reveals a more hierarchical or centralized civic-to-government network and a more polycentric or decentralized civic-to-civic network. The civic-to-government network is much more highly centralized (28.4%) than the civic-to-civic network (3.28%). See Figure 3.6 for the civic-to-government network map. DPR is by far the largest node in the overall stewardship network[14], which supports the claim that this agency is critical to natural resource management in New York City. Other prominent government agencies include the state Department of Environmental Conservation (DEC); the city Department of Environmental Protection (DEP), DOT, and DSNY; and federal Environmental Protection Agency (EPA) (USDA Forest Service 2007). It is worth noting that the study

[14] Note that when respondents specified a particular DPR division or program area, that detail was preserved. If all responses for DPR were totaled, that node would be even more prominent, with 206 ties.

was conducted in 2007, prior to the chartering of OLTPS, so it is absent from this graph. While the DEC, DEP, and EPA are crucial to environmental stewardship citywide, they were less-often discussed as participating in the particular networks of urban forestry and agriculture (see chapter 8, Figures 8.1 and 8.2). Much of DEP's focus has been in implementing the city's 2010 green infrastructure plan that focuses on mitigating stormwater.

The entire civic-to-civic network is 3.28% centralized with a total of 765 ties among groups. The core component of the network in the middle of the diagram is about six times more centralized than the more isolated ring of groups around the outside (core is 5.63% centralized, outer ring is .87% centralized). This means those organizations in the middle are more tightly connected to each other, which has implications for how resources, members, and ideas flow). See Figure 3.7 for the civic-to-civic network map. Finally, Figure 3.8 shows that groups in the more tightly connected core are often connected by the *types of sites* that they steward. Visible in the upper right-hand portion of this graph is a cluster of highly connected nodes including Green Guerillas, Council on the Environment of New York City (now GrowNYC), Just Food, several land trusts, New York Restoration Project, the Brooklyn Botanic Garden, the NYC Community Garden Coalition, and the East New York Gardeners Association. This cluster is comprised of land stewardship groups, largely community garden and local food groups—including urban farms and community supported agriculture groups, as well as a number of local block associations, which are connecting through these citywide civic nodes (USDA Forest Service 2007). These are some of the organizations that are central to both the

urban forestry and urban agriculture cases, and can be compared to the network graphs that I generated for each of the cases that are presented in Chapter 8.

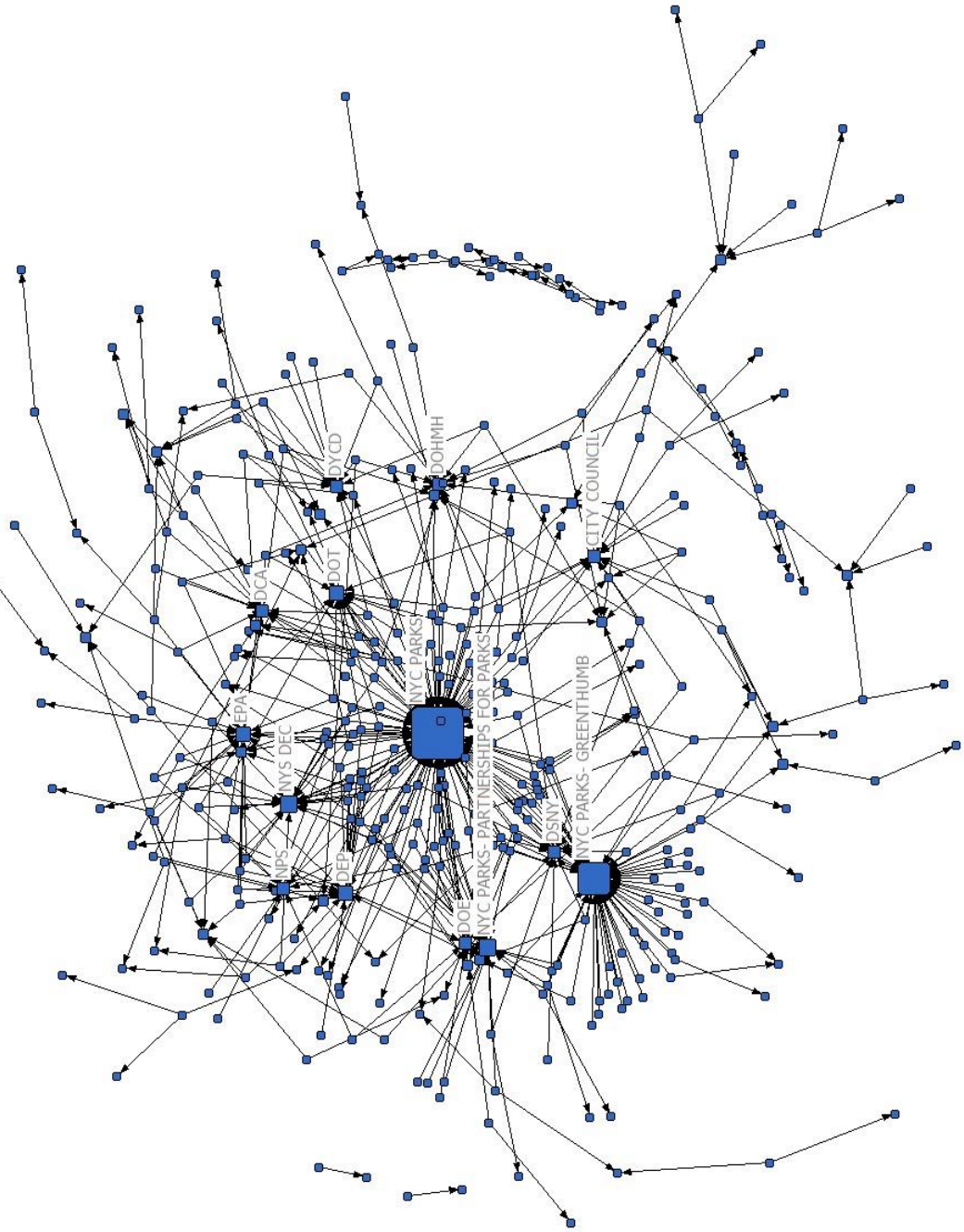



Figure 3.6: Civic-to public network map of environmental stewardship groups in New York City
**Source**: USDA Forest Service. 2007. *Stewardship Mapping and Assessment Project*. New York: USDA Forest Service, 2007.

Figure 3.7: Civic-to civic network map of environmental stewardship groups in New York City
**Source**: USDA Forest Service. 2007. *Stewardship Mapping and Assessment Project*. New York: USDA Forest Service, 2007.

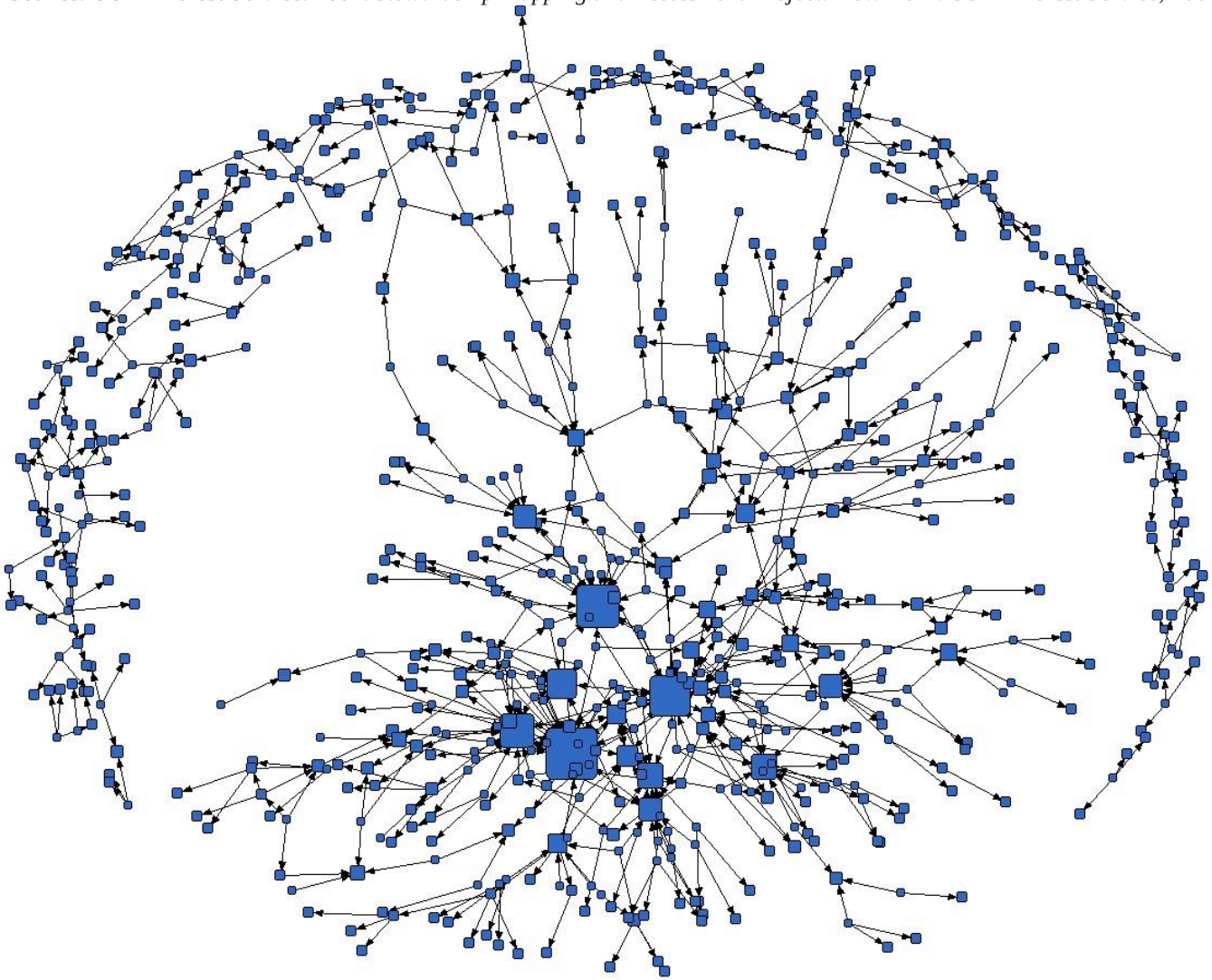
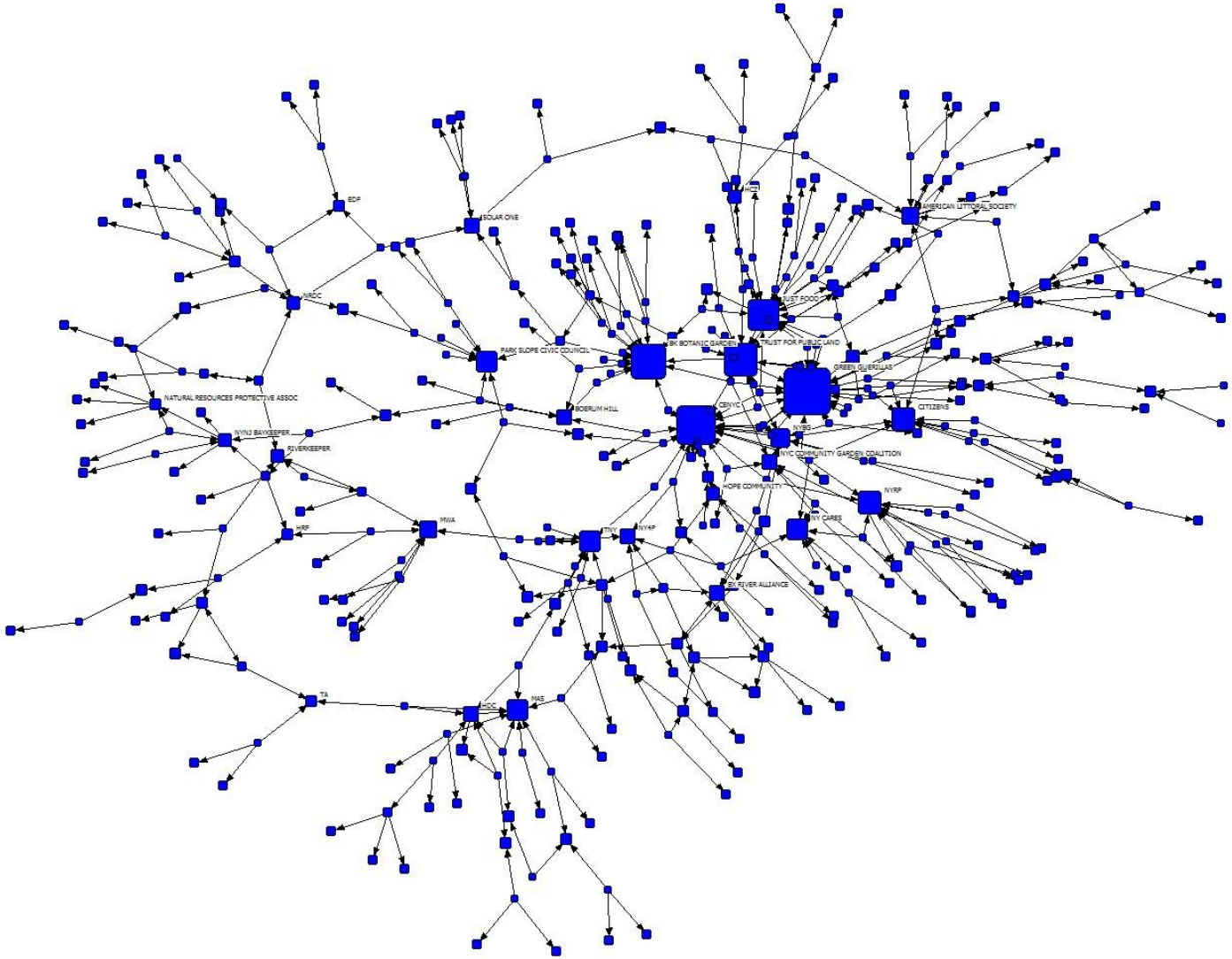


Figure 3.8: Core component of the civic-to civic network map of environmental stewardship groups in New York City
**Source**: USDA Forest Service. 2007. *Stewardship Mapping and Assessment Project.* New York: USDA Forest Service, 2007.



There are also several other branches or clusters within the graph that are less tightly connected than the land stewardship sub-network. On the far left hand side of the graph are a number of groups that deal with water-related issues, including the Metropolitan Waterfront Alliance, the Hudson River Foundation, the New York/New Jersey Baykeeper, and Riverkeeper. These water groups are connected to large, national environmental advocacy and legal organizations—the Natural Resources Defense Council (NRDC), the Environmental Defense Fund (EDF), and the Nature Conservancy. There are also clusters of groups whose primary focus is not solely environmental, but rather is some other civic aim with links to environmental stewardship. For example, there is a cluster of groups concerned with historic preservation, architecture, urban planning, and the built environment that are tied to the nodes Municipal Art Society and the Historic Districts Council (USDA Forest Service 2007).

To a lesser extent there are also some geographic clusters of groups working at the neighborhood scale, including the Park Slope Civic Council, the Boerum Hill Association, and the Harlem Children's Zone. In each case, these neighborhood groups serve as nodes for smaller local groups in their respective neighborhoods, such as block associations, "friends of" parks groups, and community gardens. There is a Bronx borough cluster of a number of smaller but interconnected nodes, including Sustainable South Bronx, Rocking the Boat, The Point community development corporation, Bronx River Alliance, Mosholu Preservation Corporation, and Phipps community development corporation. Finally, the network of groups in the outer ring of Figure 3.7 reveals a large number of dyads and triads that are not connected to any larger node. These groups are sometimes connected in clusters by neighborhood, such as: Queens (Astoria, Kissena,

Sunnyside); East and West Harlem; the Lower East Side and East Village of Manhattan; and Red Hook and Carroll Gardens in Brooklyn. These groups in the outer ring span a wide range of civic associations, including "friends of" park groups and community gardens, as well as block associations, youth groups, churches, and clubs (USDA Forest Service 2007).

Semi-structured interviews with the main 'bridge' organizations in the civic-to-civic network provide in-depth information about the history of environmental stewardship in New York City. Using social network analysis (SNA) measures of the number of in-degree ties and betweenness centrality[15], the STEW-MAP team identified the 14 key bridge organizations that play a brokering role in the New York City stewardship network and interviewed them about their prior 25 years of organizing and work (See Table 3.5 for this list of groups). The study found that

> …the role of bridge organizations in the management of urban ecosystem services in New York City is increasing, that these groups have a specific bi-modal role in the network, and that an initial presence of heterarchic organizational relations was crucial in their development (Connolly et al. 2013: 76).

Essentially, the broker groups channel external resources (from federal and state government and private donors, for example) to help support the work and coordination of smaller-scale organizations citywide (such as community gardens, block associations,

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[15] These measures are defined by Connolly et al. (2013): "The number of in-degree ties (in-centrality) refers to the number of times that an organization was identified as a partner by another organization. Thus it is a measure of local centrality, which shows the 'the relative prominence of a focal point in its neighborhood' (Scott, 2000, p. 82). That is, this measure identifies organizations that have the most direct connections with other organizations, and thus have the largest sphere of influence in their activities. Betweenness measures 'the extent to which a particular point lies 'between' the various other points in the graph' (Scott, 2000, p. 89). Betweenness recognizes that the structural position of an organization may make it a crucial connector among various otherwise disconnected parts of the network, which may be the case even if the organization is not connected to many other groups. With this measure, the group's structural position, rather than its popularity, makes it an important connector. Betweenness has been used by a number of authors within the social–ecological systems and sociological literatures to identify organizations that perform a brokerge role (e.g. Bodin & Crona, 2009; Burt, 2007)" (79).

friends of parks groups, and CSAs). Often these groups have expertise in a particular focal area or site type, such as urban agriculture, forestry, or waterfronts. The 'bi-modal' relationship with the state consists of cooperation in some instances (joint projects, hybrid governance) and criticism in other instances (advocacy, litigation). The heterarchic network refers to the decentralized and polycentric nature of the relationships between civic environmental stewards citywide, as also illustrated in the civic-to-civic diagram above (Connolly et al. 2013).

Table 3.5 New York City civic environmental stewardship organizations with two standard deviations or above in in-degree ties and betweenness centrality.

| **Organization Name** | **In-degree ties** | **Betweenness** |
|---|---|---|
| Green Guerrillas | 25 | 21,461.17 |
| GrowNYC | 21 | 27,954.52 |
| Brooklyn Botanic Garden | 19 | 29,263.56 |
| Just Food | 17 | 8,308.94 |
| Trust for Public Land | 12 | 7,145.73 |
| New York Cares | 12 | 8,534.70 |
| New York Restoration Project | 9 | 5,830.05 |
| Trees New York | 9 | 5,733.40 |
| American Littoral Society | 8 | 6,459.12 |
| Citizens Committee for New York City | 8 | 7,060.73 |
| Park Slope Civic Council | 8 | 6,751.19 |
| Municipal Arts Society | 6 | 5,902.6 |

**Source**: Connolly, James J., Svendsen, Erika S., Fisher, Dana R., and Lindsay K. Campbell. 2013. "Organizing urban ecosystem services through environmental stewardship governance in New York City." *Landscape and Urban Planning.* 109: 76-84.

### *Networked governance and PlaNYC*

Examining bridge organizations' attitudes towards and interactions with PlaNYC provides an understanding of how some of the key civic stewardship organizations in New York City perceive and affect this effort. Although clearly a state-led plan, as described above, we can begin to see the contours of how civil society groups shape and

are shaped by the municipal initiatives that flow from the plan. As part of my dissertation research, I generated two questions for the STEW-MAP bridge organization interview protocol, focusing on these organizations' involvement in PlaNYC and with city agencies and policies more broadly (See Appendix 1, questions 4 and 5). Utilizing the subset of the interview transcripts that pertained to PlaNYC, I conducted a qualitative analysis using an open coding scheme that allowed the themes and patterns to arise from the respondents themselves. The three main themes I identified were: the *process and governance of PlaNYC;* the respondent's *opinions of PlaNYC* overall, including critiques of what is missing from PlaNYC; and the *effects of PlaNYC on the organization*. Two additional themes pertained specifically to MillionTreesNYC: the *effects of MillionTreesNYC on the organization* and *criticisms of MillionTreesNYC*. I will explore each of these themes in turn.

Civil society *involvement in the development and governance of PlaNYC* ranged from complete disengagement all the way to formalized partnership in public-private collaborations. A number of respondents said that they were not consulted or involved in any way (respondents 59, 63). Other organizations were consulted, but their point of engagement ranged from early to later in the timeline of PlaNYC's development. One citywide greening nonprofit had an early consultation with Rohit Aggarwal and his team "before they knew what they were doing" (respondent 58). In contrast, a local conservation organization read the ten published goals of PlaNYC—which were released in December 2006—and approached the mayor's office with the concept of partnering on their Playyards initiative (respondent 64; ICLEI 2010b). Another citywide organization focused on food and agriculture participated in the formal public comment and citizen

engagement process that lasted from November 2006 – March 2007 (respondent 60; ICLEI 2010b). Organizational activities also varied, with a citizen engagement nonprofit participating in lobbying and advocacy (along with 150 other organizations) in support of the congestion pricing initiative (respondent 57). Governance did, in some cases, take the form of formalized public-private partnerships. The nonprofit Trust for Public Land partnered with the DOE on the Schoolyards to Playyards initiative in support of the PlaNYC goal that every New Yorker live within a 10 minute walk of a park, which included a commitment to convert 290 schoolyards into multi-functional community open spaces. Similarly, the MillionTreesNYC campaign is formally initiated in the plan through the commitment to plant 1 million additional trees in New York City, but the partner New York Restoration Project is not explicitly mentioned in the text of PlaNYC (City of New York 2007). Looking to the future, a number of respondents expressed concern about what would happen to PlaNYC after Bloomberg's final term. Some offered that further involving nonprofits in the governance and institutionalization of the plan would be one way to ensure longevity of the efforts (respondents 58, 64).

*Opinions of the plan* were generally positive to ambivalent, with most critiques focusing on what was missing from the plan, rather than fundamentally questioning its intent. Those that held positive opinions noted that the plan would be part of Bloomberg's legacy and reputation forever, and they lauded the way in which the plan helped raise public awareness about sustainability issues. Some expressed ambivalence; they felt that it was neither positive nor negative and wouldn't really affect the work that they pursued. Given that these respondents are all major nodes in the civic stewardship network, this ambivalence is meaningful. Critiques focused on the ways in which the

dual commitments to housing development and open space creation might pose dilemmas going forward.

Many of the respondents felt that PlaNYC was a move in the right direction, but that it missed certain key environmental issues. Several noted that community gardens, school gardens, and food issues were entirely missing from the plan, although these areas have quite a lot of active interest from the public right now (respondents 58, 59, 61). Indeed, this absence was one of the motivating factors that led me to select urban agriculture as a case study. Chapter 7 details the ways in which civil society and public actors worked outside the limits of PlaNYC to advocate for changes in local food and agriculture policy, which was then later reflected in a brief addition of food as a "crosscutting theme" in the April 2011 updated plan (City of New York 2011a). Other respondents noted that solid waste should have been examined (respondent 56); subsequently an entire chapter on solid was added in the April 2011 update. One organization that has a long history of involvement in historic preservation noted that the plan focused more on new housing development than on building reuse and retrofit – with reuse being a much more environmentally friendly approach. Finally, that same respondent also noted that the issue of 'green jobs' was not adequately addressed in the plan. More generally, this reflected their position that the plan was not focused on social justice and equity, but rather was "a plan for a million more people who work at Goldman Sachs" (respondent 57).

Interviewees identified the *effects of PlaNYC on their organization*. Notably, a number of these bridge groups had hoped that the plan would bring resources toward their organization, but this did not result. This contributed to the critique that it is a plan

without sufficient funding for implementation (respondents 61, 58, 59). In contrast, ICLEI (2010b) praised PlaNYC for being more than just a plan that sits on the shelf; rather it gives lengthy consideration to budgeting, funding, and financing the initiatives contained within it. This disconnect stems from one's vantage point: municipal budgets were certainly committed via PlaNYC, however municipal funds were not generally used to fund private or nonprofit actors to participate in implementation. When public-private partnerships were formed as part of PlaNYC initiatives, they generally leveraged private resources, rather than directing public funds toward the private or civic sectors. Beyond financial resources, multiple respondents noted that the existence of the plan shaped their own organizations' strategic planning. It helped to focus their efforts and to encourage them to seek synergy in their work with the mayor's agenda. Similarly, others noted that the plan encouraged them to create their own initiatives in response to it, focusing on: neighborhood-level sustainability planning; grant programs related to storm water overflow; and fora on historic preservation and climate change (respondents 56, 57).

Finally, a number of respondents chose to specifically *reflect on the MillionTreesNYC campaign*, which is one of the most visible programmatic initiatives to have emerged out of PlaNYC. This campaign had myriad positive effects on citywide stewardship groups. Generally, groups working on urban forestry issues noted that MillionTreesNYC raised public visibility of their programs. These effects ranged from increasing budgets, to expanding the scope of the organization, to attracting volunteers. Many of these organizations are involved in the implementation of the campaign: either by serving on the Advisory Committee; or by partnering in the recruitment of volunteers for large-scale citywide volunteer reforestation days; or by serving as partners in the

MillionTreesNYC Stewardship Corps (respondents 56, 61, 63). The Stewardship Corps is unique in that it is a formalized relationship whereby MillionTreesNYC provided grants to other, existing nonprofits to deliver an agreed-upon number of stewardship trainings. (See Chapter 5 for further details on the composition and scope of the Advisory Committee and Stewardship Corps.) The one neighborhood-level stewardship bridge group that was interviewed said that their only interaction with the campaign is that it filled their tree planting requests.

Others were less enthusiastic and offered a range of *criticisms about MillionTreesNYC.* Similar to the critique of PlaNYC, some respondents had assumed that the campaign would bring new resources to the organization, but these did not materialize. Others focused on the overall scope and intent of the campaign—noting that planting one million more trees in New York City might be the wrong goal to pursue and that there might be other more pressing issues on the sustainability agenda. Expanding on this, others argued that the campaign was largely about public relations, was nothing more than a "window dressing" on the city. Others critiqued the implementation of the campaign, noting that the stewardship component was not fully thought through at the outset. Although the goal of the campaign is to "plant and *care for* one million trees" (emphasis added), one interviewee felt that the leadership of the initiative did not place stewardship front-and-center in the campaign (respondent 56). Finally, some of the groups that focus on supporting community gardens citywide honed in on hyper-local conflicts. Often, community gardeners were actively recruited to help serve as volunteer stewards of street trees and some community gardens were identified as locations that might benefit from adjacent surrounding tree planting. Some respondents took issue with

the assumption that gardeners' labor could or should be recruited and noted that in not all cases did gardeners want trees planted nearby (respondents 59, 61).

Overall, these interviews begin to show how some of the core members of New York City's stewardship network engage with the municipally led sustainability plan, PlaNYC, and one of its core initiatives, the MillionTreesNYC campaign. There is evidence of a wide range of civil society strategies, including advocacy, lobbying, strategic positioning, partnership, and critique. For the most part, though, civil society is supportive of these state-led efforts and eager to participate in new sustainability initiatives, while advocating for expansion and improvement of those initiatives. Combined with the previously published research from Fisher et al. (2012) and Connolly et al. (2013), we can see more fully the contours of networked environmental governance in New York City. The case studies of urban forestry (chapters 4-5) and urban agriculture (chapters 6-7) provide much further narrative detail on how the broad set of civic, public, private, (and nonhuman) actors construct urban nature.

## Chapter Four - From PlaNYC to MillionTreesNYC

This chapter explores how the urban forest was politically and discursively constructed in New York City from 2007-2011. First, I examine the politics and governance of urban sustainability planning and natural resource management, from the development of PlaNYC's urban forestry goals to the creation of the MillionTreesNYC campaign. PlaNYC was the product of strong, top-down leadership from the Bloomberg mayoral administration working across city agencies to identify trackable, achievable goals toward sustainability. New York City Department of Parks and Recreation (DPR) bureaucrats marshaled existing programmatic and research evidence to convince City Hall of the merit of a massive increase in investment in tree planting city wide in order to enhance urban tree canopy coverage as a core component of PlaNYC. Decision-makers were swayed by quantitative and monetized evidence of the economic and environmental benefits of trees, which made urban forestry seem like a sound investment. Concurrently, Bette Midler—the celebrity founder of the 'cleaning and greening' organization New York Restoration Project (NYRP)—announced her dream of planting one million trees in New York City.

These two distinct efforts were brought together by the mayor's office to forge a collaborative governance arrangement between the state and civil society via a formal public-private partnership between DPR and NYRP. The MillionTreesNYC campaign is an effort to plant and maintain one million new trees in the city from 2007-2017.[16] This

[16] Although described as a ten year campaign since its inception, in mid-2013 leaders updated the timeline to end in 2015 because planting was ahead of schedule. This change occurred outside of the 2007-2011 timeline of this study and was therefore not a subject discussed with interview respondents. At the time of my study, the effort was framed as a ten year campaign.

partnership aimed to make the campaign financially sustainable by attracting outside (private) funds, to leverage the distinct strengths of each partner (large scale planting expertise versus understanding of marketing, outreach, and PR), and to allow the campaign to plant across land jurisdictions on both public and private sites, which was necessary to reach the million tree goal. Given some critique around PlaNYC as a top-down process, this section also explores the role of the public in agenda-setting and the early stages of developing a citywide urban forestry campaign.

Second, I explore the discursive framing of MillionTreesNYC. I analyze the discourses of the PlaNYC goals and the MillionTreesNYC campaign. Over the course of negotiating the partnership and the endgame of PlaNYC goal setting, a percentage canopy cover goal was transformed into the more marketable and understandable numeric goal of planting one million stems. Building from the language of PlaNYC around greening the growing city, MillionTreesNYC advanced a storyline of trees making communities more livable and sustainable in the face of significant population growth. The multiple benefits of trees—economic, environmental, and social—were accounted for in models; celebrated in public remarks, reports documents, and outreach campaigns; and highlighted throughout the language of the leaders of the campaign. More subtle but still present was a discursive and material commitment to distributional justice, through the choice to plant trees in neighborhoods with the least trees first.

Finally, I examine the institutionalization of the campaign through three major processes: the formalization of the public-private partnership; the organizational changes experienced by the two core partners; and the development of counting practices for internal tracking and external communications about the campaign. First, the public-

private partnership was formalized through agreements like a Memorandum of Understanding (MOU) and through the development of organizational routines and communications practices. Second, MillionTreesNYC was large, visible, ambitious in scope, and well-resourced. With the announcement of PlaNYC, approximately $400 million in capital funding was allocated to DPR to enhance its tree planting programs in its Central Forestry and Horticulture (CFH) and Natural Resources (NRG) Divisions. Simultaneously, the campaign attracted $10 million in private donations from Bloomberg Philanthropies and David Rockefeller—demonstrating the way in which the Mayor drew on his own wealth and social networks to help ensure the success of one of his 'signature initiatives'. Over the course of 2007-2010, NYRP grew from a $6 million organization to a $13 million organization. Indeed, both sides of the partnership saw increases in size, as staff members were added to address enhanced engagement in operations, forestry, education, and outreach. Finally, counting practices are central to the public identity and internal functioning of the campaign, given that a numeric goal is embedded in the very name of the effort. Tracking the number of stems planted was one core metric used by leaders of the campaign to chart progress in the time-delimited and high-profile effort.

**The politics and governance of urban sustainability planning and goal-setting**

This section asks: who are the actors involved in the governance of urban forestry? How do they participate in agenda-setting of urban forestry campaigns? And, what discourses of the environment and society do they deploy in that process? How are trees discursively portrayed in order to make salient arguments in a sustainability policymaking sphere and to garner resources for the expansion of the urban forest? I

examine the role of the state (City Hall and DPR most notably), civil society (NYRP), and the public at large in the framing of issues, the setting of agendas, and the formulation of official goals.[17]

***The Department of Parks and Recreation (DPR) makes its case***

MillionTreesNYC is seen by many public officials and nonprofit leaders as one of the most 'successful' and 'visible' of the PlaNYC efforts (respondents 2, 22, 24, 28, 35, 49). At a May 2012 award ceremony honoring one of the leaders of the campaign, Bloomberg called MillionTreesNYC "the flagship initiative of PlaNYC." So, what helped seed this ambitious program? Why did the Bloomberg administration make such a large capital budget commitment to DPR? And why did DPR emphasize tree planting along with its other PlaNYC goals, such as ensuring that all New Yorkers live within a 10 minute walk of a park and renovating flagship parks in each borough (City of New York 2007)?

DPR stood up well in the PlaNYC goal setting negotiation, as evidenced by: (1) the approximately $400 million capital commitments to that agency for MillionTreesNYC (respondent 15; NYC DPR 2007) and (2) the high degree of continuity between the initiatives that DPR proposed at the outset of the Strategic Land Use Plan and the official PlaNYC initiatives that were released in April 2007, which was not the case for all agencies (respondent 26). This success can be attributed, in part, to thoughtful leadership of skilled bureaucrats (a "brain trust") armed with quantitative arguments to back their claims and "lifer" bureaucrats in upper management of DPR who

[17] Explorations of how these roles shift or evolve in the implementation of the campaign will be explored in chapter 5.

understood the political realities of working with City Hall (respondents 27, 41). Many of the "brain trust" environmental managers shared ties to the Yale School of Forestry and Environmental Studies and were colleagues who had been hired under the prior DPR commissioner, Henry Stern, and remained at DPR through the previous change of administration. In particular, Chief of Forestry and Horticulture, Fiona Watt, was cited for her leadership and strategic approach (respondents 7, 29, 40, 44). Her CFH division was ready with information it had spent years collecting, organizing, and analyzing through data management systems, GIS and remote sensing studies, and a field-based tree census collected using staff and volunteers.

Both in interviews and in public remarks, city bureaucrats and policymakers described an 'aha' moment that occurred between City Hall and DPR in crystallizing support for and interest in undertaking an ambitious, large scale urban tree planting campaign. DPR officials presented their reasoning for a massive increase in the budget and scope of the citywide street tree planting program. The bureaucrats presented 'hard' evidence of costs and benefits of urban tree planting to the business-minded mayor and his staff:

> I have my first memo that I submitted as our major goals for the strategic land use planning group….we used the data that Morgan [Grove, a Forest Service scientist] provided…to show how much canopy New York City has. We compared it to national data, which Dave [Nowak, a Forest Service scientist] had produced…We wrote some pretty significant and detailed collection of different scientific studies to show that tree planting had these benefits. And I think City Hall…[was] pretty persuaded by the science behind it…. Especially when a mayor that comes in with a business background, who likes everything to be quantified.… So I think the science that we kept feeding them…they were kind of impressed by it (respondent 27).

To make their case, DPR relied upon their own local expertise, recordkeeping, and analysis, but also drew on the research of the USDA Forest Service – in particular the

STRATUM model. STRATUM offered a quantitative – and *monetized* – view of the urban forest (respondents 27, 2, 28, 35, 47, 49). DPR Commissioner Adrian Benepe was quoted in the New York Times as saying: "Trees are great for a variety of reasons, but how do you explain that to the Office of Management and Budget?.... We plan on using these values [from STRATUM] as a baseline to say that this is what we have now, and argue for additional funds to plant more trees" (Randall 2007). Based on estimates of the value of various ecosystem services (including social, cultural, and economic benefits – in addition to environmental ones), STRATUM quantified the annual benefits of New York City's urban forest at $121.9 million per year at an average value of $209/tree per year (Peper et al 2007). Coupled with this information, DPR knew exactly what it costs to plant a tree in New York City via its street tree contracting system. Overall, they found that trees in NYC provide $5.60 in benefits for every $1 spent and thus represented a 'sound investment' and a type of 'green infrastructure' (Peper et al 2007).

Decision-makers touted the quantified, multi-functional benefits of trees (respondents 2, 27, 28, 35, 47, 49). Much of the *economic* benefits cascading from tree planting are associated with increases in local real estate value and commercial activity on tree lined streets (Anderson and Cordell 1988; McPherson and Simpson 2002; Donovan and Butry 2010; Morales 1980; Wolf 2003, 2004, 2005). This appealed to the Mayor—who viewed investments in green infrastructure and open space as part of strategy to attract 'global talent' to live and work in New York (respondents 12, 31, 49, 52). It is worth noting that the STRATUM report to DPR is infused with the language of business sense and inter-city competition:

> New York City's street trees are a valuable asset, providing approximately $100.2 million or $172 per tree ($15 per capita) in net annual benefits to the community.

> Over the years, the city has invested millions in its urban forest. Citizens are now receiving a return on that investment—trees are providing $5.60 in benefits for every $1 spent on tree planting and care. New York City's benefit-cost ratio of 5.60 exceeds all other cities studied to date, including Fort Collins, Colorado (2.18), Glendale, Arizona (2.41), and Charlotte, North Carolina (3.25). (Peper et al 2007: 2-3).

Moreover, knowing that trees make contributions to mitigating the urban heat island effect, improving air quality, and creating livable streets and vibrant commercial corridors (Nowak et al 2010), policymakers could leverage different arguments with different constituencies. Some of the harder to quantify psycho-social benefits of trees were noted and used as arguments for the urban forest with the public, even if these were not the reasons that convinced City Hall (respondents 20, 46). The notion that trees beautify neighborhoods, help calm the senses or reduce stress, and can promote more sociable, walkable street life were all harnessed as arguments—and later used in public relations campaigns (Hartig et al. 1991; Kuo 2001; Kuo and Sullivan 2001; Kweon et al. 1998; Orsega-Smith et al. 2004; Taylor and Kuo 2009; Taylor et al. 2001; Wells 2003). One decision-maker felt that trees, because of their size and human scale, were simply more accessible to and relatable for individual constituents. He argued that many people could see, touch, and interact with trees in a way that was not as easy for, say, retrofitted buildings (respondent 49, also respondent 51).

Even debatable effects or highly complicated relationships were discussed as part of the suite of potential tree benefits and as part of the justification for investing in tree planting. For example, a DPR program that pre-dated the MillionTreesNYC effort was the Trees for Public Health (TPH) program, which—beginning in 2005—targeted intensive tree plantings in areas with low street tree stocking levels and high rates of childhood asthma. TPH was developed, in part, on the premise that trees improve air

quality and could potentially reduce asthma prevalence (Beckett et al. 1998; Nowak et al. 2006; Rosen and Greenfeld 2006; Bealey et al. 2007; Lovasi et al. 2008; respondents 1, 17, 27, 51). Introductory text to a section of PlaNYC about using "natural solutions to improve air quality" reads:

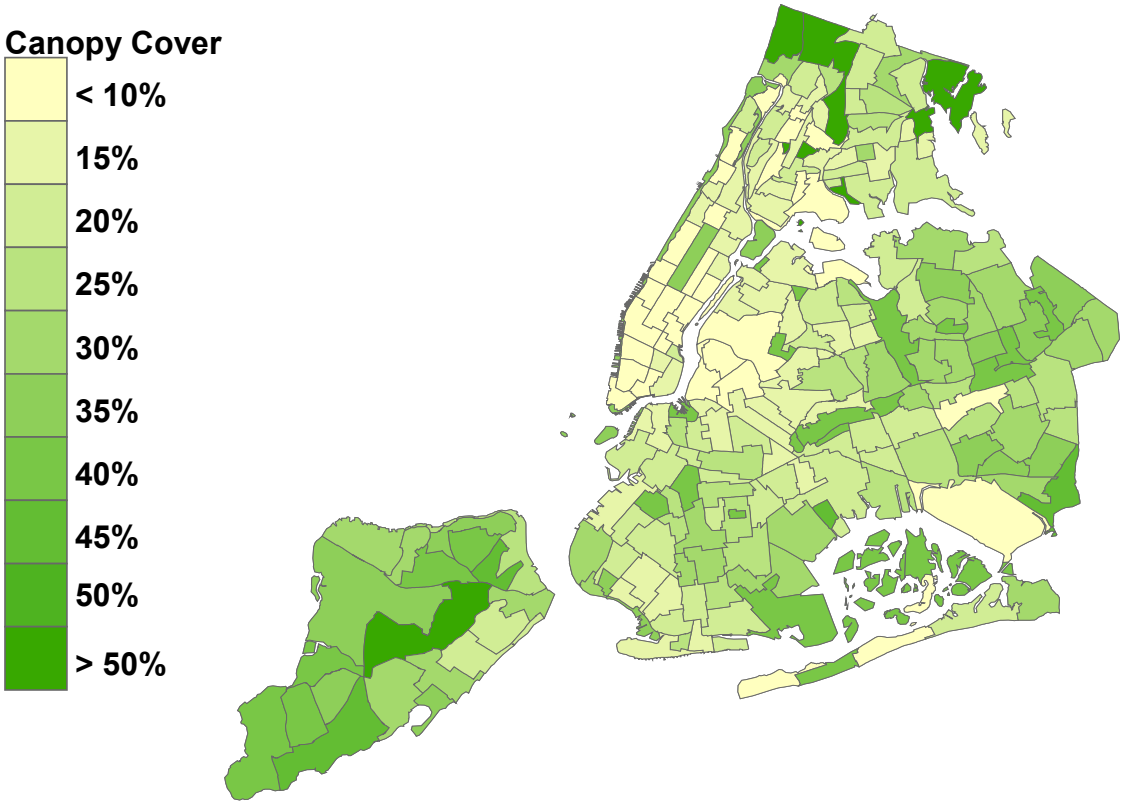
> Trees and other natural areas confer tremendous benefits on the city, including improvements to air and water quality, retention of greenhouse gases, reduced energy costs, and a more inviting streetscape. Trees in particular are effective at cleansing the air. They do this by absorbing pollutants—sulfur dioxide, nitrogen dioxide, and carbon monoxide—through their leaves and intercepting airborne particulate matter on leaf surfaces. Every year, New York City trees remove an estimated 2,200 tons of criteria pollutants from the air. They also take in 42,300 tons of carbon each year.
>
> Indirectly, trees further reduce air pollution by shading buildings, thereby reducing the need for air conditioning during the peak electricity demand periods. In addition, shaded streets have lower temperatures in the summer, slowing the formation of ground-level ozone from NOX and VOCs. Trees also block wind in the winter, slightly reducing the need for heating. Finally, trees make neighborhoods more beautiful and have been shown to raise property values (City of New York 2007: 128).

The impact of urban tree planting on mitigating the urban heat island effect by reducing surface air temperature and lowering emissions from building energy use is a relatively clear scientific consensus (Nowak et al. 2010). The relationship between urban tree planting and air quality, however, is debated, as trees absorb some pollutants—such as ground level ozone, particulate matter, and nitrogen and sulfur oxides, but can emit others—such as volatile organic compounds—and these effects can vary with the climate, built environment, forest composition, season, and time of day (Nowak et al. 2000, 2006, 2010; Pataki et al. 2011). Indeed, Pataki et al. (2011) note: "In general, the removal of atmospheric pollutants by vegetation is one of the most commonly cited urban ecosystem services, yet it is one of the least supported empirically" (32). The urban forest-asthma linkage is even further complicated by numerous factors, such as income, age, indoor air

quality, exposure to vehicular traffic, and access to health services (Jackson 2003; Krieger et al. 2005; Wu and Takaro 2007; respondent 11). Nonetheless, the PlaNYC goals and the MillionTreesNYC implementation retain the legacy of addressing and mitigating air pollution and—to a lesser extent—asthma (City of New York 2007; ICLEI 2010b).

Once City Hall was convinced of the desirability of a large scale investment in tree planting, there still remained the work of enumerating a specific goal and benchmarks toward that goal. Informed by another USDA Forest Service study on New York City's urban tree canopy (UTC), which found that the city had an average of 24% canopy coverage citywide, DPR officials argued that NYC should set a goal of 30% citywide canopy coverage by 2030 (Grove et al. 2005). According to the UTC report, "The rationale for this effort is partly based upon Luley and Bond's (2002) analysis and recommendation that New York City increase UTC by 10% in order to mitigate significantly ozone related air quality in the City" (2). See Figure 4.1 for a map of existing UTC by PlaNYC neighborhood.

Figure 4.1: Map of existing Urban Tree Canopy (UTC) in New York City by neighborhood
Source: DPR data and map, reproduced in (City of New York 2007: 128).




However, a percent canopy cover goal was critiqued both for the challenges in tracking and reporting progress on the goal and for communicating the goal to the public (respondents 27, 4, 35). With regard to tracking, UTC requires remotely sensed or aerial imagery. At the time of the 2006 report, the accuracy of that imagery included a margin of error which meant that changes per year—let alone per quarter as the Bloomberg administration preferred—could not reliably be detected as distinct from error[18]. Since

[18] Grove et al. (2005) describe the sources of that error: "It is important to note that the accuracy of estimating Existing and Possible UTC is most directly influenced by the land cover layer used in the model. The land cover data used in the model were derived from 3ft resolution color-infrared aerial imagery acquired in 2001 and 2002, and consisted of the following classes: tree canopy, grass, impervious, and water. The overall accuracy of the land cover layer was 86%. The producer's accuracy for mapping tree canopy cover was 84% and the user's accuracy was 80%. Producer's accuracy is a measure of errors of

that time, LiDAR imagery has improved the accuracy of detection, but it comes at significant expense to gather, process, and analyze (Ward and Johnson 2007; Secord and Zakhor 2007). Tracking progress by making projections based off growth and mortality rates presented a less than satisfactory option to the leaders of PlaNYC. A simple, numeric goal for *number of trees planted* could be tracked and measured for its progress each day, week, month, quarter, and year, and across all tree planting organizations, physical site types, and land jurisdictions (respondent 26). Setting such a numeric goal – whether it was the 'right' goal or not is a separate discussion—fit the criterion of the plan being 'actionable' and 'measurable', two of the core aims of PlaNYC decision-makers (respondents 14, 38, 5).

***An elite nonprofit sets its sights***

Concurrently and completely outside of the Strategic Land Use Planning / PlaNYC process, a prominent nonprofit group in New York City became interested in developing a citywide tree planting effort. NYRP is a nonprofit greening organization that was founded in 1995 by celebrity actress and singer Bette Midler (respondent 62). At NYRP's 2006 spring picnic fundraiser, Midler announced that she wanted to 'plant one million trees in New York City.' Numerous interviewees—both those who attended the picnic and those who did not—recounted this story as the abrupt starting point of NYRP's engagement with urban forestry at the citywide scale (respondents 13, 27, 35,

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omission, while user's accuracy is a measure of errors of commission. Thus, tree canopy was mapped correctly 84% of the time while an individual tree canopy pixel stood an 80% chance of actually being tree canopy. The main source of confusion with tree canopy was grass. Of the 464 tree canopy sample sites visited, 46 were grass. Of the 225 grass sample sites visited, 74 were canopy. Based on the accuracy assessment conducted, it is likely that the Existing UTC estimates presented in this report are slightly conservative." (4)

47, 55). One respondent elaborated on the way in which the founder's changing interests shaped the programmatic focus of NYRP:

> I would also say NYRP, at the same time Million Trees was happening, was having an identity crisis because I think NYRP really didn't know what it wanted to be. It was doing lots of things…. This comes from the very leader of the organization, Bette, who—every day there's a priority and a new idea. And so this chaos that surrounds her is what the organization is. 'Cause when Bette picks up the phone and says, "Oh my gosh, I was just driving down, you know, 157th Street and there's plastic bags in the trees. Stop everything and get everybody up there." Now we're focused on plastic bags and then the next day it's something else. And so that's kind of how that organization worked…. NYRP is doing too many things instead of being really good at two things (respondent 35).

The announcement surprised many of the long time staff of NYRP as well as staff at DPR, who did not view NYRP as having a forestry agenda or expertise. At the same time, Midler found support and enthusiasm for her idea in NYRP's newly-hired Executive Director, Drew Becher, who saw the potential for the campaign to transform the organization (respondents 13, 27, 55, 62).

Midler's celebrity offered her a platform for courting donors, attracting media attention, raising funds and—most relevant to the discussion at hand—gaining audience with officials at the levers of power. One respondent noted, "Bette can definitely pick up the phone and talk to the mayor" (respondent 35). In this case, those public officials were equally eager to engage with high-powered outsiders, according to one respondent:

> Well I think it has a lot to do with Bette [Midler]'s personality. A lot to do with Adrian [Benepe, DPR Commissioner]'s personality and a lot to do with the mayor's personality…. I mean Adrian grew up in the time that Parks [formed public-private partnerships], through the work of the Central Park Conservancy. So he was a great student of understanding what it takes. That both sides have to give a lot, right? Partnerships don't work unless they're very, very close…. Bette is a very emotional, very strong willed, very driven person who early-on realized that if she wanted to get something really effective [done], she needed to work closely with Adrian. And they spent a lot of time together in the very early days talking about what she wanted to do. And I think in those early days they bonded in a way that they just knew that in their hearts they always met for the right

> thing, even if sometimes everything didn't go swimmingly. And then you look at the mayor…who has really accessed celebrity and private citizens to do unbelievable work in New York City. So, right now, his new Young Men's Initiative that's going on in the city is, I think, fifty percent funded by George Soros. He just has access to really extraordinary people and he works really smartly about how to get them involved. And so it has to do with those individual personalities (respondent 10).

The sequence of what exactly transpired between the announcement at the NYRP picnic and the formal announcement of NYRP as a partner in the MillionTreesNYC campaign remains murky, but it centers on some high level contact between Midler and City Hall (respondents 10, 15, 22, 27). One subject claimed that Midler and Becher found an audience with Deputy Mayor Patti Harris and made a pitch for NYRP's partnership with the City of New York in a million trees campaign (respondent 35). Media accounts portray Harris as one of the key gatekeepers to Bloomberg, as his right hand woman, and one whose opinion heavily influenced the mayor (Steinhauer 2005; Freedlander 2010). She is also noted for having close ties to the arts world—in part because of her role from 1983 to 1990 as Executive Director of the City's Art Commission—and for frequently offering private audience to celebrities (City of New York 2012b; Freedlander 2010). One respondent acknowledged the relationship between Becher and Harris, noting Harris' centrality to the story, albeit not always in the public view: "She's a big piece of this. In city government, Patti Harris does a lot outside of the transparency of the city. She knows a lot of people. She can direct resources towards programs that aren't [in the] city budget" (respondent 13).

Indeed, the story of the founding of MillionTreesNYC has become something of legend, albeit one with different overtones and connotations depending on one's position

and view of the partnership, as revealed by juxtaposing several quotes. First, a public agency bureaucrat:

> Bette certainly carries a certain gravitas, with her personality…. But legend goes that she sort of set this declaration at her spring picnic at NYRP's annual benefit and that that resonated. And the message was: "NYRP wants to step up to the plate and help the city do this [plant a million trees]" (respondent 15).

And another municipal employee:

> Then Bette Midler, who had been impressed by the Los Angeles Million Trees…the fact that Los Angeles was doing a Million Tree program that literally had nothing to do with New York, right? It was completely organic to L.A. They'd already declared a million trees. People were kind of laughing at it a little bit. But Better Midler spends half of the year in L.A… So she literally, out of the blue—I'm not even sure she spoke to anyone in Mayor Bloomberg's office—declared she was going to plant a million trees in New York City. And I think everyone's jaw dropped. And she was just saying, "I'm going to plant a million trees." She didn't have any basis for it. It was just a marketing gimmick, you know? Whereas we were really working towards quantifying not only how we would do it but what benefits and how you would actually achieve a goal that goes from stems to…tree cover. And so we had this kind of enormously complex planning process that all of a sudden was trumped by an announcement. She may have called Patti [Harris, First Deputy Mayor] before she announced. I don't know. But it was, "Oh my god. She's going to plant a million trees. We've got to get together." And how City Hall managed to do that is a story above us. It didn't happen at the Parks level (respondent 27).

And from a nonprofit employee:

> There's an often-told tale about how right at the time when Liam Kavanagh [First Deputy Commissioner at DPR] and Adrian Benepe were trying to speak to the value of trees as a fundamental part of a strategy to make a more sustainable city, it coincided with [NYRP]—specifically Bette Midler—being really interested in large scale tree plantings in high need neighborhoods specifically along the Harlem River. And the belief that no large-scale project like this could really be undertaken solely by the city alone…. But the whole idea was to bring in a robust private partner to partner with the mayor. And, let's face it: I think having a very high profile spokesperson on the private side like Bette Midler was significant in building the identity of Million Trees within the PlaNYC agenda and PlaNYC as a whole (respondent 10).

Following this declaration at the NYRP spring picnic and first meeting of leaders, the Mayor's Office, DPR, and NYRP began to work together to craft a shared tree planting

campaign. Respondents noted that it was Mayor Bloomberg and his staff, Benepe, Midler, and Becher—working initially via a closed-door process—who were crucial to this agreement (respondents 10, 13, 20, 22, 27, 35).

***The PlaNYC goals congeal***

The goals and initiatives[19] related to tree planting in PlaNYC reflect the multiple actors interested in tree planting and engaged in policymaking—including various organizational divisions within DPR and NYRP, as well as the multiple benefits associated with tree planting that were used to anchor and justify these investments. References to tree planting goals are made in the section of the plan devoted to open space, but also in sections focusing on water quality, air quality, and climate change. In the open space chapter, there is a goal to "re-imagine the public realm" (City of New York 2007: 36). Specific initiatives include the effort to "green the cityscape" with the goal of raising the street tree stocking level to 100% by planting an estimated 23,000 street trees / year, reflecting the argumentation and claim-making of the CFH division, which controls street tree planting.

It is important to note that DPR is a complex agency consisting of numerous, fairly autonomous divisions. So, while CFH was making its arguments for why the city should enhance investments in tree planting, other divisions (such as Community Outreach, Capital Projects, NRG, Planning, and Parklands) were making their own claims. Indeed, the most heavily emphasized goal for the open space chapter is that every New Yorker should live within a 10 minute walk of a park. This goal became the

[19] The plan includes 127 stated initiatives, which are grouped into the goals that these initiatives help to achieve, and goals are further grouped thematically into chapters.

way that PlaNYC packaged up a wide range of initiatives developed with leadership from the then-head of the Community Outreach division. This decision-maker saw the potential for trees (particularly when used concurrently with bike lanes and other redesigns to the public right of way, or PROW) to serve as *connectors* between larger parks sites, with tree pits being essentially "the smallest parks in the system" (respondent 41). The 10 minute walk to park goal, however, emerged independently from the analysis and internal advocacy that the CFH division was doing related to increasing the tree planting commitment of DPR (respondents 27, 41, 47).

In the chapter on air quality, there is a goal of "[pursuing] natural solutions to improve air quality" via several initiatives and the map of tree canopy ratios by neighborhood is presented (City of New York 2007: 121, 128). First, PlaNYC aims to "capture the benefits of the open space plan". This initiative reiterates the commitment to 100% street tree stocking level, but also: (1) commits to revising the zoning code such that developers of new buildings or major renovations have to install one new street tree for every 25 feet of street frontage; and (2) provides an additional $17 million per year for additional 12,500 street tree plantings in TPH neighborhoods. A second initiative of this goal commits to reforesting 2,000 acres of land citywide, building on the prior work of the DPR NRG division and will be further described in the chapter 5 section on implementation (City of New York 2007: 128). Third, an initiative commits to "increase tree planting on lots" and specifically mentions planting a million trees as follows:

> We will partner with stakeholders to help plant one million trees by 2017. The City will work with community, non-profit, and corporate partners on a 10-year goal to plant trees on private residential, institutional, and vacant land properties in order to achieve our goal to plant one million trees. The City and its partners will focus on areas whose natural environments have borne the brunt of past City

> policies, and neighborhoods with few green spaces (City of New York 2007: 129).

A decision-maker at DPR went so far as to call the million trees reference 'an accident':

> So, because we had a long standing relationship [with NYRP] and because the City…hadn't committed to a million trees at the time—but was moving in that direction, we started talking about how could we partner and what would it look like to work together to plant a million trees in New York City. But the actual million trees goal got into the PlaNYC, I think, by accident. I don't think the City was really…prepared to commit to a million trees. But it got put into the document and no one caught it. I really believe that to be the case. The goal to plant a lot of trees in New York City was in there. That was solidly in there. It wasn't defined as a million trees…. I think that sort of snuck through the editing process to tell you the truth, because I don't believe that, my recollection was that nobody had…formally committed to: "yes, we are going to plant a million trees with this organization" (respondent 47).

This explanation of an 'accidental goal' is *not* corroborated by other respondents, who described the use of meticulous review and accounting for every goal by the mayor's staff as well as the use of a single writer in the later versions of the plan to help edit the document into one coherent voice (respondents 26, 41). Nonetheless, there is certainly a sense that the NYRP / million trees goal came in at a late hour and altered the course of goal setting that DPR and City Hall had been pursuing. And one can contrast the way in which the million trees aim is threaded throughout several goals and the NYRP partner is not explicitly named—as compared to the 10 minute walk to park goal, which is placed on center-stage and highlighted on the cover of the open space section of the plan. Despite this, once the MillionTreesNYC campaign was announced and the plan was launched, there was no hairsplitting over origins or past histories of goals. MillionTreesNYC was visibly branded as a mayoral initiative and one of 127 initiatives in PlaNYC (respondents 22, 24, 35, 49; ICLEI 2010b). See Table 4.1 for a list of tree-related initiatives in PlaNYC.

Table 4.1: Tree related initiatives in PlaNYC
Source: (City of New York 2007, compiled by author)

| Chapter | Goal | Initiative | Target actions |
|---|---|---|---|
| Open Space | Re-imagine the public realm | Green the cityscape | • Raise street tree stocking level to 100% by planting approximately 23,000 additional trees annually (p38)<br>• Expand the Greenstreets program by undertaking 40 new projects every planting season, bringing citywide total to more than 3000 by 2030 (p38) |
| Water Quality | Pursue proven solutions to prevent stormwater from entering the system | Capture the benefits of our open space plan | • Expand the Greenstreets program<br>• Increase the number of trees in the city by one million (p57) |
| | Expand, track, and analyze new Best Management Practices (BMPs) on a broad scale | Pilot promising BMPs | • Plant trees with improved pit designs (p59) |
| | Expand, track, and analyze new Best Management Practices (BMPs) on a broad scale | Require greening of parking lots | • Modify zoning resolution to include design guidelines for off-street parking lots that includes trees and landscaping (p60) |
| Air Quality | Pursue natural solutions to improve air quality | Capture the benefits of the open space plan | • Support street tree planting by revising zoning code to require new construction and major redevelopment to plant one street tree/25 sq ft of frontage<br>• Prioritize planting in neighborhoods with lowest stocking levels and highest air quality concerns (p128) |
| | Pursue natural solutions to improve air quality | Increase tree planting on lots | • Reforest approximately 2,000 acres of parkland by 2017 at cost of $117 million (p128)<br>• Partner with stakeholders to help pant one million trees by 2017 (p129) |

***Whither the public?***

PlaNYC emerged out of several years of internal agency negotiation, as well as some engagement with select nonprofits, leading to carefully wrought goals and initiatives. As such, it is no surprise that the process was seen by some as secretive or closed, and broader public input on the plan was seen as token or after the fact (Angotti 2010a; Finn and McCormick 2011; Barrett 2007; Mandelbaum 2007; respondents 28, 41, 52). Indeed, one subject who was involved in the process from the early days of the Doctoroff-led strategic planning through to the release of the official plan stated that city agencies and City Hall worked on goal setting for two years prior to the first public announcement (respondent 26). Another bureaucrat corroborated in stark language:

> This was an *in house* enterprise…. It wasn't "the grassroots". The public was *not* involved. And then probably a year in, there was probably sometime in 2006 that the public was finally allowed in. By that time all of the stuff that we did, we had already done. That's the reality… And frankly if we hadn't, I'm not sure how far we would have gotten with the whole enterprise…. Planning is almost impossible in New York City (respondent 41).

Focusing on the hyper-local politics of community boards and the way in which neighborhood residents can oppose amenities that serve more diffuse publics (such as bike lanes), this bureaucrat argued that the internal agency discussion was effective at avoiding these blockages and was efficient in pursuing citywide aims (respondent 41). The quick timeline and lack of broader public involvement is also attributed to City Hall's goal of pushing the plan through during Bloomberg's term. More time became available after Bloomberg pushed for overriding existing term limits to run for a third term, and the city council passed a law extending the number of terms that Bloomberg could hold (ICLEI 2010b).

Even when outside (non-governmental) input was formally institutionalized into PlaNYC, as in the case of the Sustainability Advisory Board (SAB) or consultation with select nonprofits, these groups played little role in setting tree-related goals. Because of the clear leadership and expertise of DPR in the PlaNYC goal setting process, respondents noted that the SAB played little role in crafting the forestry agenda.

> So NYRP was involved in…extended stakeholder discussions that [the City] did. We had the Sustainability Advisory Board; there isn't actually anyone who's a pure, parks advocate on the SAB. But we had a less intense round of discussions with various advocates from various other fields. Parks was one of these and there was -- New Yorkers for Parks was there, TPL was there, NYRP was there…. So we did essentially two rounds of that. We did one where we were asking all of the advocates what their issues and ideas were. So, basically the first was completely getting input: "So here is the mission, a twenty year plan of the City, what do you think ought to be in it with respect to parks?" And then the second was going back and testing the ideas that were emerging…. I imagine that there were other conversations that had already taken place because by that point. Literally by the time I [became involved], canopy cover was already being worked on. [DPR's draft goals] were quite close. I mean, the only major change, I think, between some of the earlier sketches –well, there were two. One was the switch from a canopy target to a tree planting target. The other was the addition of the regional parks. But it is fair to say that aside from that the Parks chapter changed relatively little (respondent 49).

Beyond this discussion, none of my interviewees mentioned *any* role by the PlaNYC SAB in influencing or shaping goals related to tree planting. Overall, these attitudes reflect the way in which PlaNYC was truly an executive-led strategic plan, rather than a publicly vetted and ratified city plan.

After the internal agency work was complete, a six month public outreach and engagement process was held, beginning with an announcement in December 2006 of the ten main goals of PlaNYC, followed by a series of community listening sessions, in-person meetings, and digital fora as described above in Chapter 3 (ICLEI 2010b). One respondent described this process as an "unveiling, simultaneously to a lot of different

constituencies: the press and the public at the same time and the special interest public" (respondent 41). This process has been critiqued as overly one-sided and lacking opportunities for meaningful involvement (Angotti 2010a). At the same time, one respondent felt that environmental advocates were so excited to have their concerns acknowledged by a high-profile mayoral initiative that the response to PlaNYC was predominantly positive:

> I remember at the announcement… We invited all these environmental groups. And during the speech, people were crying. They were so happy. They were like, "This has never happened before"—where they had submitted ideas and then so many resources were dedicated to it. And then the mayor was saying all the right things, like, "These should be the long term goals for the city…" (respondent 26).

In essence, the public engagement on the tree planting and open space goals served to help get the word out about PlaNYC early on to those who were most inclined to care about the matter, and perhaps to suggest minor discursive shifts in how issues were presented, but not to substantively shift those goals. Following these public discussion sessions, announcements were held for both MillionTreesNYC as well as the release of PlaNYC. Some argue that the MillionTreesNYC campaign was used to help cement stronger public buy-in for the overall plan. In fact, the million trees goal was released to reporters one day in advance of the public release of PlaNYC on April 22, 2007 (Rivera 2007). The tree planting goal was viewed as a 'feel good' issue, in sharp contrast to the political divisiveness of goals like the failed attempt at congestion pricing (ICLEI, 2010; respondents 13, 23, 28).

**Constructing the campaign**

Once sustainability goals are set, how are formal collaborative governance arrangements institutionalized and how are resources mobilized towards those goals?

The MillionTreesNYC campaign was publicly launched as a joint effort on October 9, 2007 (see Figure 4.2). Leaders created and burnished narrative frames about the rationale behind the million trees goal, the importance of planting trees in the city, and the ways in which the campaign would be implemented. A public-private partnership was institutionalized through a formal MOU, joint messaging and branding, and regular contact between leaders and staff across the two sides of the campaign. Municipal funding was committed and private sector dollars were courted and received, leading to staffing increases at both DPR and NYRP. Fundamental differences in size, capacities, mission, and governance between the two sides created both opportunities for productive synergies as well as tension and challenges that tested the partnership. With the numeric goal at the heart of the campaign, counting practices were developed to track, analyze, and publicize progress toward the goal.

Figure 4.2: Photo of leaders of the MillionTreesNYC campaign at the 2007 public launch


From left to right: Drew Becher, former Executive Director, NYRP; Adrian Benepe, former Commissioner, DPR; Michael Bloomberg, Mayor of the City of New York; Bette Midler, founder of NYRP; Patricia Harris, First Deputy Mayor of the City of New York. Source: Malcolm Pinckney, DPR

***Discursive framing***

The move from DPR and the Forest Service's percentage canopy cover goal to the PlaNYC goal of planting one million trees was a significant discursive shift brought about by multiple forces. First, Mayor's Office staff members were skeptical that a 30% goal was achievable in the highly developed built environment of New York City and wanted to set a different mark. Having run various analyses, they found 27-28% to be achievable, but not 30%; and they did not want to set a goal that they could not meet (respondent 49; ICLEI 2010b). Moreover, they believed that a simple numeric goal would be more legible and trackable by the public as well as by managers evaluating the progress of the effort (respondents 24, 26). One interviewee said "We're on the same page [NYRP and DPR], but we think having a million trees is a better way to do it from the public's standpoint, 'cause no one knows what the hell tree canopy is" (respondent 35); another called a million trees a "sexy number" (respondent 48); another acknowledged "It's also a nice round number just in terms of marketing and branding" (respondent 1). The large size of the number allows the administration to claim that it is doing something significant in a way that is easy to grasp by the public (respondent 51). Second, as just discussed, relationships between public decision-makers and Midler gave her access to pitch her 'vision' of one million trees at the highest levels in city government. Finally, scientific ambiguity around tree survival and growth rates in the complex urban landscape, as well as the degree of error inherent to remotely sensed imagery made precise future canopy calculations challenging (respondent 26). Responding to all of these concerns, DPR staff made 'back of the envelope' calculations – which Flyvbjerg (1998) might call 'rationalizations'—to show that one million new

trees were roughly equivalent to the 6% canopy increase that the city sought to achieve (respondent 27).

With the million tree goal firmly set, the campaign utilized an environmental discourse that treats trees as a form of 'green infrastructure' that supports livable neighborhoods.[20] Thinking about trees as infrastructure squares with PlaNYC's status as a mayoral-led planning initiative designed to efficiently address the needs of a growing city through investments in parks, transportation, housing, and energy (respondents 13, 26, 28, 35, 36, 41, 46, 47, 49). It can also be considered as a strategy used by the entrepreneurial city to compete with other cities for business and residents (Harvey 1989; see also respondents 26, 49, 52). When asked about the rationale for planting a million trees in the city, numerous respondents expressed this sense that trees can help mitigate some of the negative side effects of a growing city, can make the city a more livable, sustainable, and competitive place, and are an integral part of a green matrix that includes parks, forests, waterfronts, and other open spaces (respondents 1, 4, 10, 11, 15, 20, 22, 27, 28, 35, 36). Effectively, the leaders and stakeholders of the campaign that I interviewed were 'on message' with the claims put forth in the PlaNYC document and aligned themselves with a flexible and broad urban sustainability 'master frame' (see, for example, Snow and Benford 1992). A brief excerpt from the campaign's website is instructive:

[20] Within municipal agencies of the City of New York, the term 'green infrastructure' is often used to refer to landscape interventions that help improve water quality by retaining water and mitigating combined sewer overflow. Following in the tradition of the EPA definition of the term, green infrastructure is an alternative to traditional 'grey infrastructure' used in storm water management; and the term is central to the 2010 DEP Green Infrastructure Plan. The original PlaNYC document did not cast much of the tree planting as 'green infrastructure' per se, though the PlaNYC 2.0 update did show DPR and DEP efforts as linked. In environmental management circles more broadly, the term can refer to any natural infrastructural technology or solution that also provides ecosystem benefits (including climate adaptation, mitigating urban heat island, food provisioning, and more). I use the term here in this broader sense.

> Why Plant a Million Trees?
> New York City is **growing**! You can see it—and **feel** it—in every neighborhood in every borough. It's exciting, and it's what makes New York the greatest city in the world. But, like in any thriving metropolis, it's important to make sure the Big Apple and its residents—meaning **you**!—are healthy and happy while adjusting to the growth and the many changes it will bring with it.
>
> Planting trees is one of the most beneficial [links to a page about environmental, economic, and health/lifestyle benefits of the urban forest] and cost-effective ways to help ease these growing pains. Trees help clean our air, and reduce the pollutants that trigger asthma attacks and exacerbate other respiratory diseases. They cool our streets, sidewalks, and homes on hot summer days. Trees increase property value, and encourage neighborhood revitalization. And trees make our City an even more beautiful and comfortable place to live, work, and visit (MillionTreesNYC 2010, emphasis original).

The campaign starts from an assertion that one million more trees are *good* for the city, citing research about the multiple benefits of the urban forest, as discussed above. These benefits were quantified monetarily, with a particular emphasis on increases in property value. This discourse fits with a neoliberal understanding of the urban forest as an amenity that creates value for landowners and that gets harnessed into image-making of the city as 'green' (Heynen and Perkins 2007; Perkins 2009).

Nonetheless, it is important not to discount the narrative themes of: ecosystem health and restoration; human health; and quality of life benefits—including more intangible benefits like beauty and neighborhood aesthetics—that the campaign leveraged (respondents 1, 7, 10, 20, 26, 30, 36, 46). One manager reflected on both the discourse of the growing city as well as the changing understanding of the importance of trees, with both entwined in the rationale behind the campaign:

> I guess, I mean, the party line is we're going to have a ridiculous number of additional people in the city between now and 2030. And we have a limited amount of space to work with and we need all those people. Or we would prefer that all of those people live in healthy conditions that are stable, engaging and that provide the services to support that amount of life. But in addition to that there's a growing recognition of the value of nature and natural systems. And the ways

> that those can be better incorporated with grey or human systems—built structures (respondent 36).

A large scale print ad campaign from MillionTreesNYC featured images of trees and people in the city, touting trees as *'Zen masters'* ("*Trees do more than you think. They promote relaxation and fitness, enhance our emotional and mental health, and even encourage us to drive a little slower") and 'exercise partners' ("Trees do more than you think. While protecting us from the sun, they encourage outdoor play and exercise – helping in our fight against obesity").* While city leaders may have been convinced by economic arguments, part of the success of the campaign comes from its flexible discourse that is broad enough to incorporate diverse sets of actors with very distinct motivations to help support and implement the campaign. One respondent explicitly noted the strategic nature of this claims-making:

> It's saving energy and shading children on playgrounds when you're talking to funder X. And that's the message at that point. It's connectivity of habitat and bio-diversity for funder Y. And then for funder Z, it's connecting people to nature (respondent 13).

Less skeptically, another leader of the initiative described this flexible messaging and rationale:

> The big reason for doing Million Trees is to create a better New York City. It is an attempt to create this essential piece of infrastructure that will provide an array of benefits across financial, air quality, storm water, and emotional sectors or impact areas. And you can think about the tree as being this focal point for an array of different sorts of problem areas in any given community. Part of what I find exciting about my job is being able to talk about trees and relate it to such a…diverse set of interest areas for the audience that I meet with. Kids. Crime. People who care about water. People who care about dogs. People who care about senior citizens. I think that the tree provides such an interesting foundation for…expansion on so many different issues (respondent 15).

The campaign also traded in visual imagery, such as renderings of blocks before and after block-wide tree planting, to help demonstrate the transformative aesthetic effects of trees

on the streetscape (respondent 51). Less often, but still mentioned, was the way in which trees can serve as catalysts for fostering community engagement (respondents 1, 20).

Finally, although not foregrounded in public messaging of the campaign, leaders of the campaign brought a sense of distributional justice to the implementation of the campaign, as will be further discussed in chapter 5. This same sense of distributional equity across geographic space was also present in the most visible open space goal of PlaNYC –that all New Yorkers should be within a 10 minute walk of a park (respondent 15). One respondent reflected on PlaNYC's progression from goals related to attracting elites to goals serving all residents:

> I think with street trees it's actually a perfect example because…it starts out with an elitist idea to a certain extent that says, "Well, our streets ought to be attractive, we want our property values to go up, and we know…about the property value impact of street trees"…. So it starts out with a bit of an elitist idea, but then when you look at it and…we started doing the math [with DPR] about where there were and were not street trees, it became clear that this was an initiative that was actually as much or more about environmental justice as it was about creating elite property values. And so once we set the goal that says, "Look, every place that it is feasible to put a sidewalk tree, we would like to put a sidewalk tree" you immediately have a policy that fills in the valleys. And, frankly, there aren't that many places on the Upper East Side that you can put more street trees, but there are lots of places in the South Bronx. And so it was one of these things that turned a transition from a hard infrastructure plan into a sustainability plan, and an elitist, global competitive story into a quality of life-for-all story, is to my mind a lot of the magic of what we did (respondent 49).

The belief that everyone deserves access to clean, green neighborhoods was also one of the core driving forces behind Midler's creation of NYRP (respondents 35, 62). Thus, the organization was committed to greening in "high need neighborhoods" (respondent 10, see also respondent 11). And DPR bureaucrats were cognizant of the way in which the urban forest had developed unevenly over the course of the past several decades, and

saw this large scale campaign as a chance to correct this inequality, aiming to plant 'every available street tree planting location', beginning first with the areas that were most lacking in trees. One respondent noted:

> The narrative, I think, has changed a little bit. But initially it was like: a chicken in every pot. Get a tree everywhere in the city, that's our goal. Fiona's goal is just to blanket the city with these trees and have them survive (respondent 28).

Even when managers didn't use the language of 'justice', they sought to have a defensible rationale that they could present to the public for why they planted in what places and in what sequence (respondents 4, 27). It is notable, however, that scales beyond New York City were largely disregarded—with the exception of an emphasis on shifting toward using regional, native, tree and seed stock. The sense of justice advanced through the campaign is geographically delimited to the local, because of its origins in municipal policy and local civil society.

***Public-private partnership***

The strategy of using public-private partnerships to advance its aims is one "hallmark of the Bloomberg administration" (respondent 24). In particular, one respondent noted that Bloomberg's experience on the board of the Central Park Conservancy, one of the oldest and most successful public-private partnerships in urban park management, might have predisposed him to consider this form for MillionTreesNYC (respondent 41). However, such an arrangement is not easy; it is wrought through a carefully negotiated and ongoing series of compromises. One respondent noted that the commitment to the MillionTreesNYC partnership begins at the top, making an analogy to a 'marriage':

> That said, it's a marriage and, like all marriages, they all have their quirky sort of balances of power... I can't say they always have a great time. It varies a lot between who is head of the organization…on the public side and who is head of the organization on the private side—how those two individuals can work together and lead the trustees and the other departments of the city to work in collaboration. And sometimes that's a great fit and it works really well. Sometimes it can be a little bit of a chafe and it's not so good. But overall, I think, the key thing here is that Bette Midler and Parks Commissioner Adrian Benepe and the mayor have always been really interested in working together. And as a result, even if some disagreements occurred, there's always been a certain amount of trust and respect that has existed between the Parks Commissioner and Bette Midler, so that we can weather all kinds of ups and downs (respondent 10).

Next I examine the rationale behind this 'marriage' in terms of the anticipated benefits, followed by the formalization and institutionalization of the partnership, along with some of the challenges experienced.

The creation of a public-private partnership between the City of New York and NYRP was viewed as a way to make the tree planting goals actionable. The merging of these two institutions would leverage each of their assets to support the campaign (respondents 20, 47). In an ideal view, the bureaucratic expertise and economies of scale of the large municipal agency is balanced by the nimble innovation of the professionalized nonprofit organization. First, DPR brought its long track record of large-scale street tree and park tree planting as well as 'natural areas' forest restoration work. This track record included institutionalized systems for sourcing, purchasing, transporting, installing, and maintaining trees in collaboration with a network of private contractors (further described in chapter 5) (respondents 1, 2, 4, 5, 17, 18, 27, 36, 47). Second, NYRP brought access to corporate and individual funders that were not as easily accessed by DPR—despite the existence of nonprofit fundraising entities closely affiliated with the City, including the City Parks Foundation and the Mayor's Fund

(respondents 1, 22, 24). Third, NYRP was recognized for its savvy with marketing, PR, and outreach campaigns—and for being nimble in its communications, innovation, and speed of change in ways that a city agency could not be (respondents 26, 27, 11). Finally, the ability to plant on both public and private lands (via the City and NYRP, respectively) was required in order to meet the ambitious tree planting goal (respondents 1, 4, 15, 27). One respondent summarized his views of the benefits of the partnership:

> Well the benefits, I think, are obvious. We can do things that they can't and they can do things we can't. And since we're ultimately sharing the same goal, we've been able to leverage each other's strengths to support the broader goal of planting a million trees. So, NYRP…because they're not a government agency, they have a lot more latitude as to how they do things, who they do them with, what money they spend, how they organize and produce things. And they really did a great job of attracting corporations, influential people to the MillionTrees campaign…. They've made MillionTrees part of the NYRP's fundraising events, which exposes it to a very different audience than we at the Parks Department usually deal with.
>
> And at the same time, [DPR], because… [of] the funding that we receive for MillionTrees and our staffing, we have enormous capacity to plant trees. So we can procure high quality diverse species and get them into the ground very efficiently. And because we own most of the land that is suitable for planting lots of trees, it eliminates a lot of red tape, hurdles, problems that are inherent in planting on other people's properties (respondent 47).

DPR and NYRP established formal and informal linkages between two institutionally and culturally distinct organizations in support of the campaign. One of their first formal agreements was to develop an MOU that articulated both the broad spirit of and the specific terms behind the partnership (respondents 15, 35, 22, 41). Signed in September 2008, it articulated goals, roles, and responsibilities related to "tree planting and care, education and outreach, marketing and public relations, urban forestry research and program evaluation" (MTNYC MOU 2008: 2). In terms of planting goals, the MOU specifies that DPR will plant street trees and on DPR land, while NYRP will plant on

private land, housing campuses (NYCHA grounds), certain schoolyards and playgrounds, and other "publicly accessible private lands" (MTNYC MOU 2009: 4). Although not written into the text of the MOU, respondents stated that partners agreed on an explicit ratio of planting that the two groups would achieve, which changed over time:

> When we launched, we said that 60% of the trees would be planted by the Parks Department on Parks' property and 40% would be planted in the private sector. What that 40% included, though, was 10%, or about 100,000 trees, that we expect to be planted on other [city] agencies' [land]. So we've since shifted the way we think about other agencies and lumped that 10% back into the Parks Department as another city agency. So, in essence, we've just said that the Parks Department is responsible for all city trees whether it's Parks Department property or not, we are leading the charge with 700,000 trees planted by the city….
>
> A lot of the trees coming from other agencies actually come through our door through permits. So if, for example, DOT has a major capital construction and they want to plant street trees, they get approval through us… So we…have those relationships and that infrastructure set up already to sort of capture all of that data (respondent 15).

Essentially, the planned split of 60% DPR and 40% NYRP planting shifted to 70% DPR and 30% NYRP.[21] The MOU also established a $35 million fundraising goal for the campaign for NYRP (MTNYC MOU 2008: 7). It is worth noting that the MOU is merely a formalized, written agreement; it is not legally binding (respondent 22). Nonetheless, it is clear that the shared governance of the campaign is based on formalized agreements and not just informal networks of reciprocity or trust described in the idealized version of 'network governance' (see Davies 2011).

[21] One respondent said this shift was due to changes in accounting and responsibility for trees planted on other municipal agencies' lands—which had previously been a 'grey area' in the campaign. Another said it was due to a decrease in NYRP's responsibility for planting on private lands, which DPR could absorb in increased reforestation plantings. In part, this was due to the realization by NYRP that their direct planting practices were much more costly to execute than they had anticipated. Whatever the rationale, it led to decreased planting responsibility for NYRP in the end. After these changes, DPR was responsible for planting 700,000 trees and NYRP was responsible for 'planting' 300,000 total trees – 100,000 through direct planting and tree giveaways, and 200,000 through 'influence plantings' carried out by others, as will be discussed in the implementation section in chapter 5 (respondents 13, 15, 35, 47).

Both parties routinized their contact through a number of means: constant email contact, monthly tree operations meetings about planting decisions, biweekly meetings between the directors of MillionTreesNYC at DPR and NYRP, and biweekly joint meetings called the MillionTreesNYC Taskforce (respondents 22, 15). Some respondents saw the Taskforce an important means of communication, but others argued that these meetings consisted of 'reporting back' tree planting metrics rather than making joint decisions (respondents 13, 15, 22, 35). Despite this contact, a respondent levelled the critique that MillionTreesNYC was a strained—even divided—partnership:

> The first and most important challenge was, despite my cries and pleas, that we had two teams running one program. And that is the crux of every problem that that initiative faced. [DPR was] doing things in their office and had their own set of priorities and were having their own set of conversations with funders and partners and other government agencies. And then you had NYRP doing the same thing…. I mean, if you have a football team and you have two sets of coaches giving directions…it's a joke.
>
> I viewed Parks as my friend. There were others in NYRP that viewed Parks as the enemy. And that went all the way to leadership. And so there was lots of distrust, undermining. And I would say from both sides, it played out. It wasn't just in NYRP. I mean, there were issues on the Parks side as well, but I just think from day one because we had two separate…groups running these programs and would come together and almost pretend that we were working in partnership. But then would go off and not live up to that partnership (respondent 35).

Despite their deeply entwined relations, the two sides remained functionally autonomous and differed in mandate. One interviewee discussed DPR's higher level of accountability to citizens:

> [NYRP] doesn't have that same obligation to provide…public service for the city. I mean yes, that's what they're doing. They're providing a service. But it's not at all the same level of accountability. Like the city is accountable at the end of the day (respondent 15).

This sense of the public trust, public service, or accountability to the public was reiterated by several respondents as being crucial to DPR's ability to successfully meet the targets of the campaign (respondents 27, 28, 15). NYRP, in contrast, was motivated by a "moral obligation"—the passions, commitments, and interests of its founder (respondent 28, see also respondents 13, 25). One manager elaborated on these differences:

> I think basically [NYRP's] involvement is optional…. I mean they don't have to do anything. They get the credit no matter what they do…. Who's going to sit down and analyze who did what and who claimed what credit? And have they really met their goal? …. So I think [DPR is] held much more to account within the government structure partly 'cause it's public money. We're entrusted with this money and how we spend it is deeply important to how…we're perceived as well. You want to see public money being spent effectively and efficiently and not wasted. And that's part of the public trust (respondent 27).

These fundamental differences necessitated mutual learning:

> I think in this case the public-private partnership was a huge learning experience on both sides. I think that the private sector in New York is so strong, is so vibrant, is so engaged and is so able—in terms of attracting media attention and resources—that it is in many ways equal to…government. They can carry their own weight, which is something people started to realize most especially through PlaNYC and the MillionTrees campaign. Maybe they hadn't really understood that in the past. And that's a good thing. That's a good thing to humble oneself and say, "we can't do it alone and we need these partners" on the government side.
>
> And I think on the private sector side…there was also this tendency to say: "The government does it wrong. They're inefficient. Gosh, why didn't they think of that? This is so bureaucratic. We could do it easier. We could do it with more sensitivity and understanding and more community voice and diversity." And I think there was an awakening on the private sector side as well to understand how difficult it is to serve the public in such a comprehensive way. How many cooks are in the kitchen to plant a tree or to roll out a program of this size? And to maintain it and to service it because it's not like: 'plant tree, walk away'. There are all these other different components that are involved. And so I think there was learning on both ends and respect on both ends (respondent 28).

Others felt that the divide between the two sides was a result of differences in capacity and scale of the organizations. One interviewee discussed the different sizes of the partners:

> I mean, Million Trees is this two-headed monster sometimes in that we really work at creating a partnership so that there is a cohesive program being delivered. But a non-profit organization of eighty people or….whatever it is, it's significantly smaller than the thousands of employees that the Parks Department has, right? You have, on one side, a government agency with thousands of employees, huge infrastructure, sort of like military, para-military management. And then you have a non-profit organization that's much smaller in size that relies on outside entities to fund it… (respondent 15).

The learning curve and required upscaling was so large for NYRP (as will be discussed below) that it presented some challenges in the face of a demanding, metrics-driven, mayoral priority. Even when DPR provided NYRP with technical assistance, resources, and training in urban forestry practices and implementation, the differences in capacity of these groups *as tree planting entities* were stark. Although NYRP was not selected as a partner because of its forestry expertise—rather, it was selected for savvy in fundraising, PR, and marketing, it fell short of DPR's expectations for its ability to successfully plant large quantities of trees, citywide, on a short timeline (respondents 26, 27, 35, 13, 20, 47). One leader critiqued NYRP's role, saying: "You know I think just from my own two cents, [NYRP was] much more strong on the marketing and education side. The branding side of things. I'm not sure they've actually done very much in terms of planting trees or even planting trees right…" (respondent 27). Framed another way, however, these differences can be seen as an opportunity:

> So you had people who really knew how to plant and grow trees in the city combined with people who really knew how to market and create a narrative about it…. And both groups had 'skin in the game'. They needed to prove to the mayor's office that they could produce. And if given a chance they would

> produce. And I think that was a really exciting moment for both these groups (respondent 28).

One interviewee described the core components to a successful partnership as being an alignment of ideals—which she felt was present—and adequate capacity on both sides—which faced some issues over the course of the campaign (respondent 26). Overall, DPR and NYRP differ in size, mission, institutional structure, governance, and capacity. Next I examine how both sides of the partnership responded to increased budgets and concurrent increases in staff associated with the campaign.

***Expanded funding– and organizational changes***

One of the key factors shaping DPR's intensity of commitment to the campaign—through staffing increases, aggressive timelines, and pace of planting--is the capital budget process. One interviewee in a leadership role offered a clear synthesis of the budgetary commitments and rules:

> So the Parks Department was given about five hundred million dollars in capital money. And what that means is: those are funds to be used for long term multi-year programs or expenses. So a new playground: that uses capital dollars. However, maintaining or painting a bench within a playground: that's expense dollars. So that's the dollars that are allocated to labor—the employees to do the maintenance work. So two separate pots of money…. Capital dollars cover anything that will last over—I think the criterion is seven years (respondent 15).

When asked about what kept DPR accountable to the goals of PlaNYC (and the million trees goal in particular), interviewees identified: employees' personal obligation, savvy leadership, hierarchical chain of command, frequent numeric reporting requirements on progress, but most importantly—the funding itself (respondents 20, 22, 26, 27, 28, 36, 41, 47). PlaNYC's capital commitments necessitated rapid progress on tree planting (respondents 22, 26, 27, 49). The text of PlaNYC specifies capital funds committed for

fiscal years 2008-2017 and operating (expense funds) for fiscal year 2008. It committed $226 million in capital for the street tree planting goal and $150 million for the forest restoration goal (NYC DPR 2011). It is important to note that many of the stated PlaNYC initiatives did *not* come with such massive budget increases attached; as an agency, overall, DPR received hundreds of millions of dollars to fund tree planting and park enhancements. Indeed, one respondent noted that this capital increase represented the largest increase to the DPR budget since the "WPA and Robert Moses era" of park development (respondent 15). An internal memo echoed this sentiment, saying "PlaNYC represents the most significant change in municipal urban greening since the Parks Department first funded citywide curbside tree planting under Robert Moses in 1934" (Watt 2007). For a full list of DPR funding from PlaNYC, see Table 4.2.

Table 4.2: DPR's PlaNYC Funding, with MillionTreesNYC-related capital funding in bold

| | |
|---|---|
| 8 regional parks | $386 million |
| 290 open schoolyards | $96 million |
| 36 field lighting sites | $42 million |
| 25 synthetic turf fields | $22 million |
| **800 greenstreets** | **$15 million** |
| **2,000 acres of new forest** | **$150 million** |
| **220,000 street trees** | **$226 million** |
| Total capital budget: | $906 million |
| | |
| 7-year pruning cycle | $2.7 million |
| Stump removal | $2.0 million |
| Maintenance staff (227) | $10.4 million |
| Total annual expense budget increase | $15.1 million |

Source: NYC DPR. 2011. "MillionTreesNYC-PlaNYC." Presentation. May 16, 2011.

There are challenges associated with using capital dollars committed over several fiscal years. One interviewee said that any funds in a capital budget allocated for future

years, but not yet spent, were “funny money” that could be lost at any time (respondent 41). Indeed, capital monies can be rescinded, and even projects already sent to contract or with work started can be halted based on decisions made by the Office of Management and Budget (OMB) and City Hall. In fact, the DPR NRG division, which is responsible for the forest restoration sites, initially failed to appropriately spend its capital resources and ended up losing $11 million out of their budget back to the OMB general fund (respondent 4). This failure, along with other challenges at NRG, led to large scale leadership reorganization within the division and, ultimately, to appending NRG to the existing CFH division to create a new division Central Forestry, Horticulture, and Natural Resources headed by Fiona Watt (respondents 4, 27). Other than this setback, DPR worked aggressively to allocate, spend, and utilize all the committed capital dollars each fiscal year. This was done with the knowledge that DPR’s budget is malleable and often receives cuts in the back and forth between the mayor and the city council, who are hesitant to make cuts to schools, police, or fire department services (respondents 26, 47)

Because the DPR bureaucrats understood this budgetary reality and appreciated the massive influx of resources they were due to receive under PlaNYC, they set about changing the tree procurement processes. In the past, DPR contacted with landscape firms to conduct street tree planting and it was these firms that were responsible for selecting and purchasing trees that met the city’s specifications (respondents 2, 16, 36). With the increase in scale of tree planting associated with PlaNYC, DPR set up direct contract-growing arrangements with regional nurseries. This was done in order to ensure adequate supply of trees of appropriate quality for the entirety of the campaign and to allow DPR to spend its capital budget quickly in large scale procurement contracts

(respondents 2, 4, 27, 36). This changed the actor-network involved in tree planting by placing DPR in more direct contact with the nursery industry, as will be further discussed in the chapter 5 section on implementation.

The increases to the budgets also translated to an ability to hire more staff –albeit in a not completely straightforward way. DPR, like many municipal agencies, is governed by a complex set of rules related to hiring city employees. Although capital funds are devoted to long-term capital improvements to the city, up to 10% of committed capital dollars can be used to fund staff to oversee design, contracts, and installation. Then, expense budgets are also used to hire staff (respondent 4). In addition, hiring municipal employees is a slow process, as is the reorganization that occurred to bring NRG into the CFH division, and to 'fill behind' positions after people left. Particularly noted was the departure of Assistant Commissioner Fiona Watt, whose vacancy had trickle-down effects throughout the agency for several planting seasons (respondent 4). Despite all of these complexities, DPR did have large staff increases – particularly in the street tree planting division, which went from a staff of less than ten to approximately 25 (respondent 2). They increased the number of staff foresters as well as the number of consultants working as contract supervisors (respondent 1). Following the fiscal crisis and economic downturn, hiring freezes were put in place across DPR in 2009, which affected the ability to fill behind positions of foresters in both the street tree and NRG divisions (respondents 18, 48) In addition, it is worth noting that the MillionTreesNYC office within DPR did not exist prior to PlaNYC – this division consisted of a full time director, deputy director, and project coordinator as well as a volunteer coordinator hired through AmeriCorps who later became a seasonal DPR employee (respondent 1).

Finally, shortly after the creation of PlaNYC, Susan Donoghue was hired to serve as the DPR liaison to the Office of Long Term Planning and Sustainability (OLTPS) and City Hall for all PlaNYC initiatives, with MillionTreesNYC as one of the key projects in that portfolio. Numerous respondents credited Donoghue with thoughtful leadership of DPR's PlaNYC efforts and playing an important role in communication related to MillionTreesNYC (respondents 10, 26, 35, 41, 46, 63).

On the NYRP side, this nonprofit found itself having to learn very rapidly how to serve as a citywide urban forestry organization, a role it had not previously filled. The organization's initial focus was on improving the quality of parks in Northern Manhattan (such as Fort Tryon Park, Fort Washington Park, and Highbridge Park), which was the direct result of Midler viewing these parks on her commute into and out of New York City via MetroNorth trains and the West Side Highway. Later, in the mid-1990s during the community garden crisis under Mayor Giuliani that is described in chapter 6, NYRP bought more than 50 gardens[22] that were going to go to auction as housing development sites, and thereby expanded the organization's focus (respondent 62). A staff member noted this organizational evolution and scalar jump:

> [MillionTreesNYC] was new for the organization. The scale was a lot larger…. We took care of one park in northern Manhattan. Then there was this scale of fifty-two community gardens in select neighborhoods. And then a forestry initiative across all five boroughs (respondent 13).

Another staff member corroborated:

> Now, truth be told, we had not planted that many trees before. So we were, in some ways, a very odd fit to the initiative. But in terms of the scale and the amount of knowledge that needed to be raised and the impact on the city, we grew

[22] The number of gardens purchased by NYRP varies in different reports, depending on how adjacent lots are counted. The number listed on NYRP's website is 52 gardens (http://www.nyrp.org/About - accessed on 19 October 2012).

> into that fairly successfully. But it was a big, big leap for this organization (respondent 10).

The engagement in tree planting was a bold step into new terrain, a jump in scale to citywide work, and also an opportunity to transform and grow the organization. Indeed, one respondent noted that the campaign brought the organization national attention and name recognition (respondent 62).

NYRP underwent massive structural/internal and tactical/external changes as a result of growth from MillionTreesNYC. The substantial changes took the form of: large-scale programmatic reorganization, hiring of numerous new staff, and a huge increase in budget. The organization went from a budget of $6 million to $13 million in the span of three years, from 2007- 2010, which is an astronomical leap for the nonprofit sector (respondent 62). One respondent estimated that NYRP added at least ten full time staff focused solely on MillionTreesNYC (respondent 35). As with any large organizational change, the transition was not particularly smooth. Some interviewees argued that the leadership did a poor job of informing both upward (to the board) and downward (to the staff) of the full implications of this campaign for the organization (respondents 13, 35, 55). The increased attention from funders and the public on MillionTreesNYC led to a reorganization of existing programs within NYRP:

> It was also the visibility around [MillionTreesNYC] and the resources. It was out there. People are donating money to it. And so it's resourced in a way that… We used to have boat building. We don't have that program anymore or other programs at NYRP…. It's more attractive to funders—tree planting, than gardens (respondent 13).

Overall, MillionTreesNYC "dramatically moved [NYRP] from being perceived as just a cleaning and greening organization to an organization that had become a little more sophisticated in terms of understanding policy and the impact that has on decision-

making" (respondent 62). With that maturation, came a change in how NYRP related to other organizations, including DPR:

> Well, I think it's safe to say that earlier on in our work we've had adversarial relationships with organizations that we also now have good relationships with, Parks Department being an example. When you're a young, arrogant organization and you go in and you do work without telling them and then you tell them later, or when you publicly say in the paper, "Well, Parks Department can't take care of it so we came in and saved the day," it's like saying to your neighbor, "Your yard looks awful so I am going to tell the whole neighborhood that we went in and cleaned it up for you. Do you like us now?" "Well, no, not so much. Don't call us out." (respondent 62).

One of the main roles of NYRP (and the Mayor's Fund) in the campaign was its link to outside funders. Examined as a positive asset, private resources can help to expand and supplement an ambitious campaign. Examined critically, the philanthropic community provides a funding source for a program that is less transparent or accountable, and is outside of public oversight budget review and approval processes (respondent 13). Called "the piggybank" by one interview subject, the Mayor's Fund's goal is to solicit private funding for city initiatives (respondent 13). While it was previously used infrequently for one-off cultural events, such as parades, it was significantly expanded in scope under Bloomberg because of his affinity for public-private partnerships (respondent 24). In this case, the rationale for having both NYRP and the Mayor's Fund involved was to be able to court and access the broadest suite of potential donors. Indeed, crucial to jump-starting the campaign was a $10 million funding commitment made in spring of 2008—first $5 million committed by Bloomberg on behalf of Bloomberg Philanthropies, which was then matched by $5 million from the David Rockefeller foundation (respondents 1, 10, 13, 15, 35). These donations reveal the role of the billionaire mayor as civic actor, who could bring external, *personal* resources

and networks to bear to help guarantee the success of his signature initiative. Those $10 million were given via the Mayor's Fund, which then distributed the funds primarily to NYRP for its direct-planting component of the campaign (respondents 15, 35). Finally, this funding is notable, given that MillionTreesNYC has not been particularly appealing to the foundation funding community (respondents 24, 13), because of the long term nature of the campaign and its straightforward focus on tree planting:

> I mean now that Million Trees is going on…[the] five hundred thousandth tree, four years…it sort of loses a little bit of its excitement. It's not brand new…. For NYRP, I think they were trying to use that five hundred thousandth tree as a hook to get more fundraisers on board because it is a little bit like old news at a certain point. So you need to keep it exciting…. This is not really a foundation ask. It's only really been a foundation ask for a specific [green jobs] training program. [Funders are] just more interested in the social service piece. And there has to be something…more discreet and tangible than "I'm just going to plant X trees." It's been really more appealing to corporate philanthropy (respondent 24).

Indeed, NYRP worked to develop relationships with corporate entities to support the campaign, and eventually secured the three 'lead' sponsors: Toyota, BNP Paribas, and Home Depot (respondents 1, 13, 15). In addition to making major donations, corporations were courted by both NYRP and DPR to engage in corporate volunteer tree planting days, as will be discussed in chapter 5 (respondent 62).

### *Counting practices*

Across all landscapes and institutions involved in MillionTreesNYC there is a consistent focus on counting, tracking, and reporting the number of trees planted. This is not surprising, given that the numeric goal is so tied to the identity—indeed, the name—of the effort and given the "metrics driven" nature of both the Bloomberg administration and philanthropic donors (respondent 35). The pressure to count was made more acute

by the fact that the campaign was time-delimited as a ten year effort from 2007-2017. Both DPR and NYRP staff working on MillionTreesNYC were acutely aware of an effective end date of 2014, which is when the change in mayoral administration occurs (respondents 1, 13, 41). One respondent said, "But it feels like…there's a ticker on Bloomberg's desk, you know? Next to revenues and cost are the million trees and he's watching each ticker turn, you know? If that thing isn't turning or on schedule, someone's going to hear about it" (respondent 13). This pressure reflects the reality of trying to make progress on a long-term sustainability plan with programs, goals, and impacts that stretch to 2030—but in the context of a mayoral term that lasts four years (respondents 26, 46, 50, 24). The fact that Bloomberg secured a third term—though mayors were previously term-limited to two terms—was politically controversial, but was lauded by leaders of the MillionTreesNYC campaign as giving the effort more time to achieve its goals under a supportive administration (respondent 4, 41).

This focus on counting disciplined both internal management and public relations of the campaign. Internal operations focused on this accounting daily, weekly, monthly, quarterly, annually, and over the lifetime of the campaign. Mechanisms used for this tracking included daily phone calls from NRG staff to the MillionTreesNYC office; weekly review of the DPR horticulture report by the MillionTreesNYC office; and reporting of contract supervisors on the number of trees planted by their contractors back to DPR (respondents 1, 36, 51). In addition, biweekly meetings between DPR and NYRP focused, in part, on tracking the number and location of trees planted. One of the program staff maintained a master spreadsheet tracking all of the trees "counted" toward the total tree planting figure. This figure included "direct plantings" by the campaign

partners; “tree giveaways” to homeowners and the public; and “influence plantings.” While any quantitative measurement includes some potential for error, the “influence” planting calculation was perhaps the most ambiguous, as it includes counts of the number of trees sold at area retailers, such as Home Depot and Lowes, and discounting that figure by 25%, to contribute it toward the tree planting total (respondent 1).

Public events and outreach strategies reinforced the focus on counting. For example, at the launch of the campaign, the first symbolic tree (planted with the help of Bloomberg, Midler, and Sesame Street’s Big Bird) was marked with an oversized tag counting it as ”one in a million” (See Figure 4.3). A digital ‘ticker’ counts the number of trees planted on the home page of the campaign’s website and people who plant trees on their own property are encouraged to register those trees online and contribute to the total count. The planting of the 500,000th tree on October 18, 2011 was celebrated with great fanfare (City of New York Press Release 2011b).

Figure 4.3: Photos of public counting practices


Left: trees planted at the campaign launch with tag reading “One in a Million.” Right: celebrating the 500,000th tree planted. Source: Left: Daniel Avila, DPR; Right: Malcolm Pinckney, DPR.

While this focus on counting helped ensure tree planting progress, it says nothing about the survival or condition of the trees, or the process by which they are planted. Trees that are planted by residents on private property are self-reported online and their condition is not verified in the field. In terms of trees planted by NYRP on publicly accessible private lands, interviewees stated that in the first few planting seasons of the campaign, before better operational routines had been developed, there was an over-emphasis on speed of planting (respondent 13, 24). Moreover, though the mission of MillionTreesNYC is "to plant *and care for* one million new trees" (emphasis added), focusing on the gross number of trees planted makes no claims about the net number of trees that survive. This is of particular note given the substantial contribution of NRG 'natural area' plantings to the total planting figure and the fact that forest growth and competition among plants naturally involves some tree mortality, which is both expected and planned for in the management of these sites (respondents 36, 48, 65). This led one natural resource manager to dispute the numeric goal,

> Well, where NRG comes in, it's pretty important for [the campaign] because we can plant so many trees, because [the trees are] smaller. So I think that [NRG plays] a pretty important role in the actual planting of a million trees…. Personally I feel like—obviously it looks really good to have a million trees get planted for the mayor. But from our budget point of view…I don't think that it was the smartest decision because we can't really *maintain* most of these trees very well… I mean, our mortality rates according to our statistics aren't terrible but a lot of sites don't do as well as they should. And most of the soil in New York City is fill soil. So I think …the smarter thing from an ecological point of view would have been to plant *not* a million trees and then just maintain the ones we did a little bit better…. Set a lower goal but then just get more *quality* out of that (respondent 48).

Thus, the metric for NRG sites might more appropriately be 'acres of forest treated/restored', but the numeric goal of trees planted carries over across all landscapes: street trees, park trees, forested areas, and private homes—even when the logic begins to

break down a bit for forested sites. Eventually, as the campaign matured, it revealed a progression from a focus primarily on planting to a larger emphasis on stewardship and maintenance. Respondents noted this in the case of NYRP as well as DPR, particularly through the creation of the Stewardship Corps (StewCorps), which will be further discussed in the chapter 5 section on stewardship (respondents 10, 11, 24).

## Chapter Five - City of forests: Planting and maintaining trees in the dynamic city

Picking up the narrative from the preceding chapter, this chapter describes how the actor-network of urban forestry in New York City was radically altered by the infusion of PlaNYC resources; the establishment of a numeric, time-delimited goal; and the creation and institutional configuration of the MillionTreesNYC partnership. First, I describe how DPR made dramatic changes to the material practices involved in planting street trees and reforesting parks, as compared to its prior practices. DPR used this opportunity to make adjustments to its tree procurement, planting, contract, and management practices and also helped effect changes to zoning rules related to street trees and trees in parking lots. Best practices were implemented, including increasing the default pit size in which trees are planted and greatly expanding the species palette that was used. Planting site selection underwent a shift from a solely request-based system that had previously led to an unevenly distributed urban forest, to coupling the individual request system with a block planting strategy. That block planting was concentrated in areas that were low in street tree stocking levels, demonstrating a commitment to environmental justice. Similarly, NYRP scaled up to have a citywide urban forestry campaign, whereas previously it focused on parks and gardens in a few targeted areas. NYRP forged relationships with corporate donors and volunteers, planted on 'non-traditional' sites such as New York City Housing Authority (NYCHA) public housing grounds, and engaged in large-scale marketing and tree giveaway campaigns.

Second, going beyond tree planting, MillionTreesNYC sought to be a holistic campaign that had an impact on education, stewardship, green jobs, research and

evaluation, public policy, and marketing related to urban forestry. These topics were pursued via Advisory Committee subcommittees that began to harness some of the broader network of individuals and institutions focused on supporting urban forestry citywide. This Advisory Committee presented an opportunity for groups to meaningfully engage, rather than to detract or criticize from the effort—as can sometimes occur in the competitive environment of the nonprofit environmental sector. It helped to coalesce a network of groups committed to the advancement of the campaign. MillionTreesNYC also sought to educate the public and cultivate civic engagement in the stewardship and maintenance of trees. While the campaign was not an example of devolved or participatory governance where power of decision-making is vested in citizens, it did attempt to build a constituency of allies for the urban forest and to harness their labor in its construction and care.

The chapter also examines how the actor-network changed over time throughout the implementation of MillionTreesNYC. Substantial changes to the campaign flowed from: the 2008 global economic recession; leadership turnover at both DPR and NYRP; and the maturation of the campaign. First, because of across-the-board municipal budget cuts, DPR reoriented its forest planting practices from relying entirely upon contractors and city employees to using a substantial contribution of volunteer labor. NYRP faced challenges in securing funding for a long-term campaign in the face of a competitive nonprofit fundraising environment. The PlaNYC 2.0 update in 2011 called on city agencies to “do more with less” by leveraging the resources of residents, civic groups, and state and federal agencies. Unlike the first iteration of the plan, this update did not involve the commitment of any additional capital expenditures. Responding to both the

necessity of the financial situation as well as the criticism that PlaNYC previously had failed to engage the public in its formulation, MillionTreesNYC attempted to solicit resident ideas and engagement through virtual and physical fora and stewardship opportunities. Second, just as strong leadership from the top characterized the initial formation of the campaign, so too did leadership changes alter the course of the campaign. Finally, as the campaign matured, it shifted in emphasis from an effort to plant as many trees as possible, to an emphasis on cultivating volunteer stewards and an engaged public, including through formalized programs like the Stewardship Corps. This approach serves the dual purpose of cutting costs via using volunteer labor as well as building a resident base of support for the campaign in the long term, particular through the next transition of the mayoral administration.

**Implementation: planting and stewardship**

Tree planting and maintenance is a complex assemblage of institutional guidelines, the built form of the city, the trees themselves, and the labor of people across public, private, and civic sectors. Understanding the way in which trees are planted and maintained in New York City requires examining differences in property jurisdiction (public lands, publicly accessible private lands, and private lands) and site type (public right of way or PROW, parks, institutional grounds, lawns, front/backyards). At the same time, all of the sites involve bureaucratic rationality and processes that shapes the stages of: site selection and prioritization; tree acquisition, selection, and delivery; site preparation before installation; oversight, supervision, counting, and reporting practices; and varying degrees of ongoing maintenance and stewardship. It is clear that these

practices engage numerous actors and actants in a network. Although there is a lead institutional entity (generally DPR), groups from all three sectors (public, private, civic) are enmeshed in the process, in both collaborative and conflicting ways. Moreover, the challenges related to site-selection and installation reflect the reality of altering a forest in the context of a highly developed, densely built environment. A forester quipped, "urban forestry is not forestry" in acknowledgement of the numerous challenges of infrastructural conflicts, human interactions, building shadows, and many types of traffic—pedestrian, bicycle, and vehicular (respondent17). Indeed, urban forestry is a highly professionalized practice with its own conventions, rules of thumb, and best practices, several of which will be explored here. This section examines how the urban forest is materially constructed across *street trees in the PROW*, so-called *'natural area' forested parks*, and *private lands*. I explore the formal processes and practices that DPR and NYRP have put in place to develop and manage the urban forest, as well as moments of slippage or complexity as these practices interact with the public and the built environment.[23]

***Street trees***

Public and nonprofit managers, private landowners, and individual residents interact to transform the PROW through the planting and maintenance of street trees as green infrastructure. DPR set a goal of planting 220,000 new street trees in the PROW over the course of the MillionTreesNYC campaign (respondent 2). CFH and the borough forestry divisions are the entities within DPR that are responsible for the management of street trees. At the outset of the campaign, DPR held a two-day conference and invited

[23] For a discussion of how trees as actants play a role in these practices, see Chapter 8.

dozens of experts in the worlds of arboriculture, horticulture, and open space management to advise the agency on best practices and approaches for such a large increase in tree planting efforts. Information gathered in this meeting was used to inform changes to tree procurement specifications, changes in standard planting practices, and training and guidelines for foresters (respondent 27). A series of internal memos from then-head of CFH, Fiona Watt, helped to formalize and shape the direction of the many changes to the street tree planting program that would cascade from the PlaNYC funding allocation. Foresters' work centers on *managing tree procurement contracts, responding to street tree planting requests, assessing tree planting sites,* and *monitoring private contractors' physical planting work,* and *removing trees* each of which will be examined in turn in order to understand the material construction of the urban forest.

Managing tree procurement

Starting in 2007 street trees are contract-grown specifically for the City of New York in several regional nurseries throughout the mid-Atlantic and eastern United States (Watt internal memo 2007; respondents 2, 30). The assemblage stretches even further geographically, as these nurseries receive their 'liners' (tree seedlings) from wholesale tree propagator farms, such as J. Frank Schmidt in Oregon (respondents 30, 13). While trees were once purchased on a season-by-season basis by tree planting contractors, now the nurseries have entered directly into a business relationship with the City of New York itself, and they are growing trees several years out, exactly to the specifications of the City (respondents 2, 16, 27, 30). Once starts are transplanted to the regional nurseries, they are grown in place for up to four years, during which time they are carefully

watered, treated with pesticides, trained to grow straight via staking, and are 'limbed up' so as not to have low-lying branches at street level that could be vandalized or interfere with sidewalk use (respondent 30). Species selection reflects ecological, aesthetic, and practical considerations. The list of acceptable tree species and cultivars that can be planted on New York City streets was significantly expanded post-PlaNYC, in an effort to enhance the biodiversity of the urban forest (respondent 2). In the case of fruiting and flowering trees, the City plants only male trees, in order to prevent dropping berries and fruits on city sidewalks. See Appendix 4 for list of acceptable species as of 2010.

DPR foresters make site visits to the nurseries to inspect, tag, and select the desired trees for that season, focusing on selecting a healthy and diverse group of trees (respondent 2). Once trees are sufficiently matured to a minimum 2.5" caliper size (the diameter of the tree 12" above the ground), the trees are excavated, their roots 'balled and burlapped' in a contained root ball and loaded onto flatbed tractor trailers for delivery to New York City; a single street tree contractor in Brooklyn reported receiving 30-50 truckloads of trees/season in fall 2011 (see Figure 5.1) (respondents 30, 18, 16). Hardiness and transportability are major factors in which species survive well in the urban forest (respondent 18). Moreover, a nurseryman noted that the older or larger a tree is, the more hardy it is to transportation, and the more likely it is to survive when transplanted to the street; however the limiting factor is cost. The larger the tree is, the harder it is to move and the more it costs to transport by truck. Overall, trees are grown in the nursery for about 3-4 years (respondent 30). At every stage, DPR oversight is built into the process, with foresters on site when trees are delivered to contractor yards and trees inspected for any damage that occurred en route or since trees were tagged at the

nursery (respondent 17). One respondent talked anthropomorphically about the care given to the trees:

> We deliver the trees…literally they're like children. It's being taken to a nursery school. While they're at school the other people are in charge of them. And they're ensuring them. And they have to feed them and bathe them and everything that's required. It's like handing off a treasure (respondent 27).

Planting seasons are concentrated in spring and fall, and expressly exclude only the months in which the ground is frozen (respondent 2).

Figure 5.1: Photos of street trees being delivered to contactors.

Left: trees arrive on a flatbed truck. Right: trees are 'balled and burlapped' for transportation. Source: photos by author.

Responding to tree requests

Prior to PlaNYC, DPR used a request-based system to select and prioritize tree planting sites. Planting requests are collected primarily via the city's centralized 311 call center, which produces reports that include the nature and location of the request. This system was set up by Bloomberg as part of his reorganization of city operations to focus on providing better services to residents as 'customers' (Brash 2011: 75; respondents 5, 48, 51). DPR also collects requests via phone, email, website, and letter from

individuals, civic and business groups, community boards, and city council members (respondents 1, 5). The rationale behind this request-based system is the assumption that a resident or group requesting a tree will have a greater likelihood of engaging in maintenance and tree stewardship practices, or at the very least will not be hostile to a tree (Watt internal memo 2007; respondents 4, 5). One unforeseen result, however, was the production of an uneven urban forest. This unevenness was rendered legible and visible in new ways through the data collected via DPR's Street Trees Census, and through the use of GIS mapping of 311 tree request calls and associated tree planting locations (Rae et al. 2010). DPR managers noted that certain neighborhoods (often more affluent and educated neighborhoods, such as Park Slope in Brooklyn) were showing a much higher volume of requests—and therefore more trees planted—than areas that were less affluent or educated, such as East New York in Brooklyn (respondents 2, 4, 17, 27).

Because of this challenge and prior to the conception of PlaNYC, DPR created the Trees for Public Health (TPH) program that focused block planting of trees in six neighborhoods with the lowest street tree stocking levels and the highest incidences of childhood asthma and respiratory diseases. TPH also targeted one additional neighborhood, Hunts Point, that had an active history of community organizing around trees and air quality through the civic group Greening for Breathing.[24] TPH provided a way to rapidly blanket neighborhoods with trees through block planting efforts (planting entire blocks with street trees), in addition to maintaining the individual tree planting and request program (for specific addresses) (respondent 4). As previously noted, since the time that TPH was created, the scientific discourse around relationship between trees, air

[24] TPH Neighborhoods are Hunts Point and Morissania in the Bronx, East New York in Brooklyn, East Harlem in Manhattan, Rockaways in Queens, and Stapleton in Staten Island. See http://www.milliontreesnyc.org/html/million_trees/neighborhoods.shtml for a map of these locations.

quality, and asthma has shifted. Nonetheless, DPR managers continue to emphasize the low street tree stocking levels as the key neighborhood selection criterion for block planting, while also noting that the locations of high childhood asthma prevalence are highly correlated in New York City with areas that are low income, high minority, and generally underserved communities. So, TPH block planting served to advance an equity agenda (respondents 4, 27, 1). A natural resource manager explains,

> Before PlaNYC funding, there was…limited funding for street tree planting, right? So more people asked for trees than we could possibly plant. So, we chose to spend the money where people asked for trees. So we responded to requests. It was a very bottom-up kind of approach to tree planting. If we don't have enough, let's plant them where we know people want them. But what happens is that you get this sort of uneven distribution across the landscape of trees where you have deserts where people don't know how to ask. So they don't ask. So they don't get trees.… Even before PlaNYC funding we were thinking, "how do we shift this? How do we redirect funds towards some areas that we know need it?" And that's where the Trees for Public Health program came out of. But when we got PlaNYC funding we realized, "well this is our opportunity to shift that." So we created the block planting program to both…[respond] to requests, but also work from the top down. So [we are] looking at the landscape and saying, "well where do we think trees should go based on where there's a lack of trees and where there's potential to have the greatest impact on people?" So that's where the block planting came from (respondent 4).

NYRP echoed this thinking and focused their private planting efforts for MillionTreesNYC in the TPH neighborhoods first:

> We do focus our work on underserved neighborhoods, communities of need. And there is this well-known link between trees and improved air and water quality, which would contribute to lowering asthma rates and other health problems that exist in these communities (respondent 11).

As well as:

> So when [DPR] identified, for example, Trees for Public Health neighborhoods, it was very consonant with what Bette had been championing for a long time, what she liked to call the 'conservancy of forgotten places'. You know, going into parks that nobody else would touch. Going into neighborhoods and places and doing cleanups where it was just an overwhelming sort of need (respondent 10).

Block planting concentrates resources in the hopes of making a more immediate, transformative, and visual impact on neighborhoods—rather than filling in missing tree pits here and there. Managers often used before and after images (or renderings of mature trees) to convey the impact of this approach. While block planting is used in the unique context of the TPH neighborhoods and accelerated through the availability of PlaNYC funds, planting going forward will continue to be informed by 311 requests as well. When PlaNYC funds were originally committed, prior to the budget cuts of 2008, DPR thought that it would be able to plant every available street tree planting opportunity citywide (respondents 2, 27). That claim has since been revised downward (planting trees at a wider spacing), but the citywide investments in TPH, block planting, and individual request planting still aim to enhance canopy citywide and address unevenness in the urban forest.

Assessing tree planting sites

Fieldwork and ground-truthing is used to assess the immediate micro-environment of potential tree planting locations. With 311 tree request printouts and GIS-based street maps showing tree requests, foresters drive and walk the city streets and assess planting locations. They look for conflicting infrastructural elements (such as driveways and crosswalks, overhead wires, adjacency to stop signs, hollow sidewalks or underground vaults). Barring any of these major problems that prohibit planting a tree, foresters are instructed to locate trees wherever feasible. They have latitude in how large to make a tree pit, though the minimum recommended width is 32 inches, and recommended size is 5ft by 10ft—with a minimum 39 inches of clear sidewalk that must

be maintained after planting (respondents 1, 2; NYC DPR 2010: 19, 21). A street tree contractor noted that in his experience, the average pit size was formerly 19 square feet and is now 42 square feet, which results in increased cost to excavate the pit and provide clean soil (respondent 16). The minimum recommended pit size was increased post-PlaNYC both because of the demonstrated impact of pit size on tree survival and because of the idea that tree pits could come to be seen as 'tree beds' – as sites for stewardship and engagement or as "the smallest parks in the system" (respondents 2, 56, 41). Foresters described selecting the "right tree for the right site" as the greatest challenge in urban forestry (respondents 17, 18). It requires a mix of art and science, knowing which trees will perform well in specific local conditions, as well an aesthetic judgment about what mix of trees will be visually appealing on a block. Foresters received a brief formal training, and the training manual for foresters was revised for MillionTreesNYC, but they also reported a high degree of learning on the job (respondents 2, 4, 5, 17). Foresters mark tree sites with spray paint and put in a call to utility companies to come and mark out utilities to ensure that there are no invisible infrastructure conflicts; barring those, the planting sites will then be bundled together geographically and put out to bid for planting contracts (respondent 5).

These site visits are also a point at which foresters interact with the public, an important interface beyond the tree requests and tree complaints that are received via 311 and other correspondence. One manager noted that in the vast majority of cases, DPR does not know what residents think of trees.

> We plant twenty thousand or so trees a year. We get formal 311 feedback on ten percent or less of those…. The amount of positive feedback we're getting is less than one percent, or less than half a percent, or whatever it is. So most of them are negative comments or inquiries…. But there are huge chunks of just like,

> "what's going on?" The number of calls that are really like, "I don't agree with this or you broke my sidewalk", that are *really* negative is, I think, around five or six percent…I know that in the overwhelming majority of all the trees we planted, we never hear anything one way or another (respondent 2).

Out on the streets, residents who self-select to talk to foresters tend to have strong opinions—polarized between highly supportive and highly opposed to trees. Supportive residents are often those that requested trees in the first place. Those opposed are often concerned with potential for sidewalk damage, trip hazards, requirements to keep sidewalks clear of debris including falling leaves, and even potential for damage to homes, roofs, basements, and sewers (respondents 1, 5, 47, 51; Rae et al. 2010). Residents do not have the right to refuse a tree being sited in front of their home—street trees are viewed as infrastructure no different from a stop sign, which cannot be refused (respondent 27). Foresters are trained to explain trees as green infrastructure and to head off potential challenges before they escalate. On rare occasions, resident opposition to trees can escalate to the point of physical resistance, vandalism, and removal of trees (Susman 2009). Part of this resistance comes from the ambiguity over who 'owns' the PROW. Conceptions of and attitudes towards this space range widely—with some seeing street trees as the responsibility of the government to maintain and others seeing the space in front of their homes as part of their property. Although residents do not technically have property rights to the sidewalk, they do have a responsibility to maintain it free of debris and snow. This site literally becomes a 'grey zone,' where the public and private intermix (Rae et al. 2010). See Figure 5.2 for an image of street tree stewardship coupled with claims of tree ownership on hand written signs.

Figure 5.2: Photos of a stewarded young street tree (left) with signs claiming it as private property (close up at right) in Carroll Gardens, Brooklyn.


Source: Photos by author

Planting and maintaining trees

Trees are planted by contractors, which are private firms that come from the construction industry, the landscaping/tree care industry, or both. While planting, these contractors are constantly under supervision by DPR 'contract supervisors' (who are, themselves, contractors with the city) who ensure that trees are planted to specifications and all work is reported accurately. One aspect that is carefully monitored is the amount of soil that is excavated and installed, as rates for this work are charged by volume, and soil is a significant expense in the process (respondents 51, 16). The only situations where an entity other than DPR and its contractors legally plants a street tree are: (1) occasionally a neighborhood association or Business Improvement District can raise the money to plant their own trees and receives a permit to do so, though DPR prefers to have their own contractors handle this process, or (2) in the case of new development or substantial renovation. PlaNYC institutionalized a change to the zoning rules that

requires developers to purchase and install one new street tree for every 25 feet of street frontage (City of New York 2007; respondents 1, 22). Though the developers do these plantings, DPR is still responsible for issuing the permits and thus has an oversight and tracking role in monitoring these new trees (respondent 17). Finally, there are a limited number of cases in which residents informally plant trees in tree pits 'guerilla style' (see Figure 5.3), though this practice is formally discouraged by the city, and often foresters remove and replace these trees if they encounter them in the field (respondent 5).

Figure 5.3: Street trees planted by residents instead of DPR and contractors in Red Hook, Brooklyn

Source: Photo by author

Trees are guaranteed for the first two years of their lives under the terms of the contract; meaning that if a tree dies, the contractor that planted it is obligated to replace it (respondents 51, 2, 17). A respondent noted: "Once [trees are]e with the contractors…the contractors have to take care of them… they're guaranteeing the trees, so it's in their own

interest to take care of the tree because they're responsible if it dies" (respondent 27). This extra focus on watering and care for young trees is an effort to ensure survival, since after the first two years the tree is more established and better able to withstand the variations in temperature and rainfall that inevitably occur. After the two year contract guarantee, street trees are left to survive without much formal maintenance from the city. Although there are programs and procedures for addressing storm damage, sidewalk damage, and pruning—there is a backlog of requests for sidewalk repair and maintenance budgets are often the first to be cut (respondents 2, 4). Indeed, as of fall 2011, the pruning cycle has been slowed, such that each street tree is now pruned every 15-20 years, as opposed to every seven years, and this number fluctuates with the DPR budget (Foderero 2011).

For all of PlaNYC's capital commitments to tree planting, managers, critics, advocates, and allies alike felt that it needed a greater commitment of funds for maintenance (respondents 20, 46, 48, 51 ), which was made more acute following the cuts to the maintenance budget in 2008 (respondents 27, 22). One municipal employee said, "Nobody wants to be the mayor of a city with a million dead trees" (respondent 1). Cognizant of this danger, MillionTreesNYC leadership explored different models to cultivate residents' volunteer stewardship of street trees. They developed online Adopt-a-Tree websites, tree care pledges, and gave away free tools for gardening in tree 'beds'. As of November 2012, just 5,506 trees were adopted citywide and approximately 1500 stewardship actions reported online (MillionTreesNYC 2012). A campaign leader noted that many more trees were adopted than were reported online, but there is no clear mechanism for tracking that activity (see Figure 5.4 for an image of a stewarded street

tree) (respondent 15). The StewCorps program, described in the stewardship section below, developed formalized stewardship training and certification in partnership with several nonprofits throughout the city (respondents 15, 20). Developing grassroots investment in and stewardship of trees citywide remains, according to numerous respondents, one of the greatest challenges to the campaign (respondents 20, 22, 46).

Figure 5.4: Photo of stewarded young street tree in a large tree bed


Source: photo by author

Removing trees

Finally, DPR is responsible for the removal of dead and storm-damaged trees in the PROW. In recent years, the number of severe weather events has increased; New York City has experienced a tornado, a macroburst, and two major hurricane/tropical

storms (Irene and Sandy[25]). All of these storm events have led to thousands of downed trees and limbs, which require DPR staff to work around the clock to address public safety concerns and removal requests (respondents 30, 47, 48, 51). More generally, approximately 8,000-10,000 street trees are removed per year and, in most cases, these trees can be chipped and composted and used in parks sites citywide (respondent 2). But in Asian Longhorn Beetle quarantine zones (which stretch across parts of Brooklyn, Queens, and Staten Island), these trees must be isolated, and prevented from exiting the zone and entering into the compost stream (respondents 47, 48). Finally, the public has a few opportunities to engage in the reuse of trees through the annual MulchFest events that are held after Christmas as a partnership between DPR and the Department of Sanitation (respondent 22). At these events, residents can bring Christmas trees to be mulched, can receive information about trees benefits and MillionTreesNYC, and at some locations can take a bag of mulch home (respondent 1).

***'Natural areas'***

Approximately 2/3 of the first 500,000 trees planted in the MillionTreesNYC campaign were sited on so-called 'natural areas' through afforestation and reforestation practices (respondent 36). These natural areas are managed by NRG– a specialized division of DPR, but can occasionally include land under the jurisdiction of other agencies, such as the Department of Transportation (DOT). The sites are characterized as more rugged or 'naturalistic' and are not maintained for active recreation. While many of these sites were held for years by DPR, they were more or less 'unmaintained' until 1984

[25] Hurricane Sandy occurred after the timeline of this study, although conversations are emerging in its wake about changing public perceptions of and fears related to trees because of these extreme events.

when then-DPR Commissioner Henry Stern created NRG. Mimicking the language of New York State forest preserves, Stern created the 'Forever Wild' designation in order to draw attention to 'natural' sites in the DPR portfolio. These 51 sites include woodlands, meadows, marshes, and wetlands that are often adjacent to infrastructure (such as highway interchanges, parkways, airports, and large facilities) or on sloped or rocky land not suited to other recreational uses. They are often larger in acreage than typical recreational parks and comprise a total of more than 8,700 acres citywide (City of New York DPR 2012; City of New York 2011a: 44; respondents 36, 41). The sites often include construction debris and other fills, which affects the chemistry and biology of the soil and, therefore, the ecosystem that they can support. Finally, as with many urbanized and fragmented sites, they are heavily colonized by invasive species—such as mugwort, porcelain berry, ailanthus, and multiflora rose (Johnson 2012; respondents 1, 36, 48). Because of their size, conditions, and the relative lack of funding and public attention, a manager described NRG sites as a "bottomless pit of need" (respondent 36). Figure 5.5 shows images of a forest restoration site that faced storm damage and invasive vines.

Figure 5.5: Photos of forest restoration sites at Cunningham Park in Queens.

Left: storm damaged trees are cut down and some stumps are left to rot in the forest. Right: invasive vines covering a mature canopy tree. Source: photos by author.

The original PlaNYC goal related to NRG sites called for reforesting 2,000 acres citywide. In a non-urbanized context, 2,000 acres is a relatively small area. However, in the context of the highly developed City of New York, identifying 2,000 viable acres to reforest was an ambitious and technically challenging goal, or as one respondent called it "a fool's errand"—since this amount of open, plantable acreage did not exist in New York City (respondent 65). DPR set to work immediately in scaling up its already existing invasive removal and native tree planting practices (respondent 48). In order to meet targets and aims for numbers of trees planted each season and year, the agency began by identifying sites that were large, already known, and ready for planting (respondent 36). Concurrently, DPR took two actions to harness the knowledge, skills, and resources of a broader set of actors.

First, they created a $937,000 contract with the environmental design firm EDAW (now a part of AECOM) to help guide the forest restoration efforts. Administered as part of a $9.9 million capital contract for reforestation, the design contract was originally

supposed to last just six months, although the timeline was extended several times. EDAW's primary tasks were to: identify potential planting sites citywide to contribute to the 2,000 acre goal (using GIS and field-collected data); develop an approach for prioritization among those sites; design and implement three pilot reforestation sites with research integrated into the approach; and develop a 'cookbook' of design and planting best practices to guide that work. Emerging out of this work on the cookbook, the consultants and DPR developed a set of recommendations for revisions to the invasive removal contracts (respondent 65). Using consultants in this way proved challenging as the documents and specifications had to be substantially revised in order to truly guide practice (respondent 36). Respondents reported difficulties on both sides in terms of communication, leadership, unrealistic timelines, and confusion over intent of deliverables—particularly the idea of a cookbook set of approaches when every site faces unique challenges, opportunities, and management needs (respondent 65).

Second, NRG and EDAW both brought in outside expertise to help inform and shape the reforestation effort and to facilitate the use of sites in research. In September 2008, EDAW convened a symposium of natural resource managers and scientists focused on reforestation. At that meeting teams began to develop to articulate research questions and opportunities for 'designed experiments,' whereby the planting effort would be used to also generate new knowledge about urban ecology (respondent 65). Rather than a single unified approach citywide, at least three distinct research efforts emerged to study planting and management practices via slightly different planting strategies, plot designs, and sampling techniques—two of which were included in the EDAW scope of work (respondents 36, 48, 65).

From the outset, these advisors took issue with a numeric tree planting goal in a forest context and argued that emphasis should be placed on creating healthy, native, multi-story forests. Over time, however, the campaign messaging around forest restoration shifted from an emphasis on the 2,000 acre goal to an emphasis on the million tree goal:

> Well that's the other thing that changed is we pretty much know we can't make two thousand acres. At least not with the money we have. And we could easily [plant] 480,000 [trees] and not get to two thousand acres. And that's something that we just don't even mention it any more…. There was at some point an acknowledgement that we couldn't do it, at least from NRG's perspective. And Parks knows it, but I don't think that's at all publically acknowledged (respondent 4).

As the campaign congealed and tightened, tracking trees planted became *the* metric by which progress was measured—regardless of the fact that many of the hundreds of thousands of trees planted in forest sites will die through natural forest competition (respondent 1, 27, 36, 65). One interviewee offered the critique of the million trees goal: "It blew my mind over and over again that you can be this silly, aiming for a number that has nothing to do with feasibility" (respondent 65). In addition, NRG convened a "Technical Advisory Group" to specifically assist in guiding forest restoration practices going forward. However, participation in the TAG was sporadic and only involved substantive input of a few of its members (respondent 65)

Moving beyond these early days of consultation with EDAW in 2007-2009, NRG later developed operational routines for planting and restoration in natural areas. Managers expressed that—at first—there was concern that NRG sites were viewed by decision-makers as just green spaces on the map that could receive hundreds of thousands

of trees. Nonetheless the staff has used the PlaNYC resources to achieve their management goals:

> Even though NRG wasn't involved in that sort of policy push for the mayor [around million trees], we've benefited extraordinarily from it. And it's allowing us to truly start to repair some long-standing problems, including those that were identified in NRG's work in the early nineties of assessing parks and creating management plans that listed high priority areas that we've simply never had enough consistent funding or attention to get to. So a lot of the places that we're planting now—or have planted so far with PlaNYC funding—are places that ecologically make sense. Or in some cases, if it's not perfectly figured out ecologically, it makes institutional sense in that there are areas that Parks has not done a perfect job managing….sort of interstitial spaces between formal landscapes and either neighboring properties, or adjacent uses—like parkways, or places where formal landscaped parks intersects with really ugly infrastructure. So those are places where we've been pushed into reforesting. And they're good reasons and they're good spaces. They're just very challenging to manage…. So we've been sort of figuring out how to best fit this funding into those two sets of needs. Sort of the long standing problems and how to buffer and integrate the work that we do with the rest of the agency's approach to landscapes (respondent 36).

These sites are then managed by a mix of private contractors and NRG in-house crews from its staff of 21, depending on the size and needs of the site. Prior to planting, invasive plants must be removed and storm damage addressed—often by contractors. Invasive removal consists of manual cutting and uprooting, mowing, and herbicide application. As with street trees, contracts receive multiple layers of oversight, including contract supervisors who are on site when any work is being done as well as NRG foresters (respondents 36, 48).

Similar to the contract growing arrangements developed for street trees, reforestation trees are purchased directly from a nursery. The main difference is that these trees are much younger and are purchased as 'whips' in containerized pots, ranging in size from 12" to up to 5' in height—with a desired minimum size of 24". Native species from regional seed sources (200-400 miles) are preferred and used in the majority

of cases. After a site is cleared, the crews work quickly to "close the canopy" by planting these whips in close proximity to each other, in hopes that they will outcompete weeds and other invasive plants, and eventually engage in healthy forest competition among each other (respondent 48). One major limitation of PlaNYC tree planting funding in the context of 'natural areas' is that it was set aside only to be used for *tree* procurement and planting. So, though managers were seeking to restore forests with canopy trees, understory, shrubs and bushes, and an herbaceous layer, the funding could only be used for trees. Managers had to work to creatively find other sources of funding that could be used to help develop the multi-storied forest (respondent 36).

***Publicly accessible private lands***

From the outset of the campaign, NYRP had responsibility for planting on anything other than public property. With some echoes of the process that NRG faced in trying to identify acreage citywide in which to do reforestation and afforestation work, NYRP set about trying to identify large landholders that would be amenable to partnering in tree planting by making their sites available. Early on, they identified university campuses—particularly the CUNY system—and public housing grounds (which they dubbed NYCHA 'campuses' in a re-branding twist) as potential candidates (respondent 13).

The relationship with NYCHA was complicated from the start. Although NYCHA houses approximately half a million people in 334 developments citywide (NYCHA 2012), the agency was included neither in PlaNYC's strategic planning processes nor in the goals that emerged from that process (respondent 7). As one

interviewee noted, “NYCHA missed the boat on PlaNYC” (respondent 20). Perhaps because of its unique administrative structure, federal funding, and relative autonomy from routine city operations, NYCHA was not included in this mayoral initiative (respondent 20). Once NYRP became aware of the 2,600 acres of ‘open space’ citywide in NYCHA’s lawns and plazas, NYCHA came to be viewed as a key planting site. Mirroring the approach that was used in pitching the campaign to the Mayor’s office in the first place, NYRP went straight to top levels in management and sought a blanket license agreement to plant trees on NYCHA grounds (respondent 13).

With license agreement in hand, NYRP was able to plant on NYCHA grounds using its field staff, Americorps members, and corporate and community volunteers. The NYRP model of bringing in large volunteer groups for single-day planting events was not modified for planting on NYCHA grounds. Concurrently and separately from PlaNYC, NYCHA was engaging in its own green planning processes, following the 2007 appointment of Margarita Lopez as NYCHA Environmental Commissioner (respondents 7, 20). One new effort involved the cultivation of Resident Green Committees—voluntary tenant groups in developments that would engage in recycling, energy conservation, education, and stewardship efforts about the local environment (NYCHA 2011; respondents 7, 20). NYRP adjusted its approach and did outreach to these committees, seeking to engage them in planting and stewardship efforts (with varying degrees of success). Despite this, Lopez made public remarks critiquing the approach to tree planting used on NYCHA grounds, and argued that NYCHA residents should be given ‘green jobs’ and paid to take care of these trees. After a few summers of planting, the relationship between NYCHA and NYRP leadership (Lopez and Becher,

respectively) began to strain (respondents 22, 35). Indeed, one interviewee referred to the relationship as "toxic" (respondent 62). Nonetheless, as of fall 2011, NYRP had planted nearly 12,000 trees on NYCHA grounds (respondent 10; NYCHA 2011).

NYRP plants trees on other publicly accessible private lands, such as the large lawns of Co-Op City in the Bronx. Co-Op City is a privately managed housing development with more than 15,000 residential units in 35 high rises and another seven townhouse buildings spread out across 300 acres, including a 60 acre greenway through its center (Whitsett 2006). Learning from the process of working with NYCHA, NYRP now seeks to negotiate agreements with both senior management as well as grounds staff, or "the suits and the boots", in order to ensure that all divisions of an institution are on-board with planting and maintenance (respondent 13). On October 1, 2011, a large-scale planting day was held at Co-Op city where approximately 300 volunteers planted 250 trees (see Figure 5.6). These planting arrangements continue to be negotiated on a partner-by-partner basis, with partners ranging from St. Johns University, to various nursing homes across the city, to the State DOT—the only commonality among these being that they are non-municipal, publicly accessible lands (respondents 13, 15).

Figure 5.6: Photo of NYRP volunteer planting day at Co-Op City in the Bronx.

Source: photo by author.

***Private lands – tree giveaways and 'influence plantings'***

The final ways in which MillionTreesNYC worked to grow the urban forest were by offering free trees to individual residents and by tracking plantings done by other outside entities (besides DPR and NYRP) who were 'influenced' by the campaign. First, NYRP organizes free tree giveaway events at local parks and gardens, often in partnership with a local community group that can assist in promoting the event throughout the neighborhood (see Figure 5.7). This partnership model was developed after the first few seasons of unsuccessfully attempting to give away free trees to people at events organized directly by NYRP. Once the leadership re-oriented these events to be in partnership with local community based organizations, with tree giveaways as a carrot,

the demand for trees far exceeded the supply (respondents 10, 62). This shift in emphasis was corroborated by another interviewee:

> You know why our tree giveaways are so effective is [our staff are] very good at reaching organizations at the neighborhood scale and engaging them and getting them on board. And letting them then carry forward the message. And Saturday morning, at Fort Greene, there's a line out the door to get a free tree. Saturday morning in Bed-Stuy, people are clamoring over each other to get a tree. Instead of standing there with a bunch of trees behind you going: "Free. Take it." (respondent 13).

At these events, residents are limited to one tree per household and are given instructions on tree care. In the spring of 2011, 3,500 trees were given away, with one respondent calling the giveaway events a "tree frenzy" (respondent 1). Individuals are also invited to go online and register trees planted on their own on the MillionTreesNYC website. Overall, these events are seen as one way to build awareness about trees, facilitate planting trees on private land, and develop support and buy-in for the campaign amongst residents who receive trees (respondent 26). However, there is no guaranteeing that these trees are planted, planted correctly, or able to survive. In fact, while conducting field observations with a DPR forester, he noted that sometimes these trees end up being planted 'guerilla style' in empty tree pits on the street. Because these giveaway trees are not grown or installed to New York City's street tree specifications, they occasionally have to be removed (respondent 5).

Figure 5.7: Photos of tree giveaway organized by NYRP and Gowanus Canal Conservancy

Source: Photos by author

'Influence plantings' are perhaps the greatest area of ambiguity in terms of accounting and tracking the effect of the campaign, as these are plantings that are funded *neither* by DPR nor by NYRP. One respondent noted that this aspect of the campaign was, "more malleable because they don't have a budget behind them the way that a street tree program or reforestation program or giveaway to homeowners have" (respondent 13). As part of this attempt to influence other entities and engage them in the campaign, NYRP has offered training and outreach sessions to architects, planners, landscape architects, and developers (respondents 10, 11, 28). In addition, information is collected from developers and private landowners, such as Ikea in Brooklyn, which underwent a large scale park development effort along with the construction of its building; trees planted by these entities are also counted. Finally, MillionTreesNYC receives information from area tree retailers, such as Home Depot and Lowes, and estimates that 25% of these trees sold in a season end up planted in New York City (respondent 1). The

campaign hopes to affect individual residents, organizations, and businesses and influence them to want to plant trees through direct education as well as through outreach and advertising.

**Beyond planting: harnessing the network**

The politics of resource management in this case do not stop with the relations between DPR and NYRP; a broader set of 'stakeholders' that reflect decades of urban environmental advocacy and stewardship are involved with MillionTreesNYC. Realizing that MillionTreesNYC would be prominent in the organizational landscape of New York City's environmental groups, its leaders were deliberate in crafting roles for allies–and even for potential competitors—to take part in the campaign. A network of advisors was formally institutionalized via the MillionTreesNYC advisory committee and associated subcommittees. This group consisted of up to 400 individual members from up to 109 organizations (respondent 1); as of 2012, 65 organizations are listed on the MillionTreesNYC website as partners in the advisory committee. Research reveals the complexity, diversity, and amount of public, civic, and private entities involved in environmental work in New York City (Fisher et al. 2012; Connolly et al. 2013). Moreover, prior efforts to convene or coordinate these groups, such as attempts to create a 'Nature Network' in the early 2000s, had risen and fallen without a great degree of success. One respondent described New York City's existing "baggage of people, personalities, organizations, and events" as something that had to be reckoned with in the creation of this campaign (respondent 28). It is noteworthy that—at least for a brief

window of time during the early formation of the campaign—MillionTreesNYC became one focal point for the engagement of numerous, diverse environmental organizations.

The advisory committee offered a two-fold benefit to the campaign of providing a means for outside experts to contribute input and ideas to the campaign, but also heading off critique before it emerged. By being asked to participate, potential critics or competitors—particularly in the crowded context of the nonprofit world—would feel invested in the campaign (respondents 20, 4, 13, 15, 35). Indeed, there was some concern by campaign leadership in the face of public, external critique. In the early stages of the campaign, the famous advocate for environmental justice, MacArthur 'genius award' winner, and ex-director of the community greening organization Sustainable South Bronx, Majora Carter, critiqued the MillionTreesNYC campaign. Respondents noted that she had a history of adversarial relations with the mayor, concerns about the process behind PlaNYC, and concerns about MillionTreesNYC's commitment to tree maintenance and stewardship (respondents 1, 27, 28). More generally, latent or overt tension existed between other greening nonprofits and NYRP and between city council and the mayor's office, all of which could be thrust into the spotlight by the campaign:

> I mean, I think that's the challenge is there were no…I'm not sure too many people own the initiative outside of NYRP. Because people said, "What's in it for us? Why should we do it when we're not getting any money?" At the end of the day, in a perfect world, all the botanical gardens would have some kind of outdoor exhibits, educating consumers and visitors about a MillionTrees and about how to plant trees. We could have had more collaborative…public service announcement campaigns. There could have been more engagement with city council members.… But again…we weren't able to take advantage of that because there were a lot of tensions between city council and the mayor for lots of different reasons. And so they didn't want to get really involved because [MillionTreesNYC] was seen as a mayoral initiative (respondent 35; see also respondent 22).

The advisory committee sought to "put the resentment aside and get things going" (respondent 20). To that end, Carter's organization is listed as a participant in the advisory committee, and MillionTreesNYC partnered with them in their green jobs training program as well (respondent 1). Further, a manager discussed the members of the advisory committee as stakeholders, and the procedural importance of that forum in light of critique of PlaNYC as top-down:

> We want to be confident; and we want all New Yorkers to be confident—including professionals that have been involved in the environmental volunteer and stewardship fields for decades and decades. We want to make them feel like they are definite stakeholders in this process and that they are informing what we're doing…. And that we're building on the experience of so many who have come before us and who have done these things in the past. I think that one of the things that some people were concerned about when PlaNYC came around was that here was a mayoral initiative that was taking what ostensibly seemed to be a top down approach….And there was some trepidation among long-standing community groups that there might not be a place for sufficient feedback from them and sufficient regard for what they have done in the past years and decades before. And I think that the advisory board really has shored up people's confidence that we do want to recognize what people have done before. We want to build on that. We want to inspire confidence that what we're doing is appropriate. What we're doing is not out of place within the context of the city landscape, within the context of volunteer and stewardship and planting efforts that have come before us. And that we're all basically on the same page and that we're not in conflict with anything here. And I think the advisory board has really done a great job of doing that (respondent 1).

The advisory committee was to serve as a source of ideas, skills, programs, and resources (human and financial) for the campaign, and a way of ensuring that government was not acting unilaterally (respondents 15, 20, 27). One respondent noted a desire not to 'reinvent the wheel' with this campaign, and to build on the existing expertise and investments of dozens of groups citywide. The broad committee membership aimed to support the longevity of the campaign, particularly beyond the 2014 change in mayoral administration. One campaign leader used the language of creating a "movement"

around urban forestry, wherein "this campaign was larger than the Parks Department and NYRP alone" (respondent 15). Another official echoed the language of movement-building:

> I think the advisory board serves several purposes. One is both sort of breadth and also longevity. So, the advisory board allows us to be able to say in a very real way that it's not just about tree planting; that we want MillionTreesNYC to be about creating a whole…urban forestry movement for planting and care and awareness. And so we needed to bring in that diversity of people…in order to really build a very strong foundation, we needed to recognize these other groups and build on their strengths and work together. It serves a purpose in terms of branding, also, because as much as not everybody wants to be kind of swept up into MillionTrees, honestly, everything contributes to it. And it would be nice to be able to say, "Well, we're all sort of part of this movement." And by being on the board you get recognized for what you do but you also give us an opportunity to get exposure for the Million Trees brand. And then, in terms of longevity, I mean we would love this program to last beyond the mayor's tenure…. So we need to be able to build that broader base with the hope of getting these institutional buy-ins, but also fielding more of a grassroots connection to the MillionTrees program. So when the next administration comes…this is too popular to just say, "Okay sorry. We're going to stop at 600,000" (respondent 4).

The list of more than 60 participating organizations in the advisory committee was published on the MillionTreesNYC website and offered something of an imprimatur—or almost a tacit endorsement—for the campaign.

Although the intention of the advisory committee was clearly one of collaborative governance, it did not always live up to this ideal. While some valued the opportunity to give input to the campaign and felt listened to (respondents 28, 35), others argued that the input felt 'token' or outside expertise underutilized, as annual full advisory committee meetings came to take on the structure of 'reporting out' from the subcommittees as opposed to actually generating discussion or debate (respondents 10, 11). Some critiques came from within MillionTreesNYC, with one leader expressing questions as to who was advising whom: "Are they advising us or are we advising them? Are we telling them

what to do? Are they telling us what to do?… The relationship between the advisory committee and Parks and NYRP is very unclear" (respondent 11). Finally, there was a general acknowledgement that it is challenging to sustain interest and engagement in the long term, over time, by volunteer committee members whose core job is not the MillionTreesNYC campaign (respondents 4, 35)

Subcommittees were formed in the following areas: stewardship and education (which was later subdivided into two groups); research and evaluation; public policy initiatives; marketing and public relations; tree planting; and green jobs was added later. The structure of the subcommittee leadership was intended to include representatives from DPR, NYRP, and an outside organization to ensure a broad level of engagement. However, as entirely volunteer positions, the level of engagement of outside entities waxed and waned over time depending on organizational circumstance and in response to the unique challenges and opportunities each subcommittee faced (respondents 11, 15, 1). One respondent acknowledged the varying levels of engagement of different committee members: "There's always going to be great lists of organizations and only five percent are really going to do the work" (respondent 28). Planting and counting trees remain at the core of the campaign; but now I examine, in turn, programs in *marketing and public relations, education, stewardship, green jobs,* and *research*.

***Marketing and public relations***

Numerous outreach and public relations campaigns were developed to convey messages about trees and the campaign to New York City residents. NYRP had a track record of effectively using design, marketing, and branding to convey key messages

(respondents 27, 1, 26). They worked with professional design firms to design logos, identities, and various branding approaches to the campaign. This included PSAs, advertisements on bus shelters and subways, tree tags and signs, and giveaway shirts and buttons for volunteers. Different approaches to marketing were tried over the course of the campaign. As previously discussed, one early effort focused on educating the public on tree benefits in terms of ecosystem health, human health, and quality-of-life, with messages calling trees: "Zen masters" and "exercise partners." A later marketing effort stripped down this message to a much narrower focus on personal commitment, through the use of the slogan "I'm In," which appeared on buttons, tee shirts, signage, and digital media.

At the same time, campaign leaders and their allies described the challenges of using marketing and outreach to move from raising awareness, to changing perceptions, to cultivating behavioral changes (respondent 55, 28, 47, 15). Interviewees felt that outreach and marketing were successful in 'getting the word out' and raising awareness of the campaign to make MillionTreesNYC one of the most visible aspects of PlaNYC (respondent 26, 35). Yet, many felt that it should have done more to mobilize broad-scale engagement. One interviewee felt that changing messages were necessary to sustain interest in a long-term effort, but cautioned against too much reliance on a marketing approach as opposed to building a truly grassroots movement:

> I see people getting bored with [MillionTreesNYC]. I just see the public moving on to something else. I mean, if you hitch your wagon so much—as these marketing folks tell you—to selling this message and selling this narrative, you better be ready to keep it going and to keep that narrative fresh and to change…or enliven the conversation to attract people's attention. And I think Million Trees has actually done this in a great way through their ad campaigns, which change every year. And they've done a wonderful job. But they're going to need to keep that going, and to be prepared for the moment when their well runs dry. And

> that's why they always have to be looking at how to network. To re-envision. How to keep your core focus, but make it fresh and make it timely and make it address the issues that people care about…. [Be] careful going too far down this marketing road or putting all your eggs in that basket because then you find that…the *soul* of the actual movement is gone. And you're just propping it up with these great images or fun slogans or this and that (respondent 28).

Another official felt that the marketing approach was not sufficient to generate meaningful engagement among residents:

> I think the one thing that didn't and hasn't worked yet [is] I don't think we've captured the public imagination in a broad way. I think we've done some effective marketing: bus stop shelters, subway ads, some media in Times Square kind of things. We've had some good events that attracted attention. And I think lots of people…might know that, "Oh yeah, the city is planting a million trees." But I don't think we've connected as well as we need to with the public in a *meaningful* way that creates an understanding in the general public of, not only *that* we're doing this but *why* we're doing it and why it's important to them and their family and their neighbors (respondent 47).

This sentiment was echoed by a respondent who felt that marketing could have connected more with the educational aspects of MillionTreesNYC:

> Something that I feel was somewhat a missed opportunity but also has a lot of potential is the marketing of this…. There was a marketing campaign that was in subways, on the taxicabs, all over the place. But I think, because it was this flashy kind of high-level marketing campaign, it failed to really mobilize people and get them thinking about Million Trees. And, I really feel like that could have been a good collaboration between education and marketing (respondent 55).

Many involved in the campaign saw outreach as one of the links in the chain from awareness to action, with education, stewardship, and green jobs as other crucial links. Leaders expressed that the campaign was a delicate balancing-act between efforts like the marketing campaign that reach millions of people citywide in a somewhat fleeting or surface way and more in-depth programmatic engagements that meet fewer people in a more lasting way, such as education and stewardship initiatives (respondent 15).

***Education***

Environmental education—particularly for youth and young adults—was seen as one of the main programmatic efforts that NYRP, DPR, and other partners could leverage to enhance public awareness and understanding of urban trees to help build a broad-based movement around the campaign (respondents 1, 15, 27, 55). Indeed, in addition to its marketing savvy, NYRP had experience with developing educational programs, and this was cited as one of the reasons that they were an apt partner for the campaign (respondent 27). For the city, this campaign presented an opportunity to do tree planting differently in a way that would actively engage the public:

> I always thought that we needed a huge marketing and education and kind of behavioral thrust. The city—in bad years or in good—had planted a lot of trees before, but without all of the softer side, the educational side, and the awareness side. That was a little bit like, 'if a tree falls in a forest. If a bus honks on an avenue', you know? (respondent 27).

And it was also an opportunity for NYRP:

> I do feel that what NYRP brought to the table was that it wasn't just putting trees in the ground. That there was much consideration given to having an educational component, marketing component, a communication strategy around it (respondent 35).

Despite this potential, one respondent noted that MillionTreesNYC failed to capitalize on a huge opportunity to emphasize environmental education in tandem with tree planting on or near school grounds (respondent 55), particularly given the 1.1 million children in the New York City public school system—the largest in the country (NYC DOE 2012). NYRP created a new curriculum called RESPECTree and DPR expanded its Urban Park Rangers' "The Natural Classroom" program with a new program entitled "TreesNYC: Something Big is Taking Root". However, due to staffing, budget, and time limitations, RESPECTree was delivered only to ten schools per semester (respondent 55);

and no large scale citywide school planting with integrated curriculum program was developed by NYRP. One interviewee argued that the true emphasis on education was subsumed by a greater emphasis on visually changing the landscape, noting: "I don't think Bette thought about the other stuff like public education and stewardship. It was about beautification" (respondent 35). Both the Bloomberg administration's emphasis on numeric tree planting metrics and Bette Midler's emphasis on planting-as-beautification failed to place educational programming front and center to this campaign (respondent 35, 55).

Beyond these two programs delivered by the lead partners, the education subcommittee sought to catalog all the other tree-related environmental education programs that existed in the city. This was done in an effort to harness all of the existing resources at hand and to prevent duplication of programs. The campaign developed on online and print 'toolkit' of available curricula from which educators could pick and choose (see http://milliontreesnyc.org/html/educate/toolkit.shtml). After that initial stage, the subcommittee sought to track metrics on how many students and teachers participated in various tree planting curricula and programs. This proved to be challenging for a volunteer committee with no incentive or remuneration for gathering and reporting on these metrics (respondent 55). In this way, the education and stewardship subcommittees differed in their approaches to resolving a complex challenge of collective action. After the timeframe of this study, formal educational partnerships with large organizations—such as with the Girl and Boy Scouts and the "Green Points Challenge" with Recyclebank—continued to emerge.

***Stewardship***

The challenges of tree maintenance and stewardship drove the development of the stewardship subcommittee, partnerships with other service and volunteer organizations, and eventually the creation of a formal program called StewCorps. Much like the education committee, in the early days of the campaign, experts in stewardship were consulted about best practices and guidance for the campaign via participatory fora. The need to formalize collaboration on stewardship in an ongoing way was quickly identified—particularly because so much of the success of the campaign as a planting effort depended upon the ongoing survival and thriving of the expanded urban forest (respondent 22, 20, 46, 52, 64). Initially, this took the form of partnering with outside groups such as NY Cares (a nonprofit) and NYC Service (a division of the mayor's office) to recruit volunteers and organize large-scale planting days (respondents 1, 20).

Then, with funding support from the Mayor's Fund, StewCorps was developed in summer 2009 as a partnership between MillionTreesNYC; GreenThumb; Trees New York; the major botanical gardens in the city –New York Botanical Garden (NYBG) in the Bronx, Brooklyn Botanic Garden (BBG), and Queens Botanical Garden; and the Staten Island Greenbelt. Each of these primary StewCorps partners agreed to deliver a set number of tree care and stewardship workshops and activities in exchange for a grant from MillionTreesNYC in the $10-25,000/ per year range depending on the number of people served (respondent 24). Although both NYRP and DPR had experience in cultivating stewardship, this program acknowledged the long track-record of these other prominent greening groups in this area (respondents 20, 15, 1).

Overall, the StewCorps partners were given latitude to customize their training and programming around trees as best suited their organization and the audience they served. BBG's 'Greenest Block in Brooklyn' competition was used as a way of engaging residents' productive sense of competitiveness. BBG argued for a terminology switch from 'tree pit' to 'tree bed' as a rhetorical device for getting people to think about the area surrounding the tree as a planting area that deserve attention and care (respondents 35, 56). Trees New York delivered its Citizen Pruner curriculum that it had developed and honed since the 1970s, expanding its reach and scope to serve more people and groups with MillionTreesNYC funding (respondent 63). GreenThumb developed interactive games about trees in order to engage community gardeners in fun and informative ways. Respondents reported needing to come to common understanding about community gardeners not just as free labor, nor should gardens automatically be considered sites for planting trees; a great deal of effort went into creating a working partnership that suited all parties' interests (respondents 59, 64, 58). More generally, despite the careful collaborative development of StewCorps and the ability for each partner to customize their workshops, its implementation was not without critique or challenge, as partners acknowledge the difficulty of administering so many stewardship trainings each season and in all weather (respondents 13, 55). Stewardship programming continues to evolve and expand after the end of the study period, with the most recent iteration entitled "TreeLC" delivering 172 workshops to 3405 attendees in 2012 (Campbell and Monaco 2013).

***Green jobs***

Launched in winter 2008 as an offshoot of the tree planting campaign, the MillionTreesNYC Training Program (MTTP) reflected the zeitgeist of the recession years and the Obama administration, with its emphasis on training, green jobs, and employment. The program offered paid job training in urban environmental restoration work for low income, 18-24 year old adults who were previously disconnected from the workforce (Maddox et al. 2010). This effort received support and funding from the NYC Center for Economic Opportunity—a mayoral anti-poverty initiative—and from the Altman Foundation, the *Arthur Ross Foundation, the Dodge Foundation,* and the Bloomberg and Rockefeller funding via the Mayor's Fund (MillionTreesNYC 2009; respondents 1, 24). The focus on this particular population reflects the fact that

> A 2005 New York population study found that 165,000 16-24 year olds were out of school and out of work. Those who are disconnected as young adults for long periods are more likely to experience long bouts of unemployment and to earn lower wages throughout their adult lives (NYC CEO 2012).

Over five seasons of operation, the program graduated 104 trainees from a seven month job-training program in which they were paid while learning skills of horticulture, arboriculture, and restoration (MillionTreesNYC 2009). In addition, trainees received outside environmental education and certification from affiliate organizations like NYBG and BBG, as well as basic skills like commercial driver certification, and 'soft skills' in time management, office behavior, resume writing, and so on. Trainees were also provided with mentors and a case manager (Maddox et al. 2010). In the year 2009, graduates of the first MTTP class were assisted with placement in one-year follow up jobs with local agencies and nonprofits, using $2 million in funding from the USDA Forest Service to cover those placements. One study of MTTP graduates found that,

despite challenges common to this population, "Green job training and employment present real opportunities for intellectual stimulation and an increased sense of accomplishment, due in part to the uniqueness of environmental work. Individuals reported positive environmental attitudes and behaviors as a result of green jobs training and employment" (Falxa-Raymond et al. 2013).

Despite managers' support for the idea of green jobs, several interviewees offered concerns. One questioned the use of placement favoring MTTP graduates in the workforce, citing that they still were not prepared for full time jobs alongside professionals (respondent 55). Others were concerned with the high costs of the program and the challenges in keeping it financially sustainable during the economic downturn without ongoing federal or foundation support (respondents 10, 24). Once the Altman and Ross funding was exhausted and not renewed, in fall 2011, the program had to downscale the number of trainees that it could serve and the training track that was administered by NYRP was cut, so that only DPR was administering the program via its Green Apple Corps (respondent 1).

***Research***

Interview subjects reported that the level of engagement of the research subcommittee was the highest and most consistently sustained of all the subcommittees (respondents 35, 10, 11, 15). This group was unique in that it had the institutional support of the New York City Urban Field Station, a joint effort of DPR and the USDA Forest Service focused on cultivating collaborative research networks on urban social ecology in New York City (respondents 22, 47). Moreover, engagement with

MillionTreesNYC as a research topic was of interest to numerous academic researchers at New York University, the New School, Columbia University, Cornell University, and others. Respondents noted the productive self-interest of researchers interested in accessing data and field sites, conducting research, and publishing articles about MillionTreesNYC (respondents 10, 11).

The research group served as a gathering space and forum for interested researchers and had a core aim of strengthening the research-practice interface (Campbell and Monaco 2013). It held a preliminary brainstorming meeting of approximately 50 people in October 2008 discussing the role of research in the MillionTreesNYC campaign. Following on that, subcommittee members, with substantial input from the USDA Forest Service, created an urban forestry bibliography free for download to the public and managers, as an attempt at synthesizing some of the existing research knowledge in the field. Next, the research group organized a two-day workshop of meetings at Gracie Mansion (the official mayoral residence, which Bloomberg does not occupy) and field tours of planting and stewardship sites in spring 2009 that led to a report about the effort to integrate research and management practices (MillionTreesNYC Advisory Committee 2009). Following on this, the group curated a two-day research symposium of invited speakers, submitted talks, and poster sessions at the New School in in spring 2010 that was attended by more than 200 people. It led to a special issue of the online journal, *Cities and the Environment*, which included 12 research articles and 12 posters from the conference (Svendsen and Lu 2010). The symposium was seen by one leader of the campaign as a significant milestone in helping to create collaborative networks of people engaged in MillionTreesNYC (respondent 20).

Following these two major gatherings, the subcommittee shifted away from its role as a convener (respondent 28). Instead, individual research and evaluation projects proceeded independently, albeit sometimes with interconnections that were facilitated by the network of colleagues fostered through the subcommittee. For example, a subset of committee members and outside partners began National Science Foundation-funded research on changes in stewardship in New York City over 25 years (Connolly et al. 2013). Others conducted field ecology research on forest restoration initiatives (McPhearson et al. 2010; Simmons 2010; Falxa-Raymond 2011). Still others examined community engagement, stewardship, volunteerism, and green jobs (Fisher et al. 2010, 2011; Moskell et al. 2010; Falxa-Raymond et al. 2013). A formal evaluation of the overall MillionTreesNYC program, which was desired by NYRP and DPR, was taken up by an individual researcher from DPR, with some input from committee members (respondent 1). The group reconvened for a final effort at synthesizing the integration of research and practice in the MillionTreesNYC campaign in the form of an electronic report and a series of publicly accessible factsheets (Campbell and Monaco 2013).

**Change over time**

A multi-year urban forestry campaign is not a static thing. It changes, matures, learns, and experiences setbacks and windfalls. This section examines some of the key turning points experienced in the campaign from its conception until 2011. I explore the role of external forces, particularly the 2008 financial crisis, as well as internal forces, such as leadership changes, in those shifts. I discuss whether the required update to PlaNYC in 2011 had any impact on the implementation of an already-existing mayoral

campaign. I note that the campaign continued to evolve and shift to the present day, though this is beyond the scope of this study. Finally, I close with the open question of what will happen to this special mayoral initiative under future administrations.

***Financial crisis, economic downturn, and budget cuts***

Although the campaign constantly evolved throughout its implementation, perhaps the single greatest turning point it experienced was the global and local financial crisis of 2008. All city agencies, including DPR, sustained 30% budget cuts in fiscal year 2009 (respondents 4, 22, 41, 47). This municipal belt-tightening and emphasis on fiscal discipline continued the sorts of neoliberal measures that have been used in New York City since the 1970s crisis (Brash 2011; Shefter 1985; Brecher et al. 1993). Interviewees in executive leadership roles noted that it is not uncommon for the DPR budget to be one of the first cut in difficult economic times, as it is seen as politically more malleable than, say, the schools, police, or fire budgets:

> I think Bloomberg has been great for the parks because he's looked at quality-of-life issues. But he also had an improving economy as well. But the Parks budget is always the soft stuff –and that's what goes. And cleaning parks is not the same as shoveling snow. Absolutely (respondent 27).

Another corroborated,

> …You know, nobody hates parks. Most people would say that they are important, a quality-of-life amenity. People love them. They have exercise, cultural events, education. All these wonderful things happen there. But it never translates into budget support. I think both the public and the elected officials sort of take it for granted that, if the funding is reduced nobody's going to die as a result. Either the grass won't get cut or the garbage won't get picked up as frequently, but it's not going to hurt the city immeasurably or permanently…. But on the other hand, if the city does want to be a greater, more sustainable place, you can't be green and sustainable without taking care of your natural areas in some way, shape, or form. They do okay by themselves out in the forest, but not in the city (respondent 47).

These cuts led to an agency-wide hiring freeze at DPR in 2009, which meant that even when existing employees left for other jobs or new locations, there was difficulty in 'filling behind' them in order to fully staff divisions. In particular, this had implications for CFH and NRG as they faced leadership changes and subsequent reorganizations in response to those changes (respondents 18, 49).

It is important to note that although cuts in various program areas were sustained, capital dollars allocated via PlaNYC for tree planting were *not* lost in these 2008-2009 budget cuts. The agency made a priority of reaching tree planting targets, and instead made cuts to other programs, such as the trees and sidewalks repair program, the pruning budget, and the Greenstreets program, which is a program that transforms traffic triangles in the PROW into green, planted areas (respondent 4, 22, 27). Indeed, the bureaucrats within DPR had discretion to decide where cuts were made and what priorities to preserve such that cuts were made to other signature PlaNYC projects—like the regional parks initiative—before they were made to tree planting budgets. After the initial round of 30% cuts, budget cuts continued and deepened with another 8% cut, during which losses to the MillionTrees program were sustained (respondent 22). These cuts to maintenance, pruning, and stump removal budgets occurred quietly, but devastatingly, and did not create a crisis moment that triggered public action. A program head stated:

> And so far, we've lost a lot of our maintenance funding. And I really thought, "Well, the community's not going to stand for this". This is a somewhat cynical move by government to continue planting while we're not maintaining. But people will call us on it. And the community, the urban forestry community will rise up and say, "You hypocrites. You can't do this." Did they? (respondent 27).

The respondent then explained how neither residents, nor elected officials, nor members of the advisory committee to MillionTreesNYC were able to pressure city council or the

mayor's office to resist the across-the-board cuts to the maintenance budget, despite the frequent calls for attention to maintenance over the course of the campaign (respondent 27). This reflects a subtle tension that may be produced, in part, by the practices of a high profile, public-private partnership. While the city exercised fiscal discipline and made deep cuts to city agency operations, the visible and glossy public relations campaigns crafted by NYRP and its design consultants for MillionTreesNYC continued. According to the messages received by the public, the campaign was humming along. Yet, large changes were afoot. These sorts of decisions made by bureaucrats are not always fully visible, but they are crucial to how the campaign was implemented.

With respect to NRG reforestation sites, prior to 2008, planting was handled by a combination of in-house crews and contractors, but after the global financial collapse and subsequent municipal budget cuts, DPR began to depend upon volunteers in large-scale tree planting days (respondent 47, 48, 22). Each fall and spring, several sites are selected across the five boroughs and 20,000 trees are planted in single-day volunteer planting events (See Figure 5.8). Volunteers come from workplaces (including a large contingent of corporate employees interested in service work), schools, clubs, and other civic groups. A study of these volunteers found that they tend more often to be white, women, and well-educated as compared to both the population of New York City and the nation; and they tend to be more politically liberal and highly civically engaged (Fisher et al. 2011). Despite the significant advanced preparatory work that is required: recruiting volunteers, pre drilling holes for planting, allocating trees in the correct location across sites, using volunteers for their physical labor still remains a significant cost-cutting measure (respondent 47). Although cost-savings was one driving rationale, DPR also

hoped that these volunteers would come to feel more invested in park sites that are often overlooked or less-visible than traditional recreational sites (respondent 48). From the perspective of leaders developing MillionTreesNYC as a volunteer program, active engagement with tree planting events is one of the key points of contact between the public and the campaign (respondent 15).[26]

Figure 5.8: Photo of volunteers at NRG reforestation planting event at Alley Pond Park in Queens

Source: photo by author

[26] Having participated in MillionTreesNYC volunteer plantings and thoroughly enjoyed it, I recognize the dissonance between the abstract notion of my labor being harnessed and the felt, affective experience of planting trees as a voluntary, leisure, or civic engagement practice. This study does not explore the motivations and experiences of volunteer stewards engaging with the campaign (but see Fisher et al. 2011).

With respect to street trees, while DPR's commitment to stock streets citywide remained, the calculation of the number of trees that could be planted on each street length was reduced. Starting in 2008, fewer street trees were planted per season due to these cuts (respondents 1, 20). Reflecting on the original PlaNYC goal of planting 220,000 street trees citywide, one respondent noted:

> In fact…I don't think we'll make the 220,000. We were never technically fully funded to hit the 220,000 because we lost a little [in budget cuts]. That would have reduced it and prices went up at first. But since then they've come down; I still don't think we'll hit 220 (respondent 4).

Thus, even the firmest of quantitative goals that are explicitly named in the plan are subject to market vicissitudes and fluctuations in the municipal budget. The budget is not adjusted to stay on track with the goal; rather the goal (or the implementation of the goal) is adjusted to suit the budget in an act of realist policymaking and natural resource management. In addition, as previously mentioned, the MTTP green jobs program was ended after it's federal and private sector funding sources were exhausted; the city could not afford to sustain this high cost program without these partners (respondent 1).

For NYRP, the financial downturn also coincided with the maturing of the campaign – leading to fundraising challenges. One respondent noted this tenuous position of nonprofits, in that "They always have big, continual fundraising and [are] dependent on the good wishes of donors" (respondent 46, see also respondents 55, 63). However, this was countered by an interviewee who felt that NYRP weathered the downturn fairly well compared to other nonprofits, precisely because of its involvement in such a high visibility campaign (respondent 35). Funders became increasingly reluctant to give due to the economy and to fatigue with the multi-year campaign (respondents 10, 11, 24). At the outset of the campaign, and building off the momentum

provided by Bloomberg and Rockefeller philanthropic donations, NYRP was able to secure lead sponsorship from BNP Paribas, Toyota, and Home Depot Foundation (respondents 1, 13, 15). But over time, funding priorities began to shift (e.g. in the case of Home Depot, a change in focus from urban forestry to housing development occurred). Also, as a ten year campaign, fundraisers struggled to position the effort as 'novel' and 'fresh', as corporate and philanthropic donors' eyes began to wander in search of the next, newer effort.

NYRP had to continually re-frame the campaign around different discursive threads, as well as changing the emphasis in the implementation, in order to stay ahead of the challenging funding environment. One respondent elaborated on how tree planting must be framed as an efficient investment in the context of declining public coffers, particularly in underserved communities:

> We've raised something in the area of nineteen million dollars today. We probably have to raise at least that much before we're going to be done. So…when people are actually having a hard time putting food on the table and municipal services are being cut, you're really very sensitive to people's concerns about—we go into NYCHA housing sites and people will be like, "So you're planting trees, but our elevators don't work?" And to the public it's not always clear that these things are not coming out of the same pocketbook. So the key here is for us to be really smart about how we talk about MillionTrees…to argue how a dollar invested in tree planting pays several-fold that value to the city annually, the benefits both were ecological: of recharging rain water, of filtering the air and providing aesthetic and therefore economic benefits to communities. Those things are all very real and we have to constantly focus on the fact that what we're doing here is not decorating the city. We're actually improving the quality of the city and building valuable infrastructure that is so much less expensive than if the city built out more gray water systems, right?.... Dollar for dollar, it's one of the best things that someone could do to invest in the city (respondent 10).

As previously mentioned, the main shift in NYRP's implementation involved a decrease in the commitment of number of trees that they would plant directly (respondent 47). As

their responsibility for the number of trees planted decreased from 400,000 to 300,000, they simultaneously shifted their emphasis away from 'direct planting' efforts and toward tree giveaways and 'influence plantings', at significantly lower cost to the organization.

***Updating PlaNYC***

The 2011 update to PlaNYC occurred in a very different economic and political context from the original plan. Because of the fiscal reality at the time, PlaNYC was no longer powered by large infusions of capital dollars. OLTPS and DPR staff emphasized repeatedly that 'PlaNYC 2.0' (as the 2011 update was informally called) would require the city to "do more with less" (respondent 15). A municipal official described this shift from 2007-2011:

> I think that's a major difference between the original plan and the update is that the original plan was able to commit hundreds of millions of dollars of new capital spending, particularly on Parks…. That's in the environment of 2007. The 2011 update, we were under orders: no new capital commitments. No new expenditure commitments were allowed in the plan. So it's a very different fiscal circumstance for the update compared to the original, in terms of what the administration was able to commit financially. We had to be more modest in our milestones as they pertained to expenditures (respondent 46).

At the same time, and perhaps out of financial necessity, the city began to open up the planning process to new voices and constituencies. While the initial document was tightly controlled and developed in a top-down fashion, with selected representatives from outside organizations and sectors brought in via the SAB, and opportunities for public comment held at a very late stage ; the PlaNYC 2.0 process was more inclusive (respondents 28, 15). In comparing the first and the second iteration of the plan, one interview subject internal to this process said that PlaNYC went from being "an elite plan to a democratic plan" (respondent 49). OLTPS hired coordinators whose primary job

was to liaise with community residents and organizations in order to gather their ideas, engage them in dialogue, and help develop a broader network of supporters for PlaNYC. Borough-based public hearings were held, as well as topically focused meetings at City Hall and other public venues, and smaller consultations with experts in particular sub-areas were held (respondent 52, 46). Not only did the public influence the planning process, but the agencies implementing the initiatives themselves had a huge effect on the places where the plan expanded and contracted, adding initiatives under the moniker of PlaNYC, and making cuts where they saw fit (respondent 26).

Despite its broader inclusiveness, PlaNYC 2.0 was seen by many agency officials as an exercise with which they had to comply, rather than a strategic process empowered by strong top-down support from City Hall. Regarding urban forestry, PlaNYC 2.0 had very little effect. Almost all interviewees reported very little engagement in the process and almost no impact of the plan's issuance on the practices of the campaign (respondents 35, 4, 47, 50). One interviewee called it "just a legal requirement" (respondent 47), others had not read or circulated the plan at all (respondents 10, 11, 2). Indeed, without the infusion of funding, it was noted that the mayor's office and OLTPS had few tools for reforming or changing agency practices outside of the scope of budget changes. PlaNYC 2.0 was seen primarily as an administrative 'box to check,' as opposed to a political opportunity.

In contrast, some of the partners in and around the MillionTreesNYC campaign felt that PlaNYC 2.0 went in a positive direction. It was commended for drawing public attention to MillionTreesNYC as a successful initiative (respondents 10, 11). Despite the lack of new funding commitments, many respondents appreciated the broader

inclusiveness of its process, the references to stewardship and maintenance of existing assets (parks and trees), and the recognition of the role of civic groups and volunteers (respondent 28). In fact, one subject argued that the way in which MillionTreesNYC was implemented, with heavy volunteer involvement, its StewCorps partners, and a broad-based advisory committee may have informed PlaNYC 2.0:

> It was sort of a revalidation. PlaNYC 2.0…that report sort of concentrated on the citizen involvement in stewardship aspects of what we're doing, which is great…and that community involvement has become such a salient part of many different PlaNYC initiatives. I think perhaps Million Trees has informed PlaNYC 2.0 more than vice-versa just in how we proceed with things, how the public has perceived the initiative, challenges that have come up, things like that (respondent 1).

Indeed, the plan included language that referenced the importance of civic stewardship groups as documented in the STEW-MAP project and described in chapter 3 (USDA Forest Service 2007). And a new goal was added about the importance of cultivating partnerships between city, state, and federal agencies. One such example is the NYC Urban Field Station, which is a joint effort between DPR and the USDA Forest. Another example is the partnership between the City of New York and the National Park Service in collaboration around improving Gateway National Recreation Area, with particular emphasis on Jamaica Bay (City of New York 2011a). Others said that OLTPS did a better job of outreaching to NYCHA and including that agency as a part of the plan, which was lacking in the first iteration (respondent 20). Finally, one interviewee felt that PlaNYC 2.0 did a better job of acknowledging the role of NRG and the importance of 'natural areas' to the tree planting goal, highlighting this more than the heavy emphasis on street trees and the PROW in the first iteration of the plan (respondent 36).

***Leadership transitions and the future***

Top-down leadership played a crucial role in the conception and implementation of the campaign; when these leaders leave, change positions–or occasionally in anticipation of such changes–ripple effects are felt throughout the network (respondent 15). One respondent summarized the importance of City Hall support over the course of the campaign:

> The fact that we have enjoyed such strong support from Deputy Mayor Harris and the mayor himself cannot be underestimated and has been critical to the success of both Million Trees and our urban forestry efforts. From the extensive capital budget and mayoral dollars which were allocated to the firm commitment and support which has led to twice yearly large scale volunteer planting days has been exceptional and has literally and figuratively fueled the campaign. MillionTreesNYC became a signature element of the mayor's sustainability agenda and a very public and visible part of the success of PlaNYC. This support and engagement from City Hall has brought a myriad of resources, visibility, and momentum to the campaign and our efforts (respondent 22).

Repeatedly across interviews with individuals of all different positions, there was an acknowledgment of the way this campaign was a 'mayoral priority,' which drove the substantial budgetary commitment, aggressive timeline, obsessive reporting and tracking, and concerns over what would happen in future mayoral administrations (respondents 22, 49, 35). One informant described operating under the watchful gaze of a powerful authority as the "eye of Mordor" (respondent 52). This campaign was not simply 'urban forestry business as usual', although it certainly relied upon previously established routines and practices. Fundamentally by being a time-delimited, numeric planting goal anointed by the mayor, it established new practices and led to a sense of urgency.

This mayoral enthusiasm for trees did not emerge out of the ether. Rather, it was brought into being by the cajoling, argumentation, and effort of long-time DPR commissioners, deputy commissioners, and division heads who drew upon data and

arguments that they had been gathering and honing for years. Interviewees noted, however, that Bloomberg differed from his predecessors in truly empowering his commissioners and his office staff to exercise real leadership over efforts. Finding this space for entrepreneurialism and creativity in heavily hierarchic institutions often notorious for their fealty to the 'chain of command' was no small feat (respondent 22; see also Becher et al. 1993). One can also witness the importance of sound agency leadership through a counterfactual—observing what occurs when it is lacking. This was the case with forest restoration efforts at NRG and the resulting loss of $11 million in capital monies that was taken away from DPR and given back to the OMB general fund:

> When [NRG was] first given PlaNYC they just didn't know what to do. They had never run capital programs before. It was just like running around and they had no leadership. And mostly because of that, they didn't spend their money in their first year. And so that's why their budget was cut by eleven million dollars (respondent 4).

One of the largest unresolved questions is what will happen to the campaign after Bloomberg leaves office and a new mayor is installed in 2014. Interviewees noted the amount of mayoral discretion on the future of the campaign and PlaNYC itself. Despite being a 'long term sustainability plan', PlaNYC is entirely an executive initiative. The next mayor could choose to completely abandon both PlaNYC and MillionTreesNYC, scale it back, rebrand it, or continue it apace (respondent 26, 13, 41). Those closest to the campaign are working to make as much progress as possible during the current administration.

> And at the time we thought that Bloomberg was going to be done in '09—that we'd have a new mayor in 2010…. This is politics. One of the things that you quickly learn in politics is that the succeeding mayor has no stake whatsoever in burnishing the legacy of his predecessors. So, you figure that any money that you haven't gotten by 2009, chances are you're never going to see it. So we quite consciously put together all of our plans to front load as much of the money as we

> could get away with. And then, of course, tried to work very quickly on implementation; just because money has been appropriated, bad things can still happen… Now, even though Bloomberg unexpectedly got another term, sure enough part of our money disappeared. So no one is saying that the projects are dead, but there's certainly a stretch on them…. I would certainly hope that everything gets done before 2013, because I suspect that what doesn't almost certainly ain't going to happen (respondent 41).

MillionTreesNYC leaders are also working to build a sense of inevitability and permanence such that future mayors would be ill-advised to quash the effort (respondents 1, 4, 24).

Some continuity for the campaign could potentially occur through the partnership with NYRP, which does not face the same time-delimited mayoral term. However, the nonprofit has undergone its own leadership changes. In 2011, Darin Johnson, who had been one of the key strategic leads in conceiving the entire MillionTreesNYC campaign, left NYRP. A series of leadership changes also occurred at the programmatic level, with numerous changes in the MillionTreesNYC director position, development position, and forestry, horticultural, and field staff. Some of the staff were seen as less experienced than others, but, in all cases, the turnover had an impact on how NYRP interfaced and worked with DPR (respondent 35).

Perhaps NYRP's most significant leadership transition occurred with the departure of Executive Director Drew Becher and the installation of his successor, Amy Freitag, in 2010. These directors have distinct leadership styles and priorities which, along with the board, largely shape the direction of the organization. When interview subjects were asked about turning points in the campaign overall, several of them pointed to this change (respondents 13, 15). Becher developed a reputation for bold moves in reshaping environmental organizations, through his track record in Chicago, Washington

D.C., and New York, as he was successful in growing budgets, hiring staff, and starting high profile public campaigns (respondents 47, 62). That said, he was also known for a heavy-handed leadership and communication style and lack of patience in dealing with staff and partners (respondents 7, 13, 22, 35). He was highly successful in upward accountability to funders and board members, but perhaps less so with downward accountability to members, clients, and partners. One of the ways this manifested was in a greater focus on the number of trees planted than on the educational or stewardship programs that were put in place to support the maintenance of those trees:

> Drew's original thought was, "Let's just get all these trees in the ground and we'll figure out the stewardship [later]." And that was even a struggle with NYRP for the first year and a half. I mean, there were knock-down battles over that because Drew, basically, all he cared about was the numbers. Everybody around him was saying, "Hey, this thing's going to backfire on us because of we're putting a hundred thousand trees in the ground just to appease the mayor and this Bloomberg-Rockefeller funding that was being given, what happens in a year when half the trees are dead because we didn't put any mechanism in place to water and care for the trees?"…. He was driven by the numbers…I mean, that's how the City Hall was. It's all metrics driven. And I also think he knew that he needed to prove that NYRP had the capacity to plant the trees to bring in funding. And let me tell you…Drew, he's a smart guy. I mean, he gets shit done and he does it in a bulldozer and take no prisoners [way], but he gets it done, and doesn't take no for an answer and pushes people. And for that I give him huge credit (respondent 35).

Becher continued his trend of relatively short stints heading organizations and relocating to new cities by leaving New York City for Philadelphia to head the Pennsylvania Horticulture Society (PHS 2012). In contrast, Freitag, while also a strong personality with a history of leadership, was viewed as more of an 'insider' to DPR, as she previously was Deputy Commissioner for Capital Projects at that agency. This insider view was seen as crucial to helping to mend some of the tensions or miscommunications between the two sides of the partnership that had previously developed under Becher

(respondents 13, 22). She brought on as a deputy Deborah Marton, formerly of the nonprofit the Design Trust for Public Spaces. Both women had professional backgrounds in landscape and design and were invested in the creation of sustainable landscapes; they brought that design emphasis to all new planting practices of NYRP.

At the time of my interviews, respondents speculated about the future of the campaign. When asked what NYRP would do with the campaign going forward, a respondent said:

> I think we'll keep doing tree giveaways. I think that's what basically will happen…. As of September or October of [2011]…the directors at Parks and NYRP sat down and said, "So what is it going to cost us to do this—to complete this initiative?" And for the NYRP side it was—at the levels that we were operating at that time—it was going to cost us something like $27 million dollars to complete. So I just heard that and was like, "*Huh?* Okay. So we're stopping at 600,000 [trees]? Is that what it sounds like?" I think that we'll continue to plant as much as possible--we're currently looking for a third lead sponsor for MillionTrees.…
>
> I don't think it matters [if we don't reach a million trees]. I think that people appreciate honesty.… It would have been great to have done it three years ago or something like that, but even at this point, I think you can say to people, "This is a very ambitious project. We've worked tirelessly. These are all of our accomplishments over the last few years…. However, given the financial challenges…we're not…going to complete the project in the targeted timeframe. However, Million Trees is not a ten year initiative. It's a concept. It's an idea. And so, please support us and really work with us to fulfill this project. Plant trees in your home, outside, in your yard. Work with your schools if there's lawn space on the schools. Find places." And, maybe if we created some best practice guides that were like, "This is what we learned from the initiative. This is what we had done well. We can support you with these resources, non-financial resources to help plant more trees in your community"…. I think people would respond to that (respondent 55).

Another respondent reiterated that the campaign could shift the focus away from reaching the one million tree mark:

> I mean, at the end of the day everybody was excited about the initiative and saw the potential… And I know people don't agree with me on this, but at the end of the day–if we only at the end of the initiative get 800,000 trees in the ground, it's still a success. Like, no one has failed because we got people excited about tree

> planting. More people are aware of it. And we got 80,000 more trees in the ground….it's a no lose proposition (respondent 35).

However, the identity of the campaign is so tightly connected to the MillionTreesNYC 'brand' that this shift might prove challenging. Another strategy advanced by DPR was to pivot the emphasis of the bulk of the initiative from aggressive, municipally-led tree planting to a broader movement around civic stewardship of trees; and NYRP has scaled back direct planting to focus on tree giveaways. In later stages of the campaign, MillionTreesNYC and DPR staff and their partner organizations worked to build a corps of committed volunteers and engaged residents who would help carry forth the initiative beyond the mayoral transition (respondent 15). In 2013, after the timeline of this study, leaders of the campaign adjusted their goals to aim to complete all planting by 2015. As of July 22, 2013, the milliontreesnyc.org website counter shows 757,386 trees planted.

## Chapter Six - From community gardening to urban agriculture

This chapter traces the network of actors and discourses involved in creating, advocating for (or resisting), maintaining, and growing urban agriculture sites and programs in New York City. It explores the questions of who participates in the construction of urban agriculture, in what ways, and according to what rationales? These networks extend laterally to other sectors, geographically outward in space, and historically through time with an unruliness that presents challenges to the researcher attempting to bound a case. First, I discuss the history of community gardening in New York City since 1970s. Then, I discuss a more recent wave of interest in urban agriculture dating to the mid-2000s. I parse this more recent movement into its various discursive strains and material practices, which range from a focus on local food production, to commitments to the regional foodshed, to an interest in neighborhood stabilization and youth empowerment. I discuss how, despite a sense of lack of space in the developed city, a mass of voices has coalesced around the concept of the food system. That food systems framework is, in turn, picked up in food policy visions and plans that will be discussed in chapter 7.

Community gardening and urban agriculture are not synonymous. Although community gardens can be important agricultural sites (Gittleman et al. 2012; Farming Concrete 2011), certainly not all gardens focus on food production (Ackerman 2011; Cohen et al. 2012). Instead, community gardens are community-managed open space. Thus, they can serve as recreational space, open space, performance space, food production space, gathering space, cultural space, or many other functions (Mees and

Stone 2012; Stone 2009, Bennaton 2009; Schmelzkopf 1995; Cohen et al. 2012; Kingsley et al. 2009; Ohmer et al. 2009). Since the fiscal crisis of the 1970s, New York City has one of the largest and most robust community gardening programs in the world, with a broad base of resident engagement (GreenThumb 2010; Stone 2009; Lawson 2005; Von Hassel 2002). That base was mobilized with particular urgency in the mid-1990s when then-Mayor Rudolph Giuliani threatened to auction hundreds of garden sites for housing development. Legacies of the garden preservation struggle continue to reverberate during the period of this study, 2007-2011. The complexity of different land jurisdictions and municipal and nonprofit institutions serving gardeners continues to shape how gardens in New York City are used and function.

Across almost all of my interviews and numerous media representations, there is a sense that *something* is different, changing, or new about the current efforts in urban agriculture. While impossible to pinpoint the exact start, many interviewees felt that there is a new, growing wave of engagement in urban agriculture—and a broader interest in localizing food systems, coalescing especially since 2007. New York City has new rooftop farms, urban farms, school gardens/greenhouses, backyard chickens, beekeeping and generally high media attention and excitement surrounding urban agriculture and local food production (Stein 2010). One notable difference is that many of these new models (both for-profit and non-profit) are selling their produce, rather than dividing it among members or donating. Participants perceive themselves as being part of a growing movement around local food that is increasingly visible and recognized. Media attention, high level support and endorsement, and the economic downturn have all added fuel to a vibrant movement that grows daily.

**Community gardening in NYC from 1970s-present**

There have been numerous prior waves or cycles of interest in farming and gardening in the city, as is clearly argued in Laura Lawson's (2005) *City Bountiful* wherein she traces this legacy as far back as the progressive era of the 1890s in America. Often these upswings in urban agriculture correspond to crises or downswings in the economy. A long-time urban agriculturalist identified the Depression, World War II, and the fiscal crisis of the 1970s as the most notable periods in gardening in New York City (Lawson 2005; NYCCGC 2010; respondent 25, see also respondents 8, 28, 41, 58, 6). These legacies are referenced in contemporary discourse around urban agriculture. Recent reports and policy documents hearken back to the history of Kings (Brooklyn) and Queens Counties as agricultural production sites in the 1800s and early 1900s, lay claim to the history of Victory Gardens and school gardens, and celebrate the tradition of neighborhood stabilization and self-help through community gardening that began in response to 1970s disinvestment (NYC Council 2010; Ackerman 2011). Current activists in urban agriculture note that many of the models being developed today were experimented with and deployed in the 1970s (respondents 25, 37, 44, 8).

The 1970s was a pivotal era not only for individual and grassroots engagement in community gardening, but also in the development of civic institutions to help support that work. For example, the nonprofit Green Guerillas offers information and community organizing to gardeners citywide. It was founded in 1973 (incorporated as a nonprofit in 1976) by Liz Christy through her gardening and advocacy work in the Lower East Side of Manhattan and is still in operation at present (respondent 59). It was in this same era that two civic groups, Council on the Environment for New York City—now GrowNYC—

and Trees New York, formed to help address the inability of local government to maintain the city's parks and trees (respondents 58, 63). Later, in the 1980s, the major botanical gardens of New York City also created programs to support community gardening and neighborhood beautification, including the New York Botanical Garden (NYBG)'s Bronx GreenUp (founded in 1988) and the Brooklyn Botanic Garden (BBG)'s Making Brooklyn Bloom event (started in 1982) and later the Brooklyn Greenbridge community outreach program (respondents 56, 61).

Municipal support for gardening began in 1978 with the formation of GreenThumb, which is now a program of the Department of Parks and Recreation (DPR). Originally housed under the Department of General Services (now called the Department of City Administrative Services, or DCAS), GreenThumb was a response to the city's fiscal crisis and was described by one interviewee as "an accident of history" (respondent 6). The financial collapse had led to property abandonment and arson by private owners and left the city struggling to manage all of the vacant land under its jurisdiction. The program was developed, in effect, to enable people to 'help themselves' by offering temporary, low-cost leases to residents engaging in gardening on vacant lots. It received federal funding through a Housing and Urban Development (HUD) Community Development Block Grant (CDBG), which allocates support to community development programs in low income areas (Mees and Stone 2012; Lawson 2005; respondents 6, 14).

***Garden crisis of the 1990s and its legacy***

The community gardening movement in New York City is also fundamentally shaped by its shared, collective experience of the late-1990s 'garden crisis'. It is

important to understand the historical legacies of this period, as well as how the story continues to shape thinking and organizing today (see, for example, Stringer 2010: 11; NYCCGC 2010). GreenThumb's long-term lease program ended in 1995 and was replaced with a system of license agreements (Lawson 2005: 260). Starting in 1998, then-Mayor Rudolph Giuliani began to target community gardens as potential sites for housing development. He transferred a number of sites from DPR jurisdiction to Housing Preservation and Development (HPD), the city's affordable housing development agency. In addition to its mandate to develop affordable housing, HPD was subject to the directive issued by the Office of Management and Budget that it raise revenue by disposing of properties on its rolls through development or auction (respondent 50). At this stage, a number of gardens on HPD lands were successfully transferred back to DPR and preserved. But in May of 1999, the City placed 113 gardens on unrestricted auction, to go to the highest bidder (Lawson 2005: 261). The bulldozing and imminent auction of these gardens led to large-scale protests by gardeners and their allies, with significant attention from the media and visible actions such as protesting at City Hall (see Figure 6.1) and building encampments in threatened garden sites (Mees and Stone 2012; Von Hassel 2002; Stone 2009; Lawson 2005; Schmelzkopf 2002; NYCCGC 2010; Fox et al. 1985; respondents 6, 50, 64). Older organizations like Green Guerillas, as well as newer organizations formed specifically in response to this threat, such as More Gardens!, helped organize and lead these protests (respondent 59). Activists from the Brooklyn Alliance of Neighborhood Gardens sought to counter the narrative that housing and gardens exist in a one-to-one tradeoff, issuing a postcard with

a message stating: “11,000 vacant lots in the city, 500 community gardens, There oughta’ be a law” (NOSC 2000).

Figure 6.1: Photo of community gardeners and allies protesting the bulldozing and auction of community gardens in 1999.


Source: Edie Stone, GreenThumb

In the final hours, the New York State Supreme Court stopped the unrestricted auction, required a review of environmental impact of the sale, and issued a “cease and desist” order to stop the imminent development of garden sites (NYCCGC 2010). This provided a window in which two nonprofits negotiated a purchase of numerous threated garden sites. The Trust for Public Land (TPL) bought 62 gardens and the remainder were purchased by New York Restoration Project (NYRP) for a total price of $4.2 million. (Lawson 2005: 262; respondents 45, 64). The Memorandum of Agreement crafted by then-Attorney General Elliot Spitzer and the Corporation counsel of New York City created specific lists of garden sites and parcels in different categories of protection, management, and use. In total: 86 gardens on DPR land were listed as “Parks Open

Space"; 7 gardens on other public agency land (non-HPD) were listed as "subject to development / no development planned"; and 100 gardens on Department of Education (DOE) land were listed as "DOE Open Space". All of these sites were designated to be maintained as gardens, offered the opportunity to participate in the GreenThumb garden registration process, and required to go through environmental review and the Uniform Land Use Review Procedure (ULURP) if they were offered for disposition or development. Another set of 198 gardens were listed as "offer for preservation" either via GreenThumb or the nonprofit land trusts discussed above. Another 110 gardens were listed as "subject to development", with the Memorandum setting forth a protocol for offering appropriate public notification and review and seeking alternate sites for displaced garden groups. Finally, 28 gardens that had already completed land use and environmental review were listed as "immediate development" sites and could be sold by the city (Attorney General 2002). The terms of this agreement and the specific lists of garden sites were carefully crafted by city bureaucrats from DPR and HPD operating under the pressure of garden advocates and working in close consultation with the Attorney General's office (respondents 6, 50).

At present, community gardens in New York City are located on many different land jurisdictions, including public land managed by DPR, HPD, Department of Transportation (DOT), and New York City Housing Authority (NYCHA), and private land owned by NYRP and TPL. Because of this diversity, gardens are subject to differing institutional structures and sets of resources. Community gardens registered with GreenThumb (which can include gardens on non-DPR land) have the ability to set their own bylaws and governance structures, and must only adhere to certain minimum

standards of safety and public access. GreenThumb gardens must have a group of at least ten active members, must have a process by which individuals can apply to be members, and must have the garden gate open to the public a minimum of 20 hours /week (10 hours/week of which must be posted publicly) from April through October (GreenThumb 2011: 9). GreenThumb's budget is subject to the vicissitudes of the CDBG funding levels, which can rise and fall with economic shifts and political will. As a result, the division has struggled to have sufficient outreach staff to serve the needs of all gardeners citywide; while in the past it has had one outreach coordinator per borough, they had just two outreach coordinators serving the whole city as of 2011 (respondent 6). GreenThumb helps support approximately 650 gardens and approximately 20,000 gardeners citywide (GreenThumb 2010).

Because of its history and its unique funding source, GreenThumb has operated in a gray area somewhat outside of more traditional DPR operations. For example, GreenThumb is not included in the Mayor's Management Report—one of the key tracking and accountability measures used to examine performance of city agencies (City of New York 2011c; respondent 12). Moreover, gardens are not included in the Parks rating system, which is used internally by DPR to track maintenance and quality of public parks (respondents 6, 12). While gardens would necessarily require a different rating system than traditional recreational parks that are maintained by DPR staff, by not being included in ratings, they do not receive resources and support through the borough divisions of DPR that other small parks would receive (respondents 28, 6). GreenThumb not only serves gardens that are on DPR sites, but also provides resources, information, and technical assistance to gardens on all land jurisdictions—including nonprofit-owned

TPL and NYRP gardens. (In fact, when asked to identify public, nonprofit, and business partners, several of my interviewees mistakenly identified GreenThumb as a civic group.) GreenThumb serves an organizing role through hosting large scale events like the fall celebration—the Harvest Festival—and the spring conference—the Grow Together, which has been running annually for 28 years. The 2012 Grow Together engaged more than 600 gardeners in plenary talks, dozens of workshops and panels, lunch, activities, and a resource fair, serving multiple roles of sharing knowledge, creating community, and providing technical assistance.

Nonetheless, the fact that GreenThumb is housed within a municipal agency is something of a unique institutional structure in the community gardening world where many umbrella organizations that serve gardens are independent nonprofits. As a city agency, GreenThumb has the ability to more easily negotiate agreements with other agencies. The Department of Sanitation provides community gardens with free compost—or rather, it did until the citywide fall leaf collection and spring compost pickup were suspended due to budget cuts in 2008 (respondents 6, 7, 43, 44, 53; DSNY 2012; Sustainable Flatbush 2011). The Department of Environmental Protection has an MOU with DPR to provide water via fire hydrant access for registered gardens. DOT can fast track the repair of sidewalks around gardens (respondent 6). And after the immediate garden crisis was averted, DPR and HPD developed a process for transferring sites between each other in order to best address the delicate balancing of housing and gardens. Staff at the two agencies worked to swap developable sites for housing with sites for use as gardens, which involved assessing both the potential for development based on size, location, and zoning as well as assessing the viability and strength of

garden groups. This informal relationship is based on trust, shared history, and common understanding between bureaucratic staff.

The settlement developed by the Attorney General expired in September 2010, which triggered a revision of the rules governing GreenThumb and community gardens (Benepe 2010; respondent 29). These rules pertain to how the city deals with development of gardens, the process of garden group license renewal, as well as how DPR will address if a garden group becomes defunct or dysfunctional. While public officials felt that the revised rules offered sufficient protection to gardens, many activists were concerned about the long term security of garden sites given the earlier history of the Giuliani era (Benepe 2010; respondent 6, 50, 29, 59). A number of organizing efforts were led by the New York City Community Gardening Coalition (NYCCGC), as well as the Green Guerillas and other allied groups, to ensure that gardeners knew the text of the proposed garden rules and to advocate for changes to the rules (respondents 29, 59). In particular, NYCCGC helped to organize more than 300 gardeners to attend the August 10, 2010 public hearing on the proposed rule changes, to stage protests, and to attract a large amount of media attention (see: http://nyccgc.org/2010/08/recap-nyccgc-rally-parks-dept-public-hearing-regarding-proposed-new-rules/).

Beyond trying to change the rules, some advocates suggested that gardens on city-owned land were not sufficiently protected, even when sites were under DPR jurisdiction. Instead, they were interested in exploring the idea of transferring gardens citywide into a conservancy or land trust, using restrictive covenants, long term leases, or mapping as parkland (respondents 14, 29; Quinn 2010). In the push-and-pull of negotiations, city

officials argued that gardens have never been better protected through rules, the city administrative code, and ULURP:

> But the land is safer under a GreenThumb license if it's Parks property—even if it's HPD property—because to change out any of that under the new rules, it has to go through full ULURP. And as much as the gardeners don't believe that's a protection, they have no idea how much nobody ever wants to put anything through ULURP if they don't have to, because it takes forever. It's a giant pain in the ass…. If people had *any* idea what institutional inertia really is like, they would be *totally* secure in their gardens! [laughs] It's totally true. People keep saying, "Oh another mayor could change the code and they could just do the same thing that we did and get rid of all these protections." All of us who worked there were like, "that *never* happens." There's laws on the books that haven't applied to anything for fifty, seventy years. But nobody bothers to go back and do all the public hearings and everything else that you have to do to change the code. If it's not preventing something you want to happen or it's not causing a problem, nobody cares! They just like leave it there…like the laws applying to cleaning up after your horses—stuff that's just completely irrelevant now. It's still there. It's still in the administrative code (respondent 6).

Another public official corroborated the belief that the revised garden rules post-settlement offer sufficient protection such that another crisis will not occur:

> My sort of sense of [the garden rules] is that I think they are way more protective than the settlement agreement was. And I think it's very unlikely that there is going to be any kind of threat to gardens like there was under Giuliani. I think people are somewhat worried in the garden world about the fact that there is still a mechanism by which a garden can be decommissioned as a garden. But that was really coming more from the Parks department, including GreenThumb…because the reality is they can't be responsible if there is criminal activity going on or other reasons, they want to be able to deactivate a garden, they need some ability to do that…. It's really more talking about how you manage gardens in Parks' jurisdiction going forward.
>
> And while I suppose it's possible you could have a mayor who could actually take Parks' jurisdiction land out of Parks, I don't even think Giuliani would have ever done that. I mean, the reason why this was easy to do is because the gardens at that point [in the late-1990s] mostly were in HPD's jurisdiction, were slated programmatically for years to become housing, they were part of urban renewal plans as housing, and some more in DCAS's jurisdiction. And there wasn't at all a mindset at that point in the government that those… should be permanent. So I think now everybody agrees that these are valuable and that's why they all got transferred to Parks (respondent 50).

Advocates continue to push city officials for enhanced protection and permanence of garden sites citywide, while at the same time celebrating the uniquely community-based and democratic way in which individual gardens are managed.

***New York City Housing Authority (NYCHA) Gardens***

Gardens on NYCHA public housing grounds have an origin distinct from the DPR, HPD, NYRP, and TPL sites. Consisting of 334 developments, incorporating 2,600 acres of open space, and housing more than half a million people citywide, NYCHA is the largest public housing authority in the country (NYCHA 2012). Receiving federal funding from HUD, it operates with a degree of autonomy from mayoral agencies (respondents 7, 20). The resident gardening program began in NYCHA in the 1960s and is reportedly the oldest community gardening program in the country (Bennaton 2009). Since its origins, the program has been structured primarily around a resident garden competition, and has grown to more than 600 gardens citywide in 2011 (see Figure 6.2 for a photo of a NYCHA garden). The contest was created with the idea of spurring 'healthy competition' between neighbors, buildings, and developments in order to promote beautification (respondent 7). As such, it has more in common with the 'Greenest Block in Brooklyn' competition held by BBG than, say, GreenThumb's emphasis on vacant lot reclamation and neighborhood stabilization.

Figure 6.2: Photo of Rodriguez and McKay's flower garden at NYCHA Patterson Houses in the Bronx


Source: Lloyd Carter, NYCHA

NYCHA's core mission is to provide affordable housing to low and moderate income New Yorkers. Thus, the Gardening and Greening program has often remained under-resourced and out of the spotlight (respondent 20), with just two outreach coordinators, one office manager, and a few part timer seasonal consultants serving all 600 NYCHA gardens citywide (respondent 7). Moreover, there are sometimes tensions between the gardening program's aims and the aims of the maintenance/grounds staff. For example, NYCHA rules prior to 2002 required gardeners only to plant annuals, and inhibited the development of a long-term stewardship over sites. Gardens had to be mowed back each season and were not considered 'permanent'. However, garden rules have been revised in order to allow perennial plantings, promote a sense of ownership, as well as to promote more sustainable gardening practices (Bennaton 2009: 236).

Although budget and staffing increases have not been made, the program has worked to formalize and enhance existing garden sites by: helping to build raised beds, installing rainwater harvesting systems at selected sites, and working to strengthen connections between resident gardens and community centers on NYCHA grounds (respondent 20).

* * *

This overview is not an exhaustive history of community gardening in New York City. Rather, it is an outline of some of the key moments in the post-1970s civic movement and the way in which GreenThumb, other city agencies, and professional nonprofits helped to navigate the garden crisis of the 1990s. The memories and legacies of the 1970s founding era and the 1990s crisis are alive and well amongst New York City activists, public officials, policy debates, and institutional structures. I will return to discuss the way in which DPR, NYCHA, and DOE gardens are currently engaged in municipally-led planning efforts in chapter 7. At present, I turn to an investigation of a new wave in urban agricultural practices in New York City brought about through a primarily civic-led movement starting in the mid-2000s.

**The discourses and material practices of urban agriculture: Mid-2000s-present**

National and local media, celebrity engagement, and new funding streams are all indicators of rising attention to urban agriculture. At the national scale, this includes First Lady Michelle Obama's White House organic garden created in spring 2009; national foundation funding, such as programs from Robert Wood Johnson, focused on healthy eating and walkable communities as a response to the obesity and diabetes epidemics; and the highly popular writing about food by author Michael Pollan. Celebrity chefs also

play roles as public figures, advocates, media personalities, and donors to urban agriculture programs—these include Alice Waters of Chez Panisse, Dan Barber of Blue Hill, Mario Batali, and Rachel Ray (and her Yum-O foundation). Local funders of note include the Doris Duke Charitable Foundation, which–in a shift from a previously rural environmental focus—has given seed money to several citywide projects related to urban agriculture starting in 2010. There is potential for future funding to emerge from the Community Food Funders affinity group, which formed in 2011 (respondents 32, 3). It is unclear whether these funders stimulate more engagement in farming and gardening, or are reflections of already occurring changes in the social context, or both—operating in a positive feedback loop.

The economic recession starting in 2008 has influenced urban agriculture participation in multiple, sometimes conflicting ways. Many respondents felt that the downturn attracted new constituencies of unemployed and underemployed people (or simply people looking to economize their food budgets) into gardening, canning, and food production as individual leisure, self-sufficiency, and cottage industry practices. In turn, whole industries and discursive arenas have developed in support of these Do-it-Yourself (DIY) and locavore practices (such as stores, catalogs, websites, and blogs serving urban farmers and gardeners; or the *Edible* series of magazines that are published nationwide with locally-specific content on food and drink for dozens of cities and regions—including *Edible Brooklyn, Edible Manhattan, and Edible Queens*). This downturn may also be attracting young people into entrepreneurial urban agriculture endeavors, with individuals and firms selling urban produce and added value products in farmers markets, through community supported agriculture (CSAs), to restaurants, and at

alternative markets like flea markets, pop-up events, and food trucks. Structurally, the slowed economy has decreased development pressure in cities, meaning that more vacant lots were available for farming and gardening practices. However, interviewees were careful to note that the development pressures in New York City are quite different from those in, say, Cleveland or Detroit. At the same time, the recession places additional pressure on formal nonprofits and programs as they compete for scarce resources in attempting to fundraise for farming, environmental education, animal husbandry, and horticultural programs, many of which are facing increased participant demand. So, too, do municipal programs face budget cuts and staff reductions in response to fiscal belt tightening at city, state, and federal levels.

I identified several distinct, if overlapping, threads in the discourse and focal areas of the local food movement in New York City that have left an imprint on recent urban agriculture efforts. These include: *locavorism and local and regional food*; *food security, food access, healthy eating, and food justice; a food systems framework*; *lack of data and lack of space in the developed city;* and *environmental education, community empowerment, and strengthening local economies*—each of which will be examined in turn. Both new narratives and new practices are developing around urban, local, and regional food systems. Or, old narratives are re-visited, dusted off, and re-presented for 21st century audiences. These discourses and practices are woven together into a primarily civic-led movement of individuals, community-based groups, formal nonprofits, foundations and corporate funders, elite and public sector allies, and the media. Some aspects of the movement focus on individual behaviors (e.g. of consumers), others focus on developing new markets, institutions, and policies, and still others focus

on structural inequalities and the need to redress those inequalities. Advocates claim that strengthening local and regional food systems is a way to enhance resilience, strengthen local economies, minimize environmental impact, and provide fresher, healthier and better-tasting food. Thus, for some, a food systems framework helps bridge divisions within the movement and work towards comprehensive and holistic change.

Yet, before investigating each of these discursive themes, it is important to acknowledge that this movement is far from conflict-free and the points of fissure and division amongst the strands in the movement are real. Axes of social difference exist in terms of race, class, gender, ethnicity, and cultural background—an issue that has been brought to the fore by food justice activists, with an explicit focus on inequality (respondents 29, 37, 21; BUG 2012; Romer 2012). The size, scale, and diversity of New York City's socio-natural environment adds to the complexity of trying to build coalitions and/or make physical changes to that landscape. For example, one urban agriculture program-head noted that he can get to Connecticut as quickly as he can get across the city to visit other Brooklyn-based groups, presenting challenges to collaboration (respondent 23). Huge variation exists in the challenges and opportunities faced by growers working on different physical site types, including community gardens, school gardens, urban farms, and rooftop farms. And organizational differences between grassroots, volunteer-led groups and professionalized, formal nonprofits can create both exciting opportunities for collaboration as well as challenging obstacles to mutual understanding (respondents 21, 23, 43, 19; see also Carmin 1999; Salazar 1996). Organizations, like people, can differ widely in their values, expectations, work styles, communication patterns, skills, and needs. Moreover, competition between nonprofits

for scarce financial resources can be acute, particularly in dire economic times (respondents 53, 58, 23, 59). With organizations struggling to keep their individual programs afloat, it makes the collaborative networks like the Food Systems Network NYC (FSNNYC) or the Brooklyn Food Coalition (BFC) and collaborative efforts around producing documents like *FoodNYC*, *Food in the Public Interest*, and *FoodWorks* (which will be discussed chapter 7) that much more noteworthy.

Community gardeners and long-time garden activists vary in their approach toward a new wave of urban agriculturalists: they can see themselves as part of, in alliance with, or in competition with this movement. One circulating narrative is that 'old timers' and 'new comers' differ by generation, race, and class. Many low-income people (often African American and Hispanic) endured decades-long disinvestment, crime, and violence in their communities and used gardening in response as a neighborhood stabilization strategy. Now, New York City is booming economically in comparison to the 1970s and 1980s when many gardens were founded. As such, there is currently a new demographic of white, affluent, educated people engaging in urban agriculture—often via the context of professionalized nonprofits or entrepreneurial ventures (respondent 6, 33, 21, 8, 39, 50, 23, 7, 37). One interviewee quite simply called them "the hipsters" (respondent 39). A bureaucrat reflected on these divisions:

> It feels a little bit like a splintered movement to me right now. I think there is the kind of old-school community gardeners who tend to be New Yorkers who have been here a long time. They remember when their neighborhoods were devastated and they took back the land. They have a very definite view of what community gardening is and what urban agriculture means to them. And I think, a little bit, they feel—threatened isn't the right word—but they feel slightly, maybe, dismissive. I'm not sure, I don't mean to be too negative, but I think there is definitely a difference between the hipster, locavore movement that is starting now with younger people, and the old-world, community garden and how those two end up interfacing, and interacting, is yet to be determined. So, it sort of feels

> like a lot of people have the same value systems, but how they view what this means is not necessarily aligned yet. And maybe it will get there. It probably has to get there if there is truly going to be a citywide policy that is embraced in a meaningful way. But I think people are still kind of figuring out what their turf is on this issue (respondent 50).

The new wave of engagement has been met with increased attention by the media. Stories focus on the use of technologies (green roofs, aquaponics, greenhouses), charismatic individuals (ex-financiers, self-starting entrepreneurs, urbanites fleeing to rural farm life), and quirky farm stories that feel out of place in an urban context (keeping chickens and bees) (see, for example, Stein 2010; Wells 2010; Cardwell 2010; Severson 2008; Salkin 2008; Ryzik 2009; respondents 21, 44, 43). Some interviewees note a disparity in media coverage and attention between long-time community gardens and next-generation urban agriculturalists:

> One of our other findings in our research is the amount of disparity that people perceive based on race and class in the urban agricultural system. So there's really a big disconnect between some of the white middle class practitioners and African-American, sometimes poorer [practitioners], sometimes just based on race distinctions that exist in terms of access to funding, access to city land, and other resources.... You know, Ben Flanner [founder of Eagle Street Rooftop Farm] gets in the paper whenever he does anything. And there are practitioners out in Central Brooklyn and other places that are irritated by that because they don't get the same kind of attention for the really interesting projects that they are developing. I like Ben Flanner, I think what he's doing is great…. Ben Flanner is a demographic that I think white reporters feel comfortable that their editors will want a story about (respondent 12; see also respondent 33).

Others disagree and argue that the increased attention is good for the movement on the broadest level as it helps to build broader coalitions and increase momentum (respondent 53). Or they see that there is no reason for conflict among the various constituencies engaged in the movement (respondent 44).

***Locavorism, local and regional food, alternative food networks***

Locavorism—an emphasis on eating locally or regionally—is one of the main discursive themes for one portion of the movement. Although one of the most hyper-local forms of food *production* for New York City is urban agriculture, this strain in the discourse focuses primarily on the *consumption* of local—or regional and statewide—foods by New York City residents. A trope that gets used in policy and journalism arenas is the claim that New York City residents should not be eating apples (or drinking apple juice) from China or New Zealand, given that New York State is the number two producer of apples in this country. From the FSNNYCs policy memo in response to PlaNYC:

> While New York State is the second largest apple producing state in the United States, most of the apples consumed in New York City are grown outside of New York State and even in other countries. The City should work with the state and local jurisdictions to support the preservation of our foodshed and to encourage regional farmers to see the City as a viable and profitable marketplace for their products (FSNNYC 2010: 5).

And the *Food in the Public Interest* plan:

> Even though there is an abundance of regional farm products, that doesn't mean these crops are consumed locally. For example, New York is the second largest apple producing state in the United States. During her keynote speech at the Politics of Food Conference, Maya Wiley described the oddity of a state which produces ten times the number of apples eaten in it, while 75% of apples consumed by New Yorkers are imported from the West Coast or overseas (Stringer 2009: 8).

And in *FoodWorks:*

> This national shift over time will support further development of regional competitive advantage in different products. For example, although New York State is now a major producer of apples and produces enough to support our demand, we still import apples from Washington and apple juice from China. These kinds of practices are not sustainable and can create environmental and economic inefficiencies in our food system (NYC Council 2010: 55-56).

Interviewees, too, repeated the trope, saying: "So we can grow food in the city that can be, by far, healthier than an apple shipped from New Zealand" (respondent 45). This vignette is evoked repeatedly, banking on the intuitive sense that something is wrong or unhealthy with eating globally, particularly when food is assessed for its 'food miles'—or how far it travels from farm to plate. The concept of food miles was, in part, developed by health scholar Joan Gussow (1999, 2006; Gussow and Clancy 1986). It was further popularized by nutrition scholar Marion Nestle, author of numerous popular books on how we eat, including *Safe Food: The Politics of Food Safety* (2010) and *What to Eat* (2006).

Locavores see eating as a political act, in which one can 'vote with one's meals.' Eating differently—or preparing differently, for chefs—is seen as a way in which consumers and restaurateurs can support regional family farmers and a way of producing food that differs from the global, corporate agribusiness model that has grown dominant in the second half of the 20th century (respondents 45, 23, 8, 34; Lyson 2007). It is part of a broader change in food culture, one respondent argued:

> But I think the general trend is more heartening, which is, you see more young people in the [farmers] market. You see hipsters in the market…. You know, the worst thing to ever happen to farmers was Tang…because we had this whole culture in the United States where people came from farms. Their parents worked on a farm or whatever. And even if they moved to the city, they had a relationship with the farm growing up. And then we had this whole revolution of food where we're going to package everything and dehydrate it and send it to the moon. And then everyone started thinking that you could break your food down into, you know, five nutrients and call it food. So, Tang being the perfect example of an orange flavored beverage with all the vitamins and nutrients that an astronaut needs. So, we have this group of people who—the boomers or the end of the boomers—who were without a food culture. And now we're slowly rebuilding that (respondent 34).

Attention to the health or toxicity of food has also increased, with discussion of issues of genetically modified, conventional, and organic foods being heightened by food scares and contamination incidences (respondents 12, 29, 21, 31). Overall, individuals have agency as responsible consumers who seek to "know where their food comes from"—another common rallying cry of the movement (respondents 33, 45, 29, 34, 60, 38, 31; NYC Council 2010: 16; Singer and Mason 2006). This view has been advanced by public figures like writer Michael Pollan and chefs Alice Waters and Dan Barber. However, some advocates counter the prominence of Pollan in the public discourse, noting "he's verbalizing the movement, he's not creating a movement" (respondent 34). The Slow Food movement has also advanced the locavore view trans-nationally; it has particularly strong chapters in Europe, as the movement originated first in Italy (Slow Food USA 2012). Critiques of the industrialized and globalized food system have been further popularized through documentaries like *Fresh*, *Food Inc.*, and *King Corn*.

A wave of farm-to-table, seasonal, and slow cuisine restaurants, chefs, and foodstuffs has matured in New York City and nationwide. This shift in restaurants' emphasis in the 2000s is particularly notable when it is contrasted with the global, haute cuisine of the 1990s that focused on celebrity chefs and exotic foods (respondent 45). All of this attention to eating seasonally and locally has contributed to "a general Zeitgeist of food" (respondent 34). Numerous interviewees felt that this culture of food has reached a "tipping point", at least in certain circles (respondent 38, see also 33, 45, 6, 50, 31, 34), so much that hyper-attention to food origins is parodied on television shows like *Portlandia*. Other chefs work hard to disabuse the public of the notion that local, seasonal, and fresh food is only for stereotypical, white, 'hipsters'. For example, chef

and activist Bryant Terry writes about African American traditions of cooking and eating in books like *Vegan Soul Kitchen* and was one of the keynote speakers at the 2012 BFC conference, where he acknowledged the work of activists of color and the need for a social movement around food justice. Restaurants and cookbooks can serve as important interfaces between consumers who try to eat differently and farmers who try to grow differently (respondent 45, 39, 23, 31). Finally, local restaurants in New York City participate in the urban agriculture movement outside of their profit-making endeavors by serving as sponsors of events (such as Brooklyn Brewery's sponsorship of ioby.org), hosting fundraising dinners (such as ici and Good Fork for Added Value), and donating materials (such as used coffee chaff from Café Grumpy donated as bedding for chickens at Eagle Street Rooftop Farm).

Small scale, young, and new farmers in rural areas proximate to urban centers are important participants in local and regional food systems and conversations around 'sustainable agriculture'. Although there is an overall decline in the number of farms nationwide (and in New York State) due to farm consolidation and loss of farmland to development, there is also a small counter-trend of young farmers developing small farms, often in close proximity to urban areas and their robust consumer markets (Shute 2011; Cohen 2011a; respondents 25, 38). In New York State, the average age of principal farm operators is 56.2 years old (Cohen 2011a). The national trends are striking:

> For the past century, the total number of American farmers has steadily declined—from over six million farmers in 1910 to just over two million farmers in 2007. For each farmer under 35 there are 6 over 65 and the average age of farmers is 57. It is estimated that between now and the year 2030, half a million (one-quarter) of American farmers will retire…. As public awareness about food and farming has grown in recent years, a new opportunity for reversing the trend

> of farm loss has arisen. The National Young Farmers Coalition is witnessing an increasing number of young people from non-farm backgrounds who are pursuing or considering careers in agriculture, as well as a higher level of interest among farm youth in staying on, or returning to, the family farm (Shute 2011: 9-10).

*The Greenhorns* is both a documentary film about this phenomenon and a loose collaborative formed in 2007 to use media, social networking, and grassroots organizing in support of young farmers (Greenhorns 2012). So, too, does the National Young Farmers Coalition help serve that same constituency, organizing and advocating for policies and practices that support young farmers, sustainability, and rural livelihoods (NYFC 2012). Small farms face common struggles: access to capital, land, and credit; costs of inputs; logistics of transportation and selling; and need to price products in order to make a profit (Shute 2011; GrowNYC 2011: 15-17; respondent 19). The margins of profitability are so small that there is sometimes tension between their needs as emerging entrepreneurs and their desires to sell affordable food in underserved urban areas; or between their need to grow in order to be profitable and their desire to remain small scale (respondent 19). One grower discussed these challenges:

> I think that [around] New York, the city…it's really difficult to be a successful small-scale farm in this area, because of the cost of doing business and the price of land, services, and inputs. And so you have to really look at scaling up. So, it's not *really* an ideal place or location for a bucolic, homesteader operation. I mean, there's really the push always, I think, to get bigger. So you have probably quite a few much larger farms and the question is: if we go that direction…in what quantity and what volume will we be delivering produce and meat or eggs in? And how is that any different than a lot of other agriculture or other food systems? I don't know (respondent 19).

While this movement is largely the result of individuals newly gravitating to the field of agriculture, some state and federal programs have developed to support these newcomers, including programs via USDA's National Institute of Food and Agriculture. Funding and

technical assistance are available through the Beginning Farmer and Rancher Development Grants and Community Food Projects (USDA 2012).

Alternative food networks, including farmers markets and CSAs, provide mechanisms to develop relationships between rural farmers and urban consumers (Gillespie et al 2007). In New York City, the largest farmers market system is the Greenmarket, which is operated by the nonprofit GrowNYC. It began in 1976 with one market in Manhattan and has now expanded to 54 markets citywide, engaging more than 230 farmers (respondent 34; GrowNYC 2011, 2010). However, Greenmarket does not control all of the farmers markets within New York City. There are 28 different institutions operating 58 distinct community-based farmers markets citywide that are outside of the Greenmarket system (Stringer 2011). Some respondents noted tensions between advocates pushing for community-run markets as opposed to Greenmarkets:

> They feel like Greenmarket gets a lot of help from the city, that they're privileged by the city, that there's a feeling that they're just in more affluent areas. That the community based farmers markets are for the people. Like: *for* the community, *by* the community. Whereas Greenmarket is more of this Bloomberg, top-down... (respondent 39).

Others did not feel the critiques against Greenmarket are valid or very prevalent, noting in particular the way in which Greenmarket provides affordable produce compared to supermarket competitors and participates in programs to encourage low-income consumers to shop at the market, as will be discussed in the section on food justice (respondent 34, 38). A report by Manhattan Borough President Scott Stringer laid out several critiques of the regulation and fees surrounding the operation of community based farmers markets (Stringer 2011), though these critiques were disputed by other public officials (respondent 6). Despite all the opportunities provided by the size of the New

York City consumer market and the number of farmers markets, rural producers still struggle with profitability in part because of the logistics of transporting and selling within the city. Moreover, there is sometimes a mismatch between the producers' need to sell a certain volume and community efforts around bringing markets to previously underserved areas; there are long waiting lists amongst producers to sell at the most profitable markets. One solution is to become large enough to sell at multiple markets, but this runs counter to some producers' interest in maintaining small-scale, rural agriculture (respondent 42).

Concurrently, CSAs are on the rise locally and nationally, with more than 100 CSAs in New York City as of 2010 (respondent 60; see also Ostrom 2007). This model allows CSA members to buy shares of a farmer's harvest, entitling them to fresh produce (or cheeses, meats, breads, honey, eggs, milk, flowers, and added value products) as it is available throughout the growing season. The nonprofit Just Food was instrumental in growing the CSA presence in New York City; prior to that organization's founding there was just one CSA citywide (respondent 60). One respondent noted the way in which Just Food's work supports both urban and rural constituencies:

> The CSA program is really designed to serve both the community and the farm. A high-income neighborhood serves the farm very well, so if it's supporting a sustainable family farm within the region that works with our mission. The urban agriculture work that we do tends to be very focused on community gardens and tends to be very focused on lower-income neighborhoods (respondent 60).

Notably, though, New York City does not currently have a permanent wholesale market for small regional farms that would allow growers to sell their goods to urban commercial markets more efficiently and at greater scales year-round. Restaurateurs, farmers, and retailers have identified the need for such a market. GrowNYC has helped to create the

existing wholesale farmers market presence that moved from the Fulton Fish Market to the Hunts Point Food Terminal in the Bronx. That market currently involves just a half dozen producers and is located in the parking lot of the Hunts Point market, without necessary infrastructure and services to allow the operation to operate at a larger scale (NYC Council 2010: 21). Discussions around creating a permanent wholesale market and food hub are increasing among policymakers and advocates alike (Severson 2008; Navarro 2012; respondent 32, 34, 39, 42; NYC Council 2010; Stringer 2009, 2010).

Beyond market relationships, some policy alliances are beginning to form along upstate-downstate lines. For example, in 2011, meetings and rallies were organized for New York City residents to get involved in Farm Bill advocacy through the NYC Food and Farm Bill Working Group (respondents 23, 29, 38; Romer 2012). Some New York City-based respondents reported working with the American Farmland Trust on upstate land preservation issues and in hosting Senator Kirsten Gillibrand in a visit to New York City around food issues (respondents 38, 39). And in 2009 and 2010, some upstate growers came to the city to attend conferences on food policy and food systems (respondent 42). Upstate-downstate linkages and programs in support of New York's regional food systems and economic development (including food processing, industrial retention, and support for regional grain production and bakeries) have also been developed and supported by the New York State Department of Agriculture and Markets (respondent 14).

As new programs and funding streams have developed around local and regional food systems, so, too, has the scientific, policy, and activist debate around locavorism.

Indeed, even the 'apple trope' discussed earlier has been exposed to critique and questioning:

> The question is, right: we have a million kids in New York City public schools. Does it *matter* if they eat an apple from New Zealand or if they eat apples from upstate New York or New Zealand? Like there's a *real* philosophical divide there. Now there's a lot of arguments about climate change and other arguments, but we don't know enough about…where we get our food from (respondent 52).

Some of the lines of critique include: the notion of food miles as an inappropriate measure of environmental impact; the limits to locavorism—particularly in less hospitable growing climates—and calls for *cosmopolitan localism* instead; and the efficiencies of global trade established by neoclassical economics (Budiansky 2010; McWilliams 2009; Morgan and Sonnino 2010: 212; Desrocher and Shimizu 2012). There are efforts to quantify and understand the benefits and tradeoffs of local versus global food systems in terms of energy use, Carbon emissions, water use, and climate change (See, for example, Weber and Matthews 2008; Canals et al. 2007). The question of how to weigh or assess this tradeoff with other factors remains a classic conundrum of sustainability planning. Another axis of debate centers around whether cities have environmental gains and efficiencies by being densely populated versus the importance of having open space and even agricultural space nearby (respondent 32; Owen 2004, 2009; Glaeser and Kahn 2008; Bettencourt and West 2011). This question hinges on what sort of a city is desirable and how we define sustainability.

Others question localism from a critical or social justice perspective. Some critique the privileging of the local scale *a priori* in addressing food system injustices; others critique a 'defensive localism' that others outsiders; and others call for a 'reflexive localism' that forges alliances that attend to social justice concerns (Born and Purcell

2006; Hinrichs 2003; DuPuis and Goodman 2005). Both from academia and from within the food movement there is a concern that locavorism is an elitist practice, or at least is associated with an elite stigma (respondents 9, 38, 29; McWilliams 2009). Locavorism and elitism became further linked through the practices of high-end retailers like Whole Foods, which sell fresh, organic, seasonal fare at premium prices (Gottleib 2010: 3; but see Singer and Mason 2006: 5). Others argue that the emphasis on local foods misses greater structural inequalities and the machinations of capitalism that drive food injustice, and question the premise of "voting with one's meals" (Guthman 2011).

Finally, as local and regional food and notions of sustainable urbanism become more mainstream, there is potentially danger in co-optation or "greenwashing" (respondent 29). In some cases, corporate sponsors such as Target have funded the renovation and maintenance of community gardens in New York City working with high end landscape architects, facilitated by the nonprofit New York Restoration Project (see Figure 6.3 for photos of the Target garden). While some welcome the support of corporate donors, others caution that if design and renovation are managed by a third party, then a community garden no longer functions as a community-managed open space but becomes more of a sponsored 'pocket park', without the associated benefits of community control and neighborhood cohesion (respondent 62). Mees and Stone (2012) note:

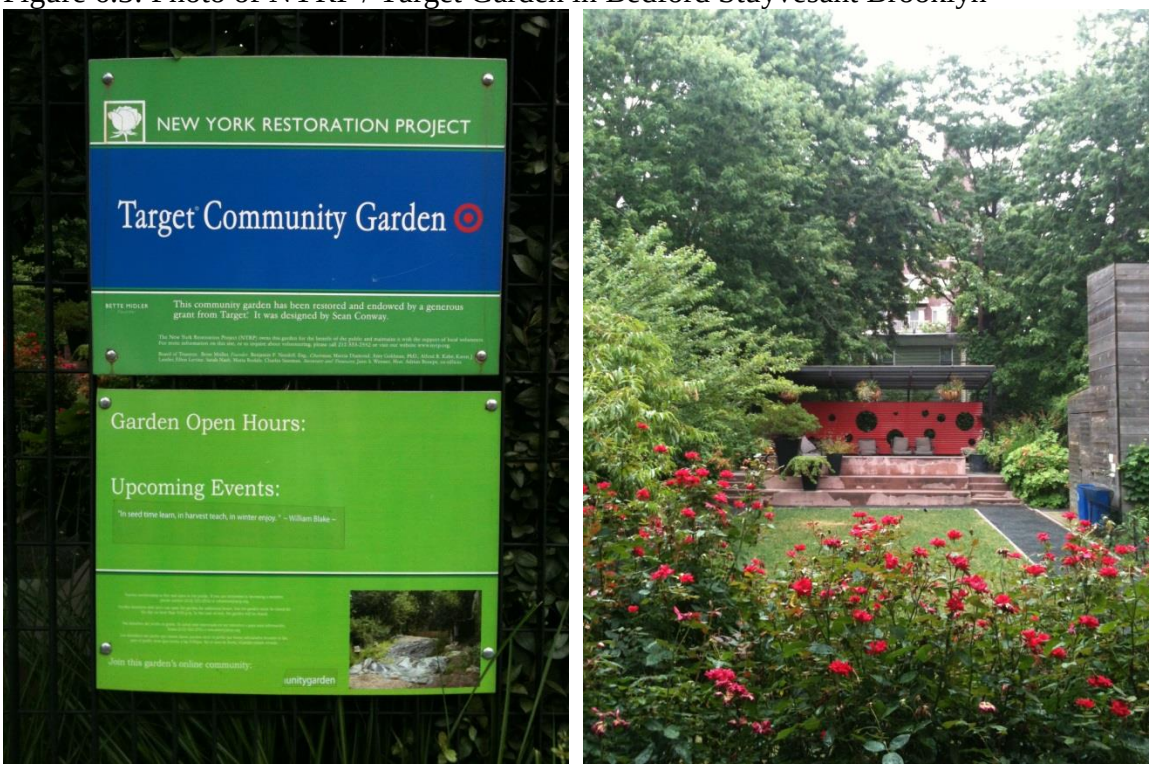
> A highly visible form of "green washing" by corporations is branding community gardens or urban agriculture projects with corporate names in order to increase profits by associating the corporation with an apparently environmentally friendly green land use. This is usually done by granting the garden a maintenance endowment which often replaces grassroots, neighborhood-sustainability focused gardeners with paid staff (5).

Corporations like Lays have tried to harness enthusiasm for eating locally and supporting family farms through marketing campaigns focused on the source of their potatoes and ingredients (respondent 33). Planters' Peanuts has taken to sponsoring the development of urban gardens as marketing opportunities; they recently inaugurated a garden on NYCHA public housing grounds in the Lower East Side of Manhattan (respondents 6, 7). These corporate entities are seeking ways to align themselves with a 'hip' movement that can enhance their image as 'green' (respondent 8). One interviewee discussed Lay's potato chips and the loss of meaning in the term 'local food':

> I think the awareness of local food is [increasing]. I think the fact that you have *Time* magazine having an article a couple of years ago saying, "Forget organic, buy local" on the cover--that's a pretty widely read magazine… [Local food is] getting co-opted by agri-business. You have these advertisements where it's like, "Oh, and our family farmers are local, we're in Texas. We grow potatoes in Texas; we're in Texas so eat your Texan Lay's potato chips." But the fact that that language is actually being picked up and becoming part of the lexicon: Buy local. Buy local. I think, absolutely, you see that all over the place (respondent 33).

Various labels of products as 'local', 'organic', or 'natural' can lead to difficult choices for consumers (Severson 2006). One respondent even noted that the term CSA is being utilized by some groups to refer to arrangements that are quite different from the original intent of the CSA (respondent 60). Labeling schemes can serve as both feedback mechanisms for the consumer, as well as marketing devices. Overall, the use of the language of 'local food' by activists, policymakers, the general public, and even corporate entities, is becoming increasingly loaded with mixed and even conflicting meanings.

Figure 6.3: Photo of NYRP / Target Garden in Bedford Stuyvesant Brooklyn




Source: photo by author

***Food access, food security, healthy eating, and food justice***

Interest in access to healthy food is not limited to upper and middle class 'foodies' with disposable income for premium local and organic produce. Advocates have organized around the issues of food security, food access, and healthy food for low-income and underserved populations. This issue of access to healthy food is often framed around the twin crises of obesity/diabetes and hunger (respondents 23, 25, 29, 32, 34, 37, 53), which some have dubbed "the Bronx Paradox" (Dolnick 2010). While some activists work across both of these distinct areas (of obesity and hunger), others work squarely in one or the other. National leadership in combatting obesity and diet-related diseases has come from foundations, particularly the Robert Wood Johnson Foundation and the Kellogg Foundation, as well as from First Lady Michele Obama via her "Let's

Move" campaign and her White House garden (respondents 6, 33, 59, 58, 60). Kellogg, in particular, has supported the development of local Food and Fitness Partnerships, including one in Brooklyn (respondents 23, 31, 33, 37). In terms of hunger and food security issues, local nonprofits like City Harvest and the Food Bank for New York City work to feed hungry individuals and families and connect them to resources, while networks like NYC Coalition Against Hunger, WhyHunger, and the Hunger Action Network of New York State lead advocacy and policy conversations and provide support to anti-hunger groups in the movement (respondents 29, 39, 14, 31, 21, 59).

In New York City, local municipal leadership on these issues comes from the Department of Health and Mental Hygiene (DOHMH) and its District Public Health Offices; City Council Speaker Christine Quinn's office; Manhattan Borough President Scott Stringer; and Mayor Bloomberg via the Food Policy Coordinator (FPC), as will be discussed in chapter 7 (respondents 8, 14, 39, 40, 34, 50, 3). Indeed, Stringer's *Food in the Public Interest* report begins with a call to action framed through the obesity and overweight crisis:

> Problems associated with obesity and overweight have reached epidemic proportions in the United States. This trend has increased with such alarming momentum that the Surgeon General has urged communities to address the problems through a formal 'call to action.'
>
> New York City is outpacing the nation in obesity and its related health issues. Both obesity and diabetes rates rose by 17 percent between 2002 and 2004 among city residents. It is estimated that New Yorkers gained more than 10 million pounds collectively during this same period. A rise in the risk of heart disease, hypertension, depression, type II diabetes, among other health problems, often accompanies a rise in obesity and overweight. Residents of low-income neighborhoods and Black and Latino adults are disproportionately affected, thus overburdened by the related health, social, and economic problems (Stringer 2009: 4).

Many of the solutions being offered by city officials focus either on individual consumption patterns, or on incentivizing grocery stores (and mobile fresh fruit vendors) to locate in low-income neighborhoods with poor healthy food access. In addition, the framing of gardens and urban farms as important within the context of hunger and obesity crises had a major impact on attention to community gardening:

> But what changed all of that, I think, from the Deputy Commissioners all the way up to the Mayor, was the sudden huge emphasis on food and childhood obesity changed everything. Once it became all about food, everybody wanted a piece of that.… I mean, basically, Robert Wood Johnson and Obama get all the credit for that because there was money attached to it all of a sudden. And then there's like a thousand food projects…. Stringer's thing. The Council, Christine Quinn's thing. The Council's passing bills now…. Suddenly there was this huge involvement of everybody. And when community gardens stopped being looked at as this kind of not that nice, bohemian, self-managed pocket park program and as a food program, all of a sudden we're important…. In terms of how much support we got, it was like night and day (respondent 6).

Overall, the crisis of obesity and diabetes has lent a new urgency to longstanding issues of hunger, food access, and healthy eating, and is beginning to be woven into discussions around urban food production (farming and gardening).

Unique collaborations between foundations, nonprofits, city agencies, and elected officials have developed to assess and address the areas with poor access to healthy, affordable, and fresh foods. These areas are sometimes referred to as 'food deserts'—although this is a contested term (respondents 21, 37, 7, 29, 32, 34; NYC Council 2010). GrowNYC has coordinated a number of efforts to address hunger and food inequality via the Greenmarkets. Beginning in 2005, they initiated one of the largest efforts in the country to accept Electronic Benefit Transfer cards (food stamp debit cards) at farmers markets. This program has been acknowledged as a best practice and is now emulated in several cities (respondent 34). Indeed, in 2011, more than $600,000 in Supplemental

Nutrition and Assistance Program (SNAP) funds—the new term for food stamps—was spent at Greenmarkets (Van Ooyen 2012), though policymakers note that several billion dollars in SNAP funds are received and spent in New York City each year (FSNNYC 2010). The Greemarkets also accept HealthBucks, which are $2 vouchers for fruits and vegetables redeemable at farmers markets; for every $5 spent on fresh produce at farmers markets using EBT, participants receive a HealthBuck. This program was created via the DOHMH and distributed through citywide and neighborhood-based social service providers (DOHMH 2012). Finally, after the Hunts Point Food Terminal, Greenmarket is the second-largest donor of food citywide to City Harvest food pantries (respondent 34).

While everyone has the right to healthy and fresh food, particular attention has been focused on children and school food in New York City, for multiple reasons. First, childhood obesity has reached epidemic proportions, with dire lifelong consequences for individuals (respondents 32, 8, 37, 34, 37; Romer 2012; Stringer 2009, 2010; NYC Council 2010). The 2007-2008 National Health and Nutrition Examination Survey of the CDC found that 16.9% of the U.S. population between ages 2-19 is obese (Ogden and Carroll 2010). Second, the problem is particularly acute for low-income children, with one in seven low-income preschool aged children being obese and nearly one-third being overweight or obese (CDC 2009). In terms of variation by race and ethnicity:

> In 2009, American Indian or Alaska Native children had the highest prevalence of obesity (20.7%), followed by Hispanic (17.9%), non-Hispanic white (12.3%), non-Hispanic black (11.9%), and Asian/Pacific Islander (11.9%). The only increase in obesity rates since 2004 occurred among American Indian or Alaska Native children (1.75% increase) (CDC 2009).

Focus on urban, low income, and minority children as vulnerable populations in need of care has an abiding tradition in activism and social services in the United States since at

least the Progressive era in the 19th century. Third, contemporary youth organizations have oriented around the food justice theme at national conferences, such as the Rooted in Community Conference, and through local organizations, like Flip the Table Youth Food Council (respondents 14).

Changing school food procurement and preparation practices is one of several key levers that municipal government has in altering the food system, so it has been aggressively targeted by advocates and policymakers (respondents 23, 14, 34; Stringer 2012; James 2012; Cohen 2011a). The Community Food Security Coalition, one of the major national food networks, has organized a National Farm to School Network to work on policy advocacy, the Farm Bill, and program development (respondent 14). One respondent noted the importance of a focus on farm-to-school programs in New York City, both because of the buying power of the DOE and because of the opportunity to reach such a large group of young people, with about half the population of children in New York State living in the city (respondent 14). Indeed, the DOE serves 860,000 meals per day and is the second-largest institutional procurer of food in the nation after the US military (Cohen 2011a). The DOE SchoolFood program is working to increase the amount of fresh fruits and vegetables available in public school lunches, and the Garden-to-School Café program focuses on serving fresh vegetables grown in school gardens as part of school lunches. Local legislation passed by the City Council as part of the *FoodWorks* plan (described in chapter 7) requires the DOE to report on the amount of regionally sourced foods, as one step in working to change procurement practices. Finally, the Grow to Learn effort created by GrowNYC supports the development of school gardens citywide, with 224 school gardens created and registered with the

program as of 2012 (see Figure 6.4) (respondents 9, 24, 31). There are countless school-based education programs focusing on gardening on school grounds, in nearby community gardens, on rooftops, and even in newly built greenhouses.

Figure 6.4: Photo of the Sunshine Garden, a school garden registered with Grow to Learn

Source: GrowNYC

Food justice activists similarly seek to remedy access and insecurity issues, but adopt a more radical focus on shifting the balance of power within the food system. These activists position access to healthy, fresh, and affordable food as a right—a right that has been compromised because of broader social inequalities along axes of class and race (respondents 43, 23, 29, 21). As such, they critique urban agriculture efforts that do not address inequality issues as potentially counterproductive or confusing to the public:

> I do think there's been a growing number of groups that grow fresh food in the city but don't necessarily do food access work. And I think that…it's easy for

> people to confuse that. And it's not necessarily the fault of those groups. Sometimes it is. I mean, there's sometimes groups that are very happy to be like, "Yeah, we're in…this neighborhood that has no fresh food. And we grow fresh food." And they don't ever say, "But our food doesn't go to the neighborhood." But that's the reality. They sort of let people believe that that's what happens. So sometimes it's just omitting information. But I think there are also groups who are clear about what they're doing. But people just hear that and it's all the same thing to them (respondent 43).

Activists note that food justice must be placed in a context of a broader social movement about addressing inequality (BUG 2012). Similar to the way in which environmental justice reinvigorated environmentalism and brought new constituencies to the table—so, too, is food justice creating the next wave of the environmental movement, some argue (respondent 37). Bryant Terry frames this engagement as not something new, but rather a continuation of the tradition of African American leadership and organizing around food, citing examples of the Black Panthers providing free breakfasts in low-income communities of color in the 1960s and the emphasis of the Nation of Islam on healthy diets (Terry 2012).

Issues of process, inclusion, and representation in both the urban agriculture and broader food policy arenas have been raised by food justice activists. For example, the founders of the Black Urban Growers (BUG) coalition seek to ensure that people of color have a seat at the table in food policy discussions and decision-making (BUG 2012). Others draw attention to the racial composition of the staff of professionalized nonprofits in urban agriculture and greening, including their own organizations:

> I think because we were at the front end [of the urban agriculture movement] and we were in a gentrifying neighborhood and because we—like most of the institutions that are involved in paid work in agriculture—are white…we have been the focus of some of the conversation around racial equity in urban agriculture. Some of that has to do with just where we are and how old we are. Some of that has to do with the fact that we don't have staff who are from [our neighborhood]. But nobody does in any of the paid organizations, save for East

> New York Farms and some of their minimal staff that are there—and they're connected to a major East New York institution that has helped make that happen. But nobody at Just Food is from any of the neighborhoods that Just Food works with. And nobody at GreenThumb is from any of the neighborhoods, except the outreach coordinators—and even then, that would be minimal over the course of twenty five years. Lower East Side Ecology Center—same. I don't think anywhere. And the same would be true for people's boards [of directors] as well (respondent 23).

Some organizations have worked specifically to address this disparity, in part through shifting power and authority to the communities that they serve:

> So when I was hired…I started running our Trainers of Trainers Program, which recognizes the knowledge and expertise of urban farmers and community gardeners in NYC—particularly people in the communities that might be considered food deserts…and particularly people who are community leaders…and in many cases were the ones who actually reclaimed the land that they're using to grow food… It's actually even more powerful to have people leading workshops on growing food and food justice if they are from your own community and they lived a similar experience that the folks in the community lived, versus having staff of an organization, which is usually young and white and professional, or at least middle class….
>
> So we're focusing on community-based leadership and building their capacity to do that through workshops, consultations…. I…work closely with the gardeners and farmers who are our trainers to develop workshops, give them feedback on how they're doing, give them resources to help them as trainers, set up their workshops around the city, and pay them for their time. The trainers are paid a stipend, $100 a workshop (respondent 21).

In addition, members of the food movement noted the challenge of scaling up organizations that are truly grassroots and community-based, wrestling with how one retains community control and democratized decision-making, while also trying to grow the impact and reach of programs to serve more New Yorkers (respondent 33). Overall, activists are drawing attention to the issue of "who speaks for whom" in urban agriculture programs, planning efforts, and policymaking.

Because of the movement's focus on social justice, interesting alliances have been fostered with the Occupy Wall Street, labor, anti-racist, and the global food sovereignty

movements. Ray Figueroa, an outspoken food justice activist offered the following definition: "food justice is the servant of food sovereignty, which is the utopian ideal of sustainable subsistence in harmony with nature" (BUG 2012). Another activist elaborated at some length on the multi-scalar organizing around food, health, and land:

> Oh, definitely, it's a social movement. I tell people this is the next civil rights movement around food: food sovereignty. Because it's not happening just in New York; it's happening all over the country. It's happening globally. People are really looking at where their food comes from…. They understand the relationship to food and health. And people and health. Food and land, and people and land, and health and land, and understanding that. How land and food and health and wealth and economics and culture all interlock. And that's very, very important. And so when we talk about food sovereignty, you talk about the essence of food and where it comes from and the relationship that it has to the human aspect of our own being (respondent 29).

The movement resonates globally; for example, two of the keynote speakers at the 2012 BFC conference included renowned Indian activist and scholar Vandana Shiva (by video address) and Luis Benitez, a migrant farmworker who organized for tomato harvesters' rights in Florida. Shiva and Benitez are seen as working in solidarity with Brooklyn activists; and improving worker conditions and providing a living wage is seen as one of the surest routes to alleviating food insecurity. Indeed, attendees at the conferences cheered in response to speakers' references to living wages—as fast food retail workers in New York City worked for rights and protections just like the migrant workers in Florida. Shiva also provided a video address to the 2009 NYC Food and Climate Summit. "Dismantling Racism" trainings have been offered via the Community Food Security Coalition (respondent 6). These trainings seek to grow personal and organizational awareness of racism and white privilege. In addition, the nationally prominent urban agriculture organization, Growing Power, created a program entitled "Growing Food and Justice for All" focusing explicitly on strengthening the network of

groups involved in food justice and anti-racist efforts (GFJI 2012). Growing Food and Justice For All's first national conference was held in 2008 and included approximately 30 delegates from New York City organizations, including many that were sponsored to travel by the organization Just Food (Heehs 2008). Finally, starting in September of 2011 and lasting most prominently over the several months in which groups occupied Zucotti Park in Lower Manhattan, food justice groups were actively involved in the Occupy movement (respondents 37, 29; Romer 2012). A "Farmers' March" was held on December 4, 2011 under various mantles of "Occupy Food" or "Occupy the Food System." Food justice was made an official working group under the Occupy Wall Street General Assembly. The closing plenary of the 2012 Brooklyn Food Conference by BFC founder Nancy Romer made a call for just these sorts of alliances:

> So, for the fourth approach: nonviolent direct action, let's look at who our real allies are. Right now, we are in a moment of great polarization and shifting policies. While the possibilities are potentially very dangerous, as Vandana Shiva outlined, they are also filled with potential opportunities we must seize. There's a growing movement of people who have had enough, people who know that their lives are not improving, people who are losing ground economically, socially, in their families and communities. Some call it the 99%, others call it the weak vote, but we must see our interests as allied, and we must participate in the movements to protect our people and our planet. For many who have said, let's join the environmental movement with the anti-racist movement, with the anti-war movement, with the Occupy movement [applause], with the labor movement, with the women's movement, with the LQBTQ movement—we need to create alliances where they make sense and honor our different ways and needs [applause and cheers]. Also, we need to work with those who are most affected by the crisis in our society, those who have previously been pushed to the side by most—we must figure out ways to work together for the common good. We at the Brooklyn Food Coalition welcome your participation (Romer 2012).

***Food systems***

Viewing food through a systems frame provides a large 'tent' in which many diverse actors can situate themselves and advocate for policy changes. Systems thinking

also resonates with an ecological worldview that focuses on connections between diverse sites and practices, a view that is shared among many environmental actors. Via this approach, urban agriculture is just one, rather small, component of the local and regional food system—and one that becomes somewhat marginalized in advocacy and policy discussions. Some of the largest civic coalitions interested in food issues in New York City have organized around a food systems approach. In part, this is because of the complexity of the challenges that the food system presents:

> Because the food environment is such an all-encompassing thing, we recognize that there are all these debates on whether it's…is it really an issue of access? Is it an affordability problem? Is it awareness and cooking? ... People are approaching from all these different sides and there's considerable amount of debate about what the major factors are. But, clearly, it's all of the above. And so the hope was that by focusing on regionalizing food systems, you get to—not that that is *the* answer, or definitely not the *only* answer—but it is a way of addressing multiple components of the problem at once (respondent 3).

This notion of complexity of interrelated problems and solutions was reiterated numerous times:

> Really thinking about food leads you directly to systems thinking. That it's not just supermarkets and it's not just health care centers or even preventive health services. It's an interplay of all of these processes that…are all interrelated in a greater way (respondent 31).

Activists saw the different strands of the food movement as presenting an opportunity for collaboration, with sustainable agriculture and anti-hunger activists beginning to work together:

> There was a group of people working on sustainable agriculture issues in New York City and that wasn't a really popular movement at the time, it wasn't a very well-known movement at the time, and at the same time there were obviously a lot of organizations doing anti-hunger work in New York City. And so there were these two huge problems where farmers were having a really hard time connecting to markets, they were going out of business, we were losing farmland around the region, and at the same time people in New York City didn't have access to good food. So connecting the dots would be a really good way to solve

> everybody's problem for both the farmers and the communities in New York City. And so the working group that was advising and trying to get this organization started really by…bringing anti-hunger and sustainable ag to the same table. I feel like that happens pretty regularly now, where anti-hunger organizations are working with the Department of Agriculture and Markets. But that really wasn't necessarily the case at that time in the early or mid-'90s. So we've come a very long way. But that was kind of what sparked the need to start this organization (respondent 60).

That said, coalition-building around these diverse areas is not always easy:

> It's a broad umbrella when you talk about food policy, which can be good. But there can be tensions of those coalitions around, I'd say, hunger advocates and nutrition folks and then people who are more into sustainable ag and a vision for upstate-downstate connections. I don't actually think hunger people care about that (respondent 39).

The BFC, founded in the mid-2000s, is a coalition of coalitions seeking to build a local food movement. It hosted two large conferences in 2009 and 2012 that included hundreds of workshops and were attended by thousands of participants. At their 2012 conference, founder Nancy Romer identified four levels of action occurring at different scales that are needed to build that movement: personal changes in how we eat; community projects that are inclusive; policy and legislative actions with elected officials; and building alliances between non-violent social movements, as previously discussed. Her closing plenary laid out this broad vision and closed with a call-to-action:

> We organized this massive conference to bring the food democracy movement together, to share in the creativity and beauty of communities built on dreams and love. We organized this conference, so we could *all* see each other and learn from each other. We organized this conference so that the movement can see its power and stand tall in our determination together. We hope you will join the Brooklyn Food Coalition, yes. But most important, we hope that each of you will identify yourself as a food movement activist. To make recognition of what a better food system would look like. We can see the road we need to get there. Let's get on that road and let's do it together! (Romer 2012)

The BFC website, email lists, and meetings provide further fora for social networking and organizing, both through neighborhood-based work and through cross-cutting themes of food policy, school food, workers' rights, research, and more. The coalition serves as an organizing network not just for the borough of Brooklyn, but citywide. A respondent noted that the number of attendees at the conference was a sign of the health of the food movement in New York City, and did not go unnoticed by public officials (respondent 8).

Similarly, the FSNNYC is a coalition of individuals committed to improving the regional food system with a focus on health, nutrition, economy, upstate-downstate connections, and "the support of a vibrant food and farming economy" (respondent 31). Their loose collaborative structure was a deliberate choice by the founders, who realized that their members could not always represent their organizational affiliations in their advocacy work, but could participate as individuals. FSNNYC's approach was to "make the food movement more ecumenical"—meaning more collaborative, networked, and broad-based (respondent 38). In addition to various subcommittees, they also have monthly open networking meetings where experts from different areas are brought together to present and members and the public can attend to learn and meet each other. They have also conducted policy advocacy through petitions, meetings, and memo-writing (respondent 38). With funding from the Kellogg Foundation and in partnership with the DOHMH, they have developed a program focused on neighborhood food planning and community-based mapping, entitled FoodAction (respondents 31, 14). Thus, like the BFC, they facilitate individual education, support neighborhood-level action and programs, and engage in citywide, regional, and federal policy discussions. In terms of normative tone, issues of food justice appear less prominent in the language of

the FSNNYC than in the BFC, though they are certainly mentioned in the mission and core values of the group.

Similar to the civic coalition-building, within government previous 'silos' of topical focus have begun to interact in support of improving the food system. This has occurred, in part, through the development of the FPC position and the creation of OLTPS, which is responsible for coordinating the implementation of PlaNYC (respondent 34). Moreover, all of the municipal government policy documents released between 2007-2011 (*Food in the Public Interest, FoodNYC*, *FoodWorks*, and PlaNYC 2.0's chapter on food) take up this systems frame to various degrees, wherein goals, recommendations, and strategies are organized by the stages in the food system: production, processing, distribution, consumption, and post-consumption, as will be discussed chapter 7. At the federal level programs have developed around local and regional food systems, such as USDA's "Know your Farmer, Know Your Food Compass." This website bundles together maps, case studies, information about resources and grants, news stories and blog posts to help educate the public about federal, state, local, private, and civic efforts involved in transforming local food systems (See: http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_COMPASS).

***What's missing: lack of space / lack of data***

For all its regional, national, and global reach via social movement networks, the local food and urban agriculture movement in New York City must be understood in its historically path-dependent and spatially specific context. Local decision-makers consistently voiced the sense that the city is already so developed that there is a lack of

space available for urban agriculture. Public officials noted that "this is not Detroit" and that space is at a premium in New York City (respondent 34; see also respondents 23, 25, 34, 40, 12, 14). One bureaucrat elaborated:

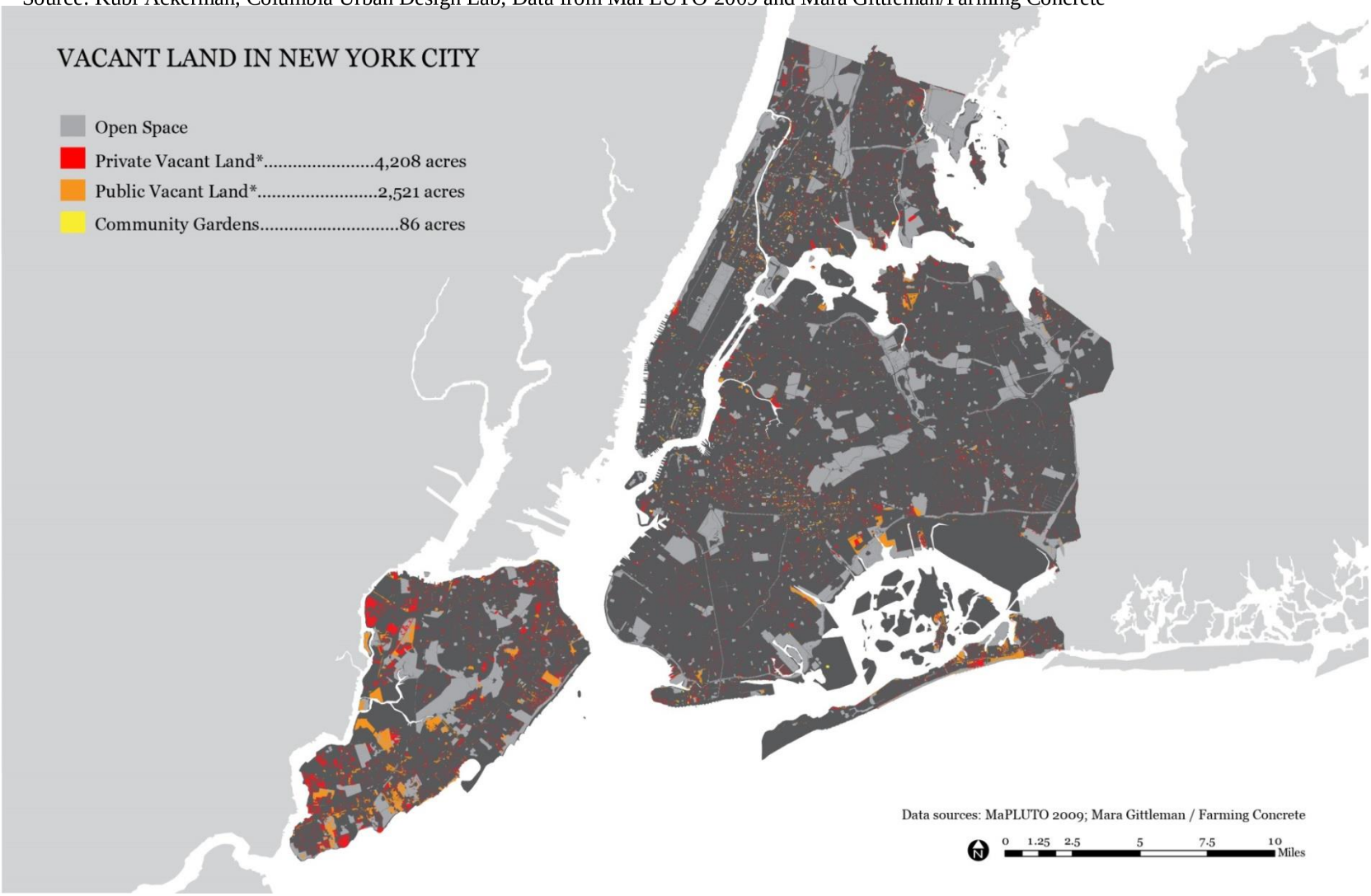
> Whatever values one ascribes to urban agriculture, it has nothing to do with large pieces of land. Not in New York. Because the land isn't available. All right? In Detroit now, yes…. And in the cities that are truly in the same condition that New York was in the 1970's when large amounts of property…were being abandoned, not maintained. So you go to Youngstown, Ohio. You go to Flint, Michigan. You go to Detroit. You go to Cleveland. There's an opportunity in those places that we had in the seventies (respondent 41).

A nonprofit executive echoed this sentiment

> Well, in New York [the issue] is land. I mean, it's not Detroit where you have, 30 acres somewhere outside the city that still you can plant in and farm. I mean, there ain't nothing left [in New York City] that ain't toxic. I mean, unless you plan on building a farm on Freshkills [a former landfill in Staten Island being converted into a park], there's not a whole lot left in the city to plant (respondent 34).

A recent study estimates that there are approximately 5,000 acres citywide of vacant land that is potentially suitable for urban agriculture, see Figure 6.5 for a map (Ackerman 2011).

Figure 6.5: Map of vacant land and community gardens in New York City
Source: Kubi Ackerman, Columbia Urban Design Lab; Data from MaPLUTO 2009 and Mara Gittleman/Farming Concrete



Perceived and real space constraints have led to experimentation with alternative growing sites, including rooftops, backyards, and temporary spaces. A rooftop farmer offered stark observations of the economics of their operation:

> One thing that is very different *now* [as compared to] farming in the city 150 years ago is there's no space. And the space that exists is enormously more valuable as real estate…than it is for food. The only reason I can compete with the space around me is that I'm a roof. And if I was doing a quarter-acre of production on the ground and it…could be turned into apartments that would be worth $3 million. There's no way I'd be able to farm. So, when you talk about blocks to urban agriculture, to me the value of creating an urban agricultural space is that you're growing food. That's important. But you're also growing people's self-awareness. You're growing environmental connections. You're creating a green space. But if you take that away, the cost of food is so cheap in this country, it doesn't make *any* sense to grow food in the city. It just doesn't… That space is so much better used in terms of finance almost any other way than like growing *carrots*, 'cause carrots are *so cheap*. I just told you we make two dollars a square foot. You add in our T-shirt sales and everything, we're making a proper income. But you take that away and we're making… $12,000 dollars a year on food. You could rent this roof for two months and you'd make that money (respondent 44).

Rooftop farms include both intensive hydroponics and greenhouse agriculture (Gotham Greens, BrightFarms) as well as growing on green roof media and lightweight soils (Brooklyn Grange, Eagle Street Rooftop Farms). Although these firms are few in number, they have received a significant amount of media attention and coverage (see, for example, Cardwell 2010; Stein 2010). Images of the rooftop farm set against the Manhattan skyline circulate and inspire imagination in news features, websites, blogs, student design presentations, research reports, and policy documents (see Figure 6.6). It seems to offer one way around the conundrum of lack of space, not competing with, but enhancing the value of residential and commercial buildings below.

Figure 6.6: Photo of Brooklyn Grange Rooftop Farm


Source: photos by author

Gardening and animal husbandry is expanding in small sites across the city. While backyard gardening is not a novel approach, gathering these disparate sites together and facilitating gardeners without sites to access backyards is an innovation. This is exactly the work of the Brooklyn-based nonprofit BK Farmyards, which developed a creative solution to an old problem (respondents 37, 62). A recent report quoted Nevin Cohen's remarks at the Food and Climate summit on this phenomenon, noting that he "estimated that New York City has 52,000 acres of backyard space that collectively could provide vegetables for 700,000 people" (Stringer 2010: 11). There is also an increase in the number of people keeping chickens and bees in their own private backyards as well as in community gardens, facilitated in part by the Just Food 'City Chicken' program (respondents 60, 21, 62). Beekeeping has proliferated since activists worked with the DOHMH to change an old city law that prohibited beekeeping within city limits (respondents 44, 56, 60). Other nontraditional innovations designed for growing in compact spaces that interviewees mentioned include vertical farming, window farms, hydroponic growing, aquaculture, and grow boxes (or "Earth Boxes"). These approaches range from low-cost, low-tech solutions that are implementable immediately

to more high-end, expensive, or ‘futurist’ vision (respondents 34, 52, 60; Ackerman 2011).

Because of the history of crisis and development pressure, many community gardeners have a distrust of ‘temporary’ sites. That attitude is beginning to shift, as some gardeners and farmers are willing to access sites without strong guarantees of tenure or protection, with the understanding that they may only have their farms for one or several growing seasons (respondents 6, 14, 32, 50, 58). In some cases, when housing development is on a slow or distant timeline, HPD has institutional mechanisms to authorize the temporary use of sites as gardens (respondents 6, 50, 40). For example, ‘A Small Green Patch’ is a community agriculture site in Park Slope Brooklyn that uses large fabric container plantings to grow food, with the understanding that at some point those planters might have to move. In another case, the Cypress Hills Local Development Corporation—a nonprofit involved in holistic community development which includes affordable housing, social services, and education programs—approached HPD about temporarily creating a garden on one of their own housing sites that was too small to develop affordably into housing. The site is now a flourishing garden named ‘El Jardin del Pueblo’ with raised beds, chickens, a rainwater harvesting system, and an active youth and adult membership. As a result, there is even some preliminary discussion about the possibility for transferring the site back to DPR. See Figure 6.7 for images of these gardens.

Figure 6.7: Photos of gardens as temporary uses

Left: 'A Small Green Patch' garden with temporary, moveable planters; Right: 'El Jardin de Pueblo', a garden organized by a local CDC on land that could not affordably be developed into housing. Source: photos by author

Perceptions of both a lack of space for agriculture in New York City and a lack of data on urban agricultural systems have led researchers and activists to initiate a number of research studies and practical engagements focused on gathering and analyzing data about open space, gardens, and farms. This work is both self-motivated by academic and citizen science researchers, and emerges in response to the critiques and skepticism of policymakers. The pressure for quantification and measuring of urban agriculture potential and impacts is quite great despite the acknowledged complexity of the task (respondents 3, 32, 9, 6, 38, 23, 31, 19, 34, 12, 37). Two notable studies headed by academics include the Columbia University Urban Design Lab's 'Report on the Potential for Urban Agriculture', as well as 'Five Borough Farm,' a joint project of the Design Trust for New York City and Added Value, with leadership from a professor at the New School. Both of these projects were funded by the Doris Duke Charitable Foundation in 2010 and both seek to assess the current state of as well as the feasibility for and constraints towards scaling up urban agriculture (Ackerman 2011; Cohen et al. 2012; respondents 3, 12, 32). At a larger scale, The Columbia Urban Design Lab has a GIS-

based study on the greater-New York foodshed (defined as the surrounding 100- and 200-mile radii around New York City) to assess its capacity to produce, process, and distribute different types of food including fruits, vegetables, and meat (Conrad et al. 2011). A researcher acknowledged the challenges of these food system research efforts: "So, one of the things we struggled with is, by the standards of conventional public health research, to demonstrate or to prove that regional food systems will actually help decrease the incidences of diet-related diseases. I think that's very difficult to do" (respondent 3). These studies were some of the first citywide efforts to take on the challenge of mapping, quantifying, measuring, and translating aspects of the regional and local food systems into forms that would be legible to policymakers.

Other projects use GIS and mapping techniques in a more participatory manner to support community-based planning (OASIS, FoodActionNYC) or to help organize reclamation of vacant lots, in part to address the issue of 'lack of space' (596 Acres). Using geographic data requires an understanding of and access to software like ArcGIS; but as public GIS projects, OASIS and 596 Acres make these data available to anyone with a web browser. OASIS began in the early 2000s as a place to share city-owned geographic data long before the municipality began making those datasets more readily available for download; and it is also a site where other data-generators besides city agencies (such as nonprofits and researchers) can serve up their data alongside other layers (respondent 14). It was one of the first sites that mapped community gardens citywide across all the different land jurisdictions, recognizing gardens' validity as a land use and neighborhood resource and making them visible in new ways (respondents 58,

19). OASIS is intended to give a more nuanced understanding of planning and neighborhood context (respondent 31).

Founded in 2011, 596 Acres made an easy-to-navigate online map of all publicly owned vacant land in Brooklyn (which, at the time, totaled 596 acres). The goal of 596 Acres is to raise awareness of vacant lots, facilitate organizing for alternative uses of sites, and create pressure on agencies that have ownership over these sites. While the city has a database of vacant properties, PLUTO, it is known amongst planners and bureaucrats to be fraught with errors and frequently out-of-date. As in many cities, there is a need to field-verify whether sites shown as vacant in the database are, indeed, vacant in real life and vice-versa. This group reinforces its online strategy with public signage that it places on vacant lots through volunteer efforts (respondents 6, 37). In many cases, these sites are held by HPD, which then sells them to developers for housing development. While 596 Acres founder Paula Segal described this practice as "warehousing lots" (Segal 2012), a public official noted that many of these sites are often in various stages of the pipeline for development, as HPD often has programs for lots on 5, 10, and 20 year pipelines (respondent 50). Building on diverse traditions of guerilla gardening, 'right to the city', and Occupy Wall Street organizing, 596 Acres has thus far managed to convert ten previously vacant public and private lots to productive use and is in the process of expanding its scope from Brooklyn to citywide (596 Acres 2012).

Meanwhile, new citizen science projects are emerging every season to measure the impacts of urban agriculture. Farming Concrete is an effort to quantify the produce grown at community gardens, working collaboratively with gardeners to weigh and log their products. This group develops open source, open access tools that it hopes to spread

to other cities and offers a low-technology, participatory way to inventory one aspect of the productivity of gardens (Farming Concrete 2011; Gittleman et al. 2012; respondents 19, 6, 31, 37, 56). Seeing Green complements Farming Concrete by quantifying the environmental impacts of urban agriculture sites. Organized by two amateur scientists and funded, in part, via a Kickstarter campaign, Seeing Green works with Added Value and the Eagle Street Rooftop Farm to measure and model storm water retention on these sites using data collected on site from a lysimeter and moisture meter—and then modeling these impacts citywide by using data from the Columbia UDL report on urban agriculture (respondents 37, 3, 19). FarmingUp focuses solely on rooftop agriculture sites, and is assessing the nutritional content of produce grown on rooftops. Because rooftop agriculture is such a new practice, much remains to be understood about the long-term viability of the soil media and the health and character of the produce grown on these systems (respondents 37, 25). Other citizen science projects focus on gardens as sites that enhance biodiversity, such as the American Natural History Museum's bee watchers program (respondent 7).

***Beyond food: economy, education, and empowerment***

Building upon the notion of the lack of space, another trope circulating in policy, media, and activist circles is the claim that "you can't feed New York City through urban agriculture" (respondents 34, 38, 32, 41). In part, this is a simple acknowledgement of the reality of a city with more than 8 million residents living in approximately 300 square miles, with 33.5 million tons of food / year coming into New York City[27] (Barron et al.

[27] This estimate was based on Barron et al.'s (2010) analysis of 2002 data from the Freight Analysis Framework. According to the authors: "In order to construct a macroview of the New York City food

2010). The *Potential for Urban Agriculture* makes the limits of urban agriculture in New York City starkly clear:

> Converting all of the potentially suitable vacant land in the city (conservatively estimated at 4,984 acres…) to agriculture with an average growing area of 70% of lot area could supply the produce needs of approximately 174,000 people with biointensive yields, which is a substantial number but obviously not sufficient to feed the entire city. While there is much more land potentially available than just vacant lots, it is clear that NYC should not nor cannot strive to be anywhere close to self-sufficient in supplying its fruit and vegetable needs (much less all foods) (Ackerman 2011: 22).

The current, limited state of urban food production can be juxtaposed with historic farms in New York City that provided a greater proportion of food budgets:

> What's interesting about that is that as recently as the 1950's there were three hundred working farms in New York City…. So we weren't that far from our agricultural roots. And if you go back into the twenties, the thirties, most of the vegetables consumed in the city were grown in the city. But we've gone so far. When you got to the seventies, there was no urban agriculture movement. There was no one saying, "Gee, we can feed large numbers of people"…. [Now people have] done the numbers on…what percentage of the gardens actually grow food. And how much they grow in total sounds big, but not if you compare that to what gets consumed by New Yorkers in the course of a day. So the scale that you'd have to grow on is, I think, impossible in New York…" (respondent 41).

One respondent framed the debate around the politics of upstate / downstate divisions and how urban agriculture might transcend that perceived division:

> I feel like there's…upstate versus downstate all the time… Rural folks get defensive saying, "Well, you know, you can't grow all your food in the city anyway." I say, "Well, that's not really the point." But even urban agriculture people don't necessarily see the larger view of that either. And it does worry me when I hear people talk about urban agriculture as sort of growing all your food in the city, 'cause I strongly believe…that's not really the point. The point is…this educational aspect of urban agriculture. It's the organizing aspects of urban agriculture. It's the fact that you're building markets within the city to support

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system, we used the Freight Analysis Framework (FAF), a national dataset managed by the U.S. Federal Highway Administration that estimates commodity flows and related freight transportation activity among states, regions, and major international gateways. While the FAF dataset cannot be used to identify where food products originate or are consumed, it is a useful tool for analyzing the volume, dollar value, and transportation mode of food commodities flowing into, within, and out of the New York City region." (Barron et al. 2010: 10).

> rural development in a way. And having more people that understand where their food comes from can only do good to help support local food systems and to [help support] rural agriculture… I'm constantly crowing on that, because I don't want to grow my own food in the city and I don't necessarily think everybody should either (respondent 33).

An urban agriculturalist acknowledged the importance of rural agriculture from an efficiency and productivity perspective, as compared to the phenomenon of rooftop farming in New York City:

> Do I really care about rooftop greenhouses? No. Or rooftop farming for that matter? Not at all. Get a tractor! I mean, for real. A friend of mine…did an analysis of New York State…land that was arable right now…and figured that New York State could feed New York State.… They can make the bread in the state. You can grow the grain. You can raise the pigs, the cows, the chickens. You can do it here. Why put a couple of million dollars into a rooftop when for a couple of million dollars you could own vast tracts of land and tractors and employee a bunch of people? (respondent 23).

Urban growers note that the idea that food production only happens in one way and in one form is what led us to the current state of centralized, industrialized agriculture in the first place (respondent 53). Overall, this claim is a reflection of the way in which contemporary discourses around urban agriculture have come to be so closely connected to food production and consumption—when, in fact, urban agriculture first emerged via community gardening, out of concerns over neighborhood health, safety, and livability, rather than as a reaction to problems with the global food systems, per se.

Because this claim circulates so frequently and prominently, it becomes a concept against which urban gardeners, farmers, and their allies must situate (and sometimes distance) themselves. They signal their understanding of the complexity of the issues, and seek not to be associated with unrealistic claims-making. One respondent noted: "I don't think we're going to feed New York City with urban agriculture. But I think it's extraordinarily important for all sorts of reasons" (respondent 38). Even the *Potential for*

*Urban Agriculture* report situates its calculations about food production in the context of all the other benefits of the practice (Ackerman 2011). A funder critiqued the dominant trope: "I think a barrier is for people that are uninitiated or not into this area. Their first question usually is, 'Well, what are you saying? New York's going to feed itself?' You know, come on" (respondent 32). Entrepreneurs who are focused on growing and selling food within New York City often see themselves as having an educational and social mission beyond food production alone, as well as a mission to support living wages and just payment for agricultural employees:

> Our goal is not to supplement or supplant all of the rural farmers…. The goal [is not] how can we make money off of our food system? Yes, we should be paid a fair wage and nobody should be slaves in the food system. But making big profits when there's human health and the environment at stake, making profit should not be your primary focus. And, yeah, I think that's where the centralized food system comes from. And more is not necessarily better. And like urban agriculture…you're getting that. The goal is not to feed New York City. The goal is to educate New York City and green New York City and feed some of us (respondent 54).

Indeed, the same respondent that critiqued rooftop farming in comparison to upstate farming noted urban agriculture's importance as a local job generator:

> I think [rooftop farms] are interesting. I think they have great pedagogical value, I think particularly for high-end food, which New York City is awash in. It makes sense. I mean where else in the country can you buy a pint of pickles for nine dollars right now? You can't anywhere else but in Brooklyn get like 30 different varieties. And, that's great… If people can make pickles for nine dollars and other people can pay for it and that creates small micro entrepreneurship opportunities for lots of people, that's totally cool (respondent 23).

Another urban farmer talked about agriculture in the context of the city's ecosystem:

> I think the strongest thing urban agriculture can do for itself is define itself… yes, as food production, which is important. But also we're creating greenspace in neighborhoods. We're supporting community. We're creating a place where stormwater can drain, which is environmentally benefiting the city with a lot of concrete on the sidewalks. You do all of those things. You add all of those and you count them towards the dollar value of the space. And that's where it's

> logical. Right now there's a lot of focus on: 'urban agriculture's going to solve diabetes, urban agriculture is going to solve asthma'. And the reality is: you need an entirely encompassing plan—like parks. You need clean air. You need less trucking. You need a local food *system*. You need people going to Greenmarket and receiving WIC coupons to go shopping. You need the city supporting the planting of street trees. There's a whole lot that goes into making urban agriculture work. It's just part of our city ecosystem (respondent 44).

Overall, current practitioners of urban agriculture are working to counter the narrative about "feeding New York City" by focusing on the social, environmental, economic, educational, spiritual, and intangible benefits of their work.

Many groups focus on urban farms as economically productive sites that can support youth or adult empowerment and strengthen community economies (respondents 23, 43, 44, 53, 54). Historically, several of the programs in this area were catalyzed by the northeastern office of Heifer International. While Heifer works globally to strengthen family self-sufficiency through animal husbandry (e.g. their giving campaign donates goats, chickens, bees, etc., so that rural farmers can have long-term sources of income), their focus in New York City was on incubating viable community agriculture projects. They provided initial funding to Just Food, East New York (ENY) Farms!, Added Value, and the New Farmer Development Project of GrowNYC. In March 2011, however, Heifer stopped their programming in this region (respondent 33). Employment, internships, and opportunities to sell produce at markets are crucial to these community programs. Notable programs with a youth empowerment focus include Added Value, the nonprofit that manages the Red Hook Community Farm, and ENY Farms!, a program of the United Community Center in East New York, both of which are located in Brooklyn, see Figure 6.8 (respondent 43). Added Value seeks intentionally to create short food chains and feedback loops to keep resources circulating in the Red Hook community.

Thus, they engage partners in developing local farmers markets and CSAs and sell produce to local restaurants (respondent 23). So, just as alternative food networks are developing between upstate farmers and urban consumers, so are urban farms forming their own localized relationships between neighborhood residents (as consumers, volunteers, composters), program participants (staff, interns, volunteers), and area restaurants (purchasers of produce, providers of food scraps for compost).

Figure 6.8: Photos of youth working at ENY Farms! in East New York, Brooklyn

Sources: Left: ENY Farms!; Right: photo by author

There is some fluidity between private and civic sectors around urban agriculture, particularly in the case of programs that emphasize the 'triple bottom line' of economic, ecological, and environmental sustainability (respondents 44, 45, 53). Small business entrepreneurs—including both for-profit urban farms and producers of added value urban agricultural products—participate in developing local economies. These enterprises range in scale from individual cottage industry or DIY craftspeople to multi-million dollar operations that sell to corporate vendors like Whole Foods (respondents 6, 23, 25,

31, 34, 38, 44, 53, 54). For-profit farms sometimes incubate affiliated nonprofits in order to be eligible for foundation grant funding streams, as was the case with Brooklyn Grange and the educational nonprofit City Growers. So, too, is Growing Chefs, an educational nonprofit, affiliated with Eagle Street Rooftop Farm (respondents 53, 54, 44, 37). Meanwhile, certain nonprofits provide training to potential future entrepreneurs. The New Farmer Development Program of GrowNYC offers training and technical assistance to new immigrant farmers in New York City who are interested in growing at larger volumes in order to sell at Greenmarket (respondent 34). Furthermore, individual community gardeners and garden groups in New York City are permitted to sell agricultural products at farmers markets, provided that the revenues are reinvested into gardens. While permitting a new community market or Greenmarket is somewhat complex, any community garden can host a farmers market within their site because of GreenThumb's operating rules (respondent 6). Thus, the line between gardeners as hobbyists and farmers as entrepreneurs is less-than-clear in this urban context. Indeed, one activist took issue with the whole language of "urban agriculture", arguing that it reifies old divisions between the formal and informal economy:

> We really talk about food justice and we look at ways that people grow food and what types of food they use and where power sits. So, we don't really talk about urban agriculture. We'll say like 'farms in the city', but it's…kind of the old school, USDA term of this formal economy. Like, making agriculture into this formalized, single stream process where the farmer has a job and that's to grow food as opposed to the informal economy?… And so for *me*, urban agriculture is…trying to solidify in a policy, institutional way. It legitimize[s] this formal economy and this [informal economy] isn't viable. And for me, urban farms and community gardens is a kind of return to this civic urban agriculture, this informal economy, where the quality of life, physical activity, fresh air, local produce, connecting with people, having conversation while being outside, touching dirt. Like all of those things are valued as much as growing a tomato and saving two dollars and eating it… It's all weighed in the same way (respondent 37).

Just as small-scale rural farmers struggle to make profits due to the cost of inputs and land, so, too, do these nonprofits and entrepreneurial ventures face challenges in keeping their programs viable over time. Particularly in the face of an economic downturn, public, foundation, and donor monies are a scarce resource for which nonprofits must compete. While the income from produce sold is an important revenue stream, it is not enough to pay staff and cover the cost of operating a formal nonprofit in the city (respondents 23, 34, 24, 37, 43, 44). One urban agriculture business venture reported that, although they were able to pay their head farmer a living wage, the founding staff members were not yet paid a regular salary for their work. In other cases, program managers described difficult tradeoffs in seeking to sell affordable produce to address food injustice, but in needing to sell high-end produce to restaurants (respondent 23). In all cases, the margins of profitability are slim in these markets. Yet, one group that helped to incubate a farmers market in a low-income neighborhood, which included numerous urban producers selling their goods, prided itself on its long-term viability even without a wealthy customer base (respondent 43). Moreover, lack of traditional sources of capital from private sources or public entities has driven innovation and experimentation in alternative and crowd-sourced funding. For example, the website ioby.org (standing for "in our back yard") began in New York City as an online micro-philanthropy and crowd resourcing organization in support of urban environmental projects. As of 2011, ioby noted that 26% of their projects focus on gardens and another 7% on urban farms and 17% of projects are food related (ioby 2011). Another prominent site for crowd-sourced funding is Kickstarter.org. These platforms are more often used by informal, grassroots groups and individual on particular projects, ventures, and

campaigns, and they do not provide sufficient funding to cover the ongoing costs of running a professionalized nonprofit.

Another important social benefit of urban agriculture is its use as a form of youth education. Urban farms and gardens are highly touted as engaging sites for hands-on learning about food webs, the food system, health and nutrition, ecology, and biology. New school gardens are being developed every season, with support from programs like Grow to Learn, which is a public-private partnership of DOE, GreenThumb, and GrowNYC created in 2010 (respondents 9, 34). Rooftop greenhouses offer a means for extending the growing season or creating growing space in schools without viable land at street level. The citywide nonprofit New York Sun Works has helped schools to build and install 14 greenhouses on school grounds since 2008 through its Greenhouse Project (NY Sun Works 2012). And these school growing sites are increasingly being incorporated into classroom curricula, through the work of groups like the Greenhouse Project, Growing Chefs, and Garden to School Café (respondents 44, 9, 24, 31, 8). Indeed, as part of the school reform and charter school movements, new schools, such as the Brooklyn Academy for Science and the Environment and the Green School, use environment and ecology as organizing principles throughout their institutions (respondent 56).

Agricultural work can also enable and benefit from extension services, adult/continuing education, peer-to-peer learning, and application of local/traditional knowledge. Numerous interviewees cited the formative influence of Cornell Cooperative Extension officer John Ameroso, who had worked as an agronomist in New York City since 1976. Ameroso was formerly (or remains) involved in the development of almost

all of the larger scale urban farms in New York City, including ENY Farms!, Added Value's Red Hook Community Farm, the community garden at Floyd Bennet Field, the garden at Riker's Island prison, and he helped create the City Farms program of Just Food. His legacy was highlighted in an extended feature profile in the *New York Times* calling him an "urban farming pioneer" (McMillan 2010). Cornell Cooperative Extension continues to offer services including soil testing for contaminants, educational curricula, and other technical assistance for gardens (respondents 25, 37, 61, 33, 23). NYBG and BBG provide community garden extension services through the Bronx Green Up and Brooklyn Greenbridge programs, respectively. They also provide adult and youth education programs, including courses with formal continuing education certification in horticultural topics (respondents 61, 56, 9). The nonprofit Just Food provides numerous volunteer and compensated peer-to-peer learning programs that were often referenced by respondents as crucial to help growing urban agriculture citywide. Just Food's City Farms workshops are taught by and for gardeners, with stipends provided to the instructors; the 'Farm School' is a two year certification program in all aspects of urban agriculture; and the Community Chefs program trains volunteers to provide cooking demonstrations on fresh, healthy eating at farmers markets and community gardens citywide (respondents 60, 21, 7, 33, 14, 25, 43, 61). Brooklyn Grange Rooftop Farm partners with a social service nonprofit focused on African refugees, offering them farm internships where they can pass on their agricultural knowledge. Outside of structured programs, gardens and farms are sites where grower knowledge—often rooted in cultural and ethnic traditions—can be shared informally (respondents 53, 54; BUG 2012). Overall, interviewees reported strong professional and personal networks among

individuals and organizations involved in this sort of horticultural, extension, and community-based agricultural training (respondents 9, 14, 59).

## Chapter Seven – City of farms: Cultivating urban agriculture as part of public sector food policy visions and plans

Chapter 4 examines the underlying forces behind and implications of a high-profile, top-down commitment by the mayor to urban forestry. In contrast, this chapter explores how and why, despite a long tradition of community gardening, an upswing in public interest in farming, and flourishing entrepreneurial endeavors in the area (as described in chapter 6), PlaNYC (in its first iteration) failed to even mention urban agriculture. In some ways, it serves as a real-world example of a counterfactual thought experiment: how does natural resource management proceed in the absence of mayoral commitment and attention, in an era of sustainability planning and globally competitive, image-making? What are the roles of other public officials in policymaking in a municipal system with a strong executive? And how do civic actors and coalitions interact with these officials, drawing upon the discourses and practices explored in the previous chapter? Finally, what role does urban agriculture play in these more holistic and comprehensive plans focused on local and regional food systems and policies?

First, I offer an overview discussion that introduces why New York City lacks a comprehensive mayoral food plan and how that is beginning to change. Second, I discuss how Mayor Michael Bloomberg has made a number of strides in widely publicized policies on public health dimensions of the food system, focusing in particular on consumer behavior and the information, incentives, disincentives, and constraints that can push that behavior away from consuming fat, salt, soda, and cigarettes. Despite creating a new position for a Food Policy Coordinator (FPC), the Bloomberg administration has

given relatively less attention to citywide or regional food systems policies and even less attention to urban agriculture.

Third, I examine how other public officials have participated in crafting food policy agendas for New York City. Most notably, Council Speaker Christine Quinn and Manhattan Borough President Scott Stringer have both hosted or attended conferences on food issues and have issued food policy documents, visions, and plans. Moreover, both were candidates for public office in 2014 (respondents 3, 6, 23, 54, 12, 29, 34, 37, 39; Einhorn 2011).[28] Over the course of 2009 and 2010, Stringer helped to organize a series of events and activities around food. He began with interventions at the neighborhood scale through his 'Go Green East Harlem' initiative and later scaled up to citywide conferences attended by hundreds of advocates and decision-makers. These conferences were noted as important early moments in the coalescing of the food policy agenda in New York City and led to two vision documents: *Food in the Public Interest* and *FoodNYC*. Subsequently, in November 2010, the New York city council headed by Speaker Quinn issued a report entitled *FoodWorks: A Vision to Improve NYC's Food System.* Picking up on the themes and recommendations in the Stinger reports, *FoodWorks* looks at the many components of New York City's local food systems: agricultural production, processing, distribution, consumption, and post-consumption.

Finally, this chapter discusses how the complete absence of food, agriculture, and community gardens from PlaNYC was contested by civic groups and residents, so much so that the 2011 update to the plan included a brief crosscutting section on food and a specific initiative on enhancing urban agriculture and community gardening citywide.

[28] Quinn and Stringer were both at one time running for mayor. Stringer dropped out of the race in November 2012 and ran for city comptroller. Quinn was often described as a 'frontrunner', but lost in the primary election in September 2013.

Developed after the 2008 economic crisis, PlaNYC 2.0 did not include any capital commitments to urban agriculture or food systems, but it did make a number of programmatic goals and policy recommendations. It drew upon the prior plans and visions of Stringer and Quinn, but proposed actions that were more circumscribed in scope. Nonetheless, incorporation of food issues into PlaNYC was seen by advocates as a symbolic and political achievement. How these visions, plans, and recommendations will be carried forth into future administrations remains to be seen, but it is clear that food and, to a lesser extent, urban agriculture now has an expanded presence in the discursive and political arena of municipal policymaking.

**Where is the food plan for New York City?**

Speaking about the lag in food policies in the United States, one advocate said:

> I would say food was the forgotten environmental issue. And we spent millions and millions of money, billions of dollars protecting our watershed. There are countless laws and regulations and programs to protect the air… People need to breathe. They need to drink. And they need to eat. So…why shouldn't we have a rational food policy? We have one for our water supply. We buy land to protect it. We build tunnels. We filter it. We put catalytic converters on cars. We try to get better fuel. We do all these things to protect the air. Why shouldn't we be thinking about the other thing we put in our bodies, which is food? (respondent 34).

Despite normative claims for why we *should* have a food policy, the question remains: why does New York City lack a comprehensive food plan? The failure of the City of New York to truly embrace food planning to the degree that certain other global cities have is seen by some as directly due to the mayor's lack of strong commitment to this issue, as will be discussed in the next section. As such, the barrier to changes in the food system is viewed as an absence of political will, rather than actual policy impediments

(respondents 14, 23, 38; Williams 2012; Lander 2012). One respondent said, however, that political opposition was *not* the issue standing in the way of scaling up urban agriculture or alternative food networks:

> I don't think that there's an organized force saying "this is terrible"…. Government could always be smoother. It could always be less steps…some forms could be simpler and all that kind of stuff. But I don't think that there's any institutionalized, bureaucratized, political opposition to urban agriculture and farmers markets and CSAs…. It's just: are we making it as easy as we might? Well, we could always make it easier (respondent 38).

Although Mayor Bloomberg has shown leadership through several initiatives related to healthy eating, he has done little work on the local and regional food system, and even less on urban agriculture. The initial version of PlaNYC contained no mention of urban agriculture or community gardening whatsoever, while the updated version contained just a brief two-page addendum on food with modest goals and no new financial commitments. Because of the strength of the executive office in New York City, with its control of capital budgets and city agencies, this lack of commitment by leadership has been noted as detrimental by both politicians and advocates (respondent 54; Levin 2012).

New York City is not devoid of food-related policies, but rather lacks a single vision issued from the mayor's office. Key public sector allies outside of City Hall have worked with civic advocates to advance food policy visioning, planning, and programmatic efforts, which, in turn, have led to an increasing acceptance of food and agriculture as relevant municipal policy issues. This includes the work of Quinn and Stringer, as will be further explored below. Other city council members (including Leticia James, Melissa Mark-Viverito, Jumane Williams, Brad Lander, and Stephen Levin) have also taken actions like speaking at the Brooklyn Food Conference about the need for changes to the food system, lending support to local legislation on food issues,

committing discretionary funds to projects in their districts, or supporting community gardens in the preservation struggle (respondents 14, 6). Respondents speculated on how the broad-based changes in societal attitudes toward food—as well generational changes in bureaucratic staff—had influenced policymaking by these local elected officials over time:

> I think I would have even anticipated [food] plans like this a couple of years ago, given the consumer interest and the rise in Greenmarkets and the increased awareness of the foodshed in the tri-state area. It just took a couple of years, I guess, to get the young folks who were talking about this hired into the offices of elected officials. And then to get the elected officials to recognize that we'd get them public support and votes if they supported what the public thought (respondent 44).

This notion was corroborated by young bureaucrats who felt they were given a great degree of latitude to help influence the agendas of public officials for whom they worked (respondents 8, 39).

A focus on local and regional food systems currently has more political traction in New York City than a focus on urban agriculture alone. Many food policy efforts began with an emphasis on public health and healthy food consumption, but expanded to include broader issues and other constituencies as they evolved. In part, this may be due to the physical limitations on space for agricultural production in New York City. It also reflects an understanding of the size and robustness of the city's food retail and restaurant sectors; the amount of waste produced in the distribution, processing, and sale of food; and the multiple opportunities to effect changes through the system. Indeed, the food distribution landscape is dauntingly complex: "comprising approximately 20,000 restaurants, 13,000 food retailers, 1,600 public schools, numerous hospitals, and other nonprofit service providers, as well as 90 farmers' markets" (Barron et al. 2010: 10).

This expanded view can assemble unlikely allies under a common cause of improving the food system. Some food policy experts prefer to distance themselves from the perceived 'quirks' and 'inefficiencies' of urban agriculture, and focus instead on other changes in the system—for example, developing regional food hubs, changing school food procurement rules, and strengthening upstate-downstate connections (respondents 23, 34, 39; Navarro 2012).

The rising attention to food policy may also be driven by inter-urban competition or policy transfer (for a survey of food planning in comprehensive and sustainability plans, see Hodgson 2012). Just as Philadelphia, Seattle, Toronto, and London have food plans, so, too, must New York City (respondents 19, 14, 9, 3, 39). Indeed, organizers involved with Stringer's *Food in the Public Interest* explicitly referenced Toronto's Food Charter as a model (respondent 39). It was framed, however, as policy *transfer* using less of the explicit language of competition found in some parts of PlaNYC. Whether food planning and urban agriculture will play larger roles in New York City's competitive image will emerge over time and over the course of future administrations.

***Bloomberg and City Hall: PlaNYC and the Food Policy Coordinator (FPC)***

Throughout his term as mayor, Bloomberg has asserted leadership in the policy arena related to healthy lifestyles and public health dimensions of the food system (respondents 6, 38, 40, 46; Levin 2012). He created headline-grabbing policies that included a smoking ban in bars, restaurants, and later public parks; he instituted a trans-fat ban in 2008; and he required chain restaurants to post calorie counts on their menus. More controversially and with less success: he proposed to disallow the use of food

stamps for purchasing soda, which was critiqued by advocates for the poor; he proposed a tax on sodas that was rejected by the New York State legislature; and he proposed a ban on large sized sugar sweetened beverages, which was heavily opposed by the soda industry and delayed by the courts (respondents 38, 39; Kliff 2012; Park 2012; Grynbaum 2012). These policies are sometimes divisive, with advocates celebrating them as proactive and cutting-edge, and critics calling them examples of the "nanny state" overstepping its bounds (respondent 39).

He also created the nation's first-ever Food Policy Coordinator (FPC) in a major city, which oversaw the development and implementation of many of these policies. Regardless of whatever policy actions the FPC undertook, the creation of that position was seen by some advocates as an important symbolic gesture towards institutionalization of food policy into municipal affairs. The FPC did, however, undertake specific policy actions along with a number of other agencies. It worked with the Department of Health and Mental Hygiene and the Department of City Planning to create: the FRESH program to provide financial incentives to grocery stores to locate in neighborhoods with poor food access; the Green Carts program to create more mobile vendors of fresh fruit and vegetables; and the Health Bucks program, which offers $2 vouchers for fruits and vegetables redeemable at farmers markets (respondent 40). One respondent commended the work of FPC and OLTPS in breaking across bureaucratic silos:

> I think the most heartening thing is that the other silos in the city are now starting to work on [food issues] as well. Before…the Commissioner of Health and Human Services was all about getting access to food, but didn't really care if it was local or not. And I think that's changing. And I think the new Food Policy Coordinator is a little more progressive about sourcing and supporting local economies, etc. And I think they're talking long term planning more…. Before

> in the food world there [were] agriculture people, the health people, and the hunger people. And I think those three—the triangles are starting to meet—I think we're [seeing] an interesting intersection on those triangles in many ways (respondent 34).

All of these policies focus on the restaurant sector and consumer behaviors, but Bloomberg has shown less leadership in policies related to food production or urban agriculture (respondent 38).

PlaNYC began as a "plan for municipal infrastructure" in a strategic land use planning context (respondent 40). Starting with a presumed growth of the city by one million new residents, it focused on the crucial city services and infrastructures that would be needed to keep the city safe and livable, including transportation, housing, 'open space', and clean air and water, in the context of the cross-cutting issue of climate change. According to those involved in the early days of strategic planning, municipal leaders, including Bloomberg and his City Hall staff as well as Aggarwala and his OLTPS staff, were not concerned with food or agriculture—at least not relative to the other issues that they were aiming to address (respondents 49, 26, 8). One respondent reflected on the challenges of assessing plan-making and goal setting retrospectively:

> To criticize [what is missing from the plan] is a lot of 20-20 hindsight. On food systems…food was not as big an issue [for the public] then, as it has become…. I'll be honest I'm not as big on food systems as being a critical issue as I think some people are. So some of it may just be my own bent, but…it's a bit much to look back and say, "Oh food wasn't in PlaNYC"….
>
> I think you have to look at it as a document of the time, in which case it was ahead of the curve by a little bit on climate change—certainly a lot on climate change adaptation. It was probably right with the curve on energy... Where it really lagged was in taking job growth for granted… From April of 2007 to the end of 2008, certainly, we would never have come out with a plan that just kind of assumed that we could add a million people and not worry about where they were going to work…. The biggest gap in PlaNYC was not relatively small issues like food, not…solid waste, but it really was that we took jobs for granted (respondent 49).

Another respondent noted that, although food issues were discussed, they were an example of an idea that was 'left on the cutting room floor,' because of a confluence of factors including lack of political champions inside the planning process and lack of sufficient information about food systems (respondent 26).

Food policy was seen at the time as largely outside of the purview of city government, because so much of the food system is beyond the geographic bounds of the city or controlled by the private sector (Cohen 2011a). In this view, the system is simply too broad, complex, networked, and multi-scalar for the municipal government to effectively address, and food itself is viewed as a commodity that the market can effectively distribute (respondents 3, 6, 26, 34, 38; See also Pothukuchi and Kaufman 2000 for examples of this discourse in other city planning contexts). The issue of jurisdictional limitations of the City of New York was discussed vis-à-vis Stringer, the council, the mayor, and the executive agencies. The following quote illustrates the impact of OLTPS' geographically bounded jurisdiction on crafting food policy changes:

> Everyone's interested in the issue of regional food systems philosophically, ideologically, sympathetic, potentially. But what is the impact on New York City? And those questions were very overt from the Office of Long Term Planning. Even in terms of something like decreased fuel miles, it's not something which they saw that they could [take into account]—basically they saw it as out of their purview unless we're talking about decreased food miles within the city limits. Otherwise they're not interested…. They just see it as outside the scope (respondent 3).

Particularly given that PlaNYC was positioned in the context of a growing city dealing with climate change, making sense of the complexity of the food system and setting appropriate policy goals relating food systems and climate change was also a challenge:

> I don't fault them for [failing to include food] because I think that it's a complex issue. And it's very difficult to designate the environmental benefits of food infrastructure changes. It's very easy to say that "we have a building that's using

> x amount of kilowatts. And if we do y, the results are going to be z." It's much more difficult to say, "if we change the food system in some way or other, our greenhouse gases are going to be reduced by x." It's nearly impossible because it's just too complex.
>
> Take whether or not we buy California carrots or local carrots. First, you have to figure out how they're produced. Second, you have to figure out how they got here. And third, you have to figure out how they're cooked. So if they're coming from California on a train and eaten raw, the greenhouse gas impact of those carrots may be less than carrots from New York, which are trucked down here and boiled. And who's going to be able to figure that out? Unless you have a series of super computers… So, I don't fault them for that. I think that they… started their thinking about some low-hanging fruit—to use a bad pun—on personal changes that people could potentially do, like not eating as much meat or switching to grass-fed. Some of the stuff that is pretty obvious—planting gardens, that kind of stuff, which I think is good but, since the plan was intended to be reducing greenhouse gas, it's very difficult to quantify that in any real way (respondent 34).

Another advocate reiterated the challenges of comprehensive food planning under the current administration, critiquing the pursuit of "low-hanging fruit" policy goals:

> And [adopting a food systems framework is] hard when… Bloomberg's a businessman and we want metrics. We want to pick three to five things that we all believe we can get done. And that seems logical. But I think that when your system is so broken, we can't be looking for what's the big win or what's the low-hanging fruit…we have to be saying: "we've got to do it all". And, sure, it's going to have to be sequenced and manageable, but we have to take it all on (respondent 14).

For the authors of PlaNYC, the complex problem of the globalized food system and its associated challenges of nutrition, hunger, diet-related diseases, and equity did not mesh well with the plan as a local scale municipal policymaking and land use strategy.

Although 'open space' was included in the plan, the chapter focused on traditional recreational parks, the public right of way, and 'natural areas' and did not include any focus on agricultural spaces (respondents 41, 47, 49, 59, 64). There are no goals, policies, targets, or even any general discussion on urban agriculture. Indeed, the words *community garden, farm, agriculture,* and *food* are not mentioned in the plan and there is

just one mention of *roof gardens* in the context of a green roof tax incentive. One official involved in plan-making said, simply, "It did not come up" (respondent 47). This absence was noted by nearly all agriculture advocates; correspondingly, many said they were not involved in any way in the development or implementation of the first iteration of PlaNYC (respondents 6, 59, 31, 60, 43). Some felt that gardening and farming could be seen as "quaint" or antiquated by decision-makers and not associated with the new green city of the 21st century that New York sought to be (respondent 31; see also respondent 50).

Throughout the crafting of PlaNYC, a variety of narratives emerged about the spatial politics behind urban agriculture: sites either were too small and diffuse to matter citywide, or, conversely, were in competition with housing development. Some note that urban farming was seen as ad hoc, inherently experimental, and difficult to scale (respondents 33, 52). The small size of existing community gardens sites contributed to their being overlooked by DPR leadership in the early PlaNYC goal setting:

> [Community gardens received] virtually no attention at all. And there's a very simple reason. This exercise was an ambitious game changing opportunity… I'll tell you an experience that I had that I've never had before, and I've been involved in government for fifty years. I sat in a meeting at City Hall and had one of the mayor's people asked me, "Are you sure you're asking for enough?" Never in my career did anyone from City Hall pose that question. Okay?
>
> Now all of the community gardens in the city, all of them put together—it's maybe forty acres of land. We have a nearly 30,000 acre park system…. In the context of PlaNYC and talking about what will have an impact on this huge shortfall of land available for park purposes, [community gardens] wouldn't have moved the dial at all. The typical community garden is between a sixth and a seventh of an acre. That's all. So to equal one schoolyard you would have to have maybe eight of them. And what is that? I'm telling you, that doesn't move the dial…in that neighborhood that has only one and a half acres per thousand of park space (respondent 41).

Other critics of PlaNYC argue that the plan is merely a way of making Bloomberg's development agenda 'palatable' to the public (respondents 12, 31, 39). This pro-development position meant that the administration would never consider offering developable land away for gardens or farms. Indeed, identifying potential sites for development was as much a part of PlaNYC as any of the open space, air, water, or climate change initiatives (respondent 41). According to one public official, what vacant developable parcels *were* available in 2007 were thoroughly scoured, reviewed, and considered as sites for development of affordable and market rate housing, as part of PlaNYC's housing goals:

> [As] part of the original PlaNYC, there was a massive effort to find land for all kinds of uses—for housing uses, for locating various City services. I think one thing the Bloomberg administration did amazingly well was to really document where land was. I mean, when I came to [City government], we didn't even know what we owned, where our sites were. And we really did a massive job of inventorying land. There's just not that much unprogrammed land (respondent 50).

Officials were cognizant of the historic perceived tradeoff between housing and gardens that culminated in the garden auction and crisis of the late 1990s, and sought to avoid such a conflict going forward (respondent 50). One key official involved in PlaNYC goal-setting said that community gardens "came up in a couple of conversation," but officials perceived a "zero sum game between housing and gardens" (respondent 49; see also respondent 50; Segal 2012). It is clear that policymaking with respect to gardens was not occurring in a vacuum and must be placed in the context of the prior 20 years of conflict, organizing, advocacy, and management of these sites.

Given the administration's commitment to quantification and metrics, urban agriculture was critiqued—both by public officials and by advocates seeking to influence

decision makers—for a 'lack of data' (respondents 40, 52, 32, 38, 3, 12, 7). While quantifying the amount of vacant, sunny, potentially arable land in the city is a challenge, and projecting the potential agriculture output from those sites is a greater challenge, calculating the holistic costs and benefits of those sites is an even greater challenge (respondents 3, 23, 37, 19, 12). Many of the demonstrated benefits of urban agriculture come not from the amount of produce grown, but from the provision of a unique form of open space with opportunities for community engagement, youth education and employment, and neighborhood reinvestment (respondents 34, 6, 37). These social benefits remain consistently difficult to quantify:

> We don't have a way of quantifying happiness or quality of life. So we *don't* try: I think that's the inherent problem with policy is that…it doesn't really incorporate a person's daily experience or lived experience. I'm not sure how you could do something like that in an institutional level (respondent 37).

An interviewee commented that the Mayor was "less interested in the softer elements" of urban agriculture, particularly its linkages to youth employment and empowerment (respondent 39). Overall, the food movement, food visions, and food plans were seen by municipal officials and staff as "aspirational," not "actionable"–one of the more damning critiques from an administration focused on implementation, quantification, the 'bottom line', and policy that makes 'business sense' (respondents 28, 38, 40, 50, 52; Brash 2011). This notion is becoming reified within the policy discourse, as indicated by a 2012 report on food systems planning put forth by the American Planning Association:

> When crafting plan goals and policies, balance and mirror aspirational goals with measurable objectives, indicators, and targets to enable effective plan monitoring and evaluation over time. Plan goals are often aspirational in nature. Therefore, in the absence of measurable objectives, indicators, and targets, local governments will struggle to evaluate progress in achieving the goals. The early stage of the plan development process is the ideal time to develop these evaluation metrics (Hodgson 2012: 111).

Within the Bloomberg administration, numeric goals with trackable quarterly and annual indicators are seen as a way of assuring accountability to the plan; and urban agriculture and food systems prove consistently challenging to measure via indicators (respondents 40, 46, 37).

In the absence of a strong, personal commitment to urban agriculture on the part of the mayor, it is imaginable that an organized constituency could pressure and create the needed political will. However, the potential allies and advocates for farms and gardens were not perceived by City Hall as being organized or sophisticated as a constituency when PlaNYC was being developed. Several interviewees felt that the current movement around local food systems had not yet coalesced in 2006-2007 (respondents 49, 31). Others believed that the constituencies were in existence, but were not recognized by decision-makers; or lacked the knowledge of or access to the channels through which to make their priorities known. One official critiqued these advocates for their lack of savvy about the policymaking process:

> I think that [food advocates] are probably the most curmudgeonly folks in the whole world, because there's this sense of, "Well we've already figured it out. You just need to get on board"…. So, the foodie world is not as politically sophisticated as it could be…. I think that the way they approached [their advocacy]…showed that they weren't sophisticated in dealing with city government. You know: who's the right target person? How do you approach people? The coordination of all these things could be increased and improved dramatically.… Like there's this big beef about…setting aside empty public lots for community gardens. The city's not just going to say, "Yeah, you can have all these community gardens." You know, some residents don't have homes…. There are multiple things here, so how do you develop a strategy that recognizes that you *understand* what the city also has to think about? …Recognizing that you *know* what the city is thinking about so that you can tailor your argument in a way that makes sense to them so that they'll hear you. And I don't think that the foodies have done that as effectively as they could have (respondent 52).

A bureaucrat concurred that the Bloomberg administration has "an open mindedness about good ideas," but advocates must "know the proper channels…which is no easy feat" (respondent 50). The approach that advocates used to pressure the city and the channels of engagement that the administration created will be further discussed in the section on PlaNYC 2.0 below.

***Stringer: Food in the Public Interest and FoodNYC***

Within the void created by City Hall's lack of engagement, other political figures in the in municipal government have begun to carve out turf for themselves in the food policy arena, though the issue of urban agriculture within that arena still remains somewhat marginalized. Completely outside of the PlaNYC processes, Manhattan Borough President Scott Stringer has demonstrated a lasting interest in issues related to the local food system (respondents 3, 8, 9, 12, 14, 23, 29, 33, 34, 38, 39, 41, 42, 44). Starting with his "Go Green East Harlem Campaign" in May 2007, Stringer began to do community based planning, and to provide small amounts of funding, support, and organizing for farmers markets, community gardens, and community chefs in East Harlem. The project also led to the creation of a "Go Green East Harlem" cookbook (respondents 6, 34, 39, 23; Stringer 2009, 2012). In speaking at the Brooklyn Food Conference, Stringer said that his intention with this initiative came from a social justice perspective:

> [I want to] talk a little bit about food policy and where I'm coming from and where I think our city has to go if we're really going to create a different kind of city. For me, it started when I got elected Manhattan borough president a number of years ago, when I realized, I woke up one day and said "I'm going to represent some of the *wealthiest* people in this city, in Manhattan." Think about the great concentration of wealth and people doing very well. I wanted to focus on

> communities that actually weren't doing so well. I wanted to start an initiative on sustainability in a community—neighborhood that really needed some help and that was *el Barrio* in East Harlem. Part of what I wanted to do there was build a grassroots, bottom-up movement…. With community-based planning and some strategy we could create an atmosphere where we could plan for more parks space, plan for more open space, create a sense that the community did not have to be unhealthy, did not have to have food deserts, did not have to have a neighborhood that was struggling with asthma, diabetes, and other unhealthy choices (Stringer 2012).

Stringer began his engagement at the neighborhood level, focusing on areas of need within his jurisdiction before expanding his scope citywide and beyond.

As he began to scale up his engagement on the issues, Stringer organized two conferences with university, nonprofit, and community-based allies. These conferences were acknowledged by many activists as being crucial moments of coalescing for the citywide food movement (respondents 3, 8, 9, 12, 14, 23, 29, 33, 34, 38, 39, 41, 42, 44 ; Einhorn 2011). The first conference, entitled "The Politics of Food" was held at Columbia University in November of 2008. Activists described the planning and implementation of this conference as extremely collaborative and inclusive. The event itself was viewed as an opportunity to network, share ideas, and cross-pollinate among the various threads of activism in the food system (respondents 23, 12). A respondent described the motivation for the event from the perspective of the borough president's office:

> No one was really talking about [food] in a broad sense. And I think the borough president wanted to start that dialogue, which is something that I think borough president's offices are poised to do. They don't necessarily do them. But Scott Stringer as an individual is someone who is invested in process—and an inclusive process that brings different voices to the table and [he's] more of a bottom up kind of guy rather than a top down…. And so the idea was to really create a space, while acknowledging that we weren't experts. Working on this issue at the neighborhood level, I think he started to see that this was bigger than just about one neighborhood and about a farmers market and planting trees and that there needed to be a larger dialogue about how food fit into these larger poverty and

> justice issues that we were trying to approach. So that was the impetus for the first conference (respondent 39).

Approximately 600 people, including decision-makers, activists, community residents, and scholars participated in the conference (Stringer 2009).

The report *Food in the Public Interest* was released in February 2009 as a result of the ideas that were generated in the conference and then further refined by Stringer, his staff, and a steering committee: 71 individuals and more than 40 institutions are thanked in the acknowledgments of the report. Overall, the document frames food and agriculture issues around health, environment, and economic concerns. It makes recommendations in several substantive domains: hunger; urban and regional agriculture; food distribution; economic development; food and nutrition education; and steps toward implementation. Honing in on the urban and regional agriculture section, it frames the issue around New York State as an agricultural producer and the need to enhance upstate and downstate connections in order to strengthen the regional foodshed. At the same time, it acknowledges the cultural benefits of local food production and calls for greater assessment of the challenges and limitations facing, as well as opportunities for, urban agriculture. The specific recommendations call for: research on the regional foodshed and land available for urban agriculture; changes to New York City agency food procurement policies; policies that target low income food deserts; efforts to promote local food production; and development of educational information and curriculum about urban and regional agriculture (Stringer 2009: 8). The emphasis on research and information-gathering is not surprising, given that some of the individuals who were acknowledged for their co-sponsorship of the conference and development of the

document were affiliated with the Columbia Urban Design Lab, which conducts research on the regional foodshed and the potential for urban agriculture in New York City.

With respect to implementation, *Food in the Public Interest* notes the highly complex, multi-scaled, and networked nature of food systems problems—making them particularly difficult to address by narrow or one-dimensional policy solutions: "there is clearly no silver bullet to address this multi-faceted issue" (Stringer 2009: 12). The report acknowledges that historically the federal government and the private sector have played a leading role in food policy, but calls for increased engagement by municipal governments, nonprofits, and the public. Noting the role that Bloomberg and Quinn have played in policies supporting healthy eating, it calls for more action through the office of the FPC as well as the creation of a Food Policy Council, to include both public officials and civic representatives to develop a comprehensive food systems plan (see also Clancy et al. 2007). It also calls for policy advancement via a food assessment, food charter, and food indicators. Beyond that, it uses the language of social movements, calling on us all to "develop a critical mass, a movement to effect change" (Stringer 2009: 12). And it makes a normative call for attention to the underserved, marginalized, and low income residents.

A second conference focusing on the links between the food system and climate change ("Food and Climate Summit") was held at New York University in December of 2009. This event was organized in concert with the UN Copenhagen climate talks, involved video feeds and live tweeting from the global meeting, and engaged quite a few rural/upstate farmers in the discussion. This, too, was followed by a report, entitled *FoodNYC*, which was released in 2010. The primary focus of the document is on health

issues, with other dimensions of climate change mitigation and adaptation and sustainability layered on top. The specific recommendations address: urban agriculture; regional food production (this time decoupled from urban); food processing and distribution; new markets; procurement of regionally grown food; education; food waste; plastic bottles; food economy; and a proposed new department of food and markets (Stringer 2010).

This report is situated in the context of other "current policy foundations" both in New York and in other cities (Stringer 2010: 7). First, more so than the prior document, *FoodNYC* makes reference to the policies, programs, and initiatives of other cities. This serves to help legitimize the claims and recommendations made within the report because they are pursued in other locales and it positions the work within a frame of New York City's global competitiveness. Second, beginning with its name, the document is clearly in close dialogue with the Mayor's PlaNYC. The absence of food systems from PlaNYC and the city's greenhouse gas inventory is explicitly noted:

> Food has not been included in these reports. As of yet, the City has not stated its commitment to creating a sustainable food system nor has it done the baseline research needed to determine the most important sources of emissions and other environmental impacts of New York City's food system (Stringer 2010: 12).

Thus, the document was written with an aim towards influencing policy conversations in a number of arenas, including the 2011 update to PlaNYC. Regarding institutionalization, the document explicitly recommends that food be added to PlaNYC and it calls for the creation of a municipal Department of Food and Markets. In this section it references the precedent of the comprehensive food policy of San Francisco (Stringer 2010: 34). Reflecting on the impact of *FoodNYC* on PlaNYC 2.0 and *FoodWorks*, an interviewee said:

> I think it's made a difference. I think we were the first people to really start the dialogue. I think we did change the paradigm. I don't think without our conferences there would have been a food chapter in PlaNYC.... I think that we've been successful in shifting this idea about the role of food systems and what that means in the city. And I don't think *FoodWorks* would have happened if we hadn't done *FoodNYC*. And as a result a lot of legislation that came out of [FoodWorks] was exactly what we had recommended: the inventory of the land, the stuff around [local agency food] procurement (respondent 39).

The systems frame, from production to distribution to waste, is later taken up in the *FoodWorks* document, and many of the specific recommendations are carried forth into that document and later legislation.

Homing in on urban agriculture, *FoodNYC* adopts the PlaNYC timeline, targeting the year 2030 with the goal: "Establish food production as a priority in New York City for personal, community, or commercial use by the year 2030" (Stringer 2010: 2). Specific recommendations are: "Assess Land Availability and Suitability for Urban Agriculture"; "Create a Citywide Urban Agriculture Program"; "Ensure the Permanence of Community Gardens"; and "Facilitate the Development of Rooftop Agricultural Greenhouses" (Stringer 2010: 9-10). The first two proposals are carried over from the prior *Food in the Public Interest* report, with additional targeting of PlaNYC models. Indeed, the urban agriculture program references MillionTreesNYC as a precedent:

> The Mayor should establish a citywide Urban Agriculture Program to support the creation of food growing spaces. The program should be similar to Capital Growth, London's campaign to plant 2,012 growing spaces by the 2012 Olympics by connecting people to land, providing funding, and offering practical guidance on how to grow food. New York City's Urban Agriculture Program should be modeled on and keep pace with "Million Trees NYC," an initiative announced by Mayor Bloomberg on Earth Day in 2007 to plant one million trees throughout the city by 2030. It would thus be operated through a public-private partnership and draw a large volunteer base (Stringer 2010: 9).

The addition of community garden protection to Stringer's agenda reflects the growing dialogue around that topic among civic actors and public officials in light of the 2010

expiration of the Attorney General settlement (respondents 6, 50, 29, 59). So, too, does the inclusion of a recommendation related to rooftop greenhouses reflect the practices around farming in alternative sites, as well as the accompanying discussions around policy barriers and challenges facing rooftop farmers (respondents 44, 53, 54, 12, 33, 37). Finally, this section continues the practice of positioning New York City in the context of the work of other cities, mentioning Vancouver, Portland, London, Brisbane, and San Francisco.

In order to appreciate Stringer's political role and the impact of these documents, it is important to understand that the position of Borough President is something of a remnant of New York's pre-consolidation history as several distinct cities. It remained, however, a position of prominence until the last charter revision in 1989 that eliminated the Board of Estimate, considered removing the borough president altogether, and ultimately ended up reducing the powers of that office significantly (Berg 2007). As such, the position has few formal authorities, but is a visible figure in New York City politics (Eichtenthal 1990). Several respondents, even ones who have worked with Stringer, commented on the limitations of this public office:

> To most people unfamiliar with civics, [*FoodNYC*] was the food plan for New York City. My colleagues from outside of New York City said "Wow, you guys have a food plan and it looks really great." Of course I had to explain that it's not an official food plan. Sorry to be so cynical, but something issued by the borough president, it's kind of a vestigial organ of city government. It only has meaning to the extent that the borough president is willing to make it have meaning (respondent 12).

While officials within the mayoral administration critique the Stringer plans for not being 'actionable,' his staff believes that describing a progressive vision is part of the role of the office. He can use the power of the "bully pulpit" to be a "voice for the underdog"

and help to push the whole policy dialogue leftward (respondent 39). Allowing these plans to be visionary documents, particularly given the circumscribed authority of the office, is part of the political strategy. Yet, a high ranking public official within a city agency disputed the effectiveness of this approach. She viewed Stringer's strategy as more about "making a name for himself" than about seeking to effect real change. She noted that in order for many of the recommendations to be implemented within government, Stringer would have to let go of some of the personal credit and work through the slow, grinding process of building approval and support with the mayor, the council, and city agencies in order to institutionalize change (respondent 50).

Stringer continues to claim food policy as part of his agenda and to 'make a name for himself' on food issues as he positioned himself for a 2013 electoral run—first running for mayor, and then changing to run for city comptroller after November 2012 (respondents 3, 6, 8, 12, 23, 29, 37, 39, 50). In 2011, he released the report *Green Vegetables, Red Tape*, critiquing the regulations surrounding farmers markets and advocating for more community-based farmers markets. Notably, although the focus of the document is on farmers markets, it also has a series of recommendations about fostering urban agriculture by doing a citywide assessment on the potential for urban agriculture, creating a citywide urban agriculture department, and working to preserve community gardens. Thus, it maintains the same recommendations related to urban agriculture that were proposed in *FoodNYC* (Stringer 2011). In 2012, he spoke about his track record of organizing and engagement on food issues at the May BFC conference. In those remarks, he discussed the "economic advantage of the urban food agenda," sounding like the supporter of the neoliberal competitive city, while elsewhere in those

same remarks, he sounded like a progressive voice of the left championing a food movement (Stringer 2012). This, perhaps, reflects the status of a man at a political juncture, someone currently working largely outside the main channels of power, but operating with an eye towards the some of the highest public offices in the city.

***Quinn: FoodWorks***

City Council Speaker Christine Quinn, a one-time candidate in the 2014 mayoral race, also developed an interest in local food systems. While Quinn had shown long-time personal engagement with her local CSA and with community gardens and gardeners in her district, she had not, prior to 2010, developed a full-fledged formal food policy agenda (respondents 34, 6). Her prior policy engagements had focused on combatting hunger and promoting job development via the FRESH program, farmers markets, food stamps, and community incubator kitchens, and she became involved in the community garden rule revision after the expiration of the settlement (respondents 8, 34, 14, 29, 50, 25). In particular, her work was rooted in a public health perspective:

> Food was something that the speaker had already been working on for several years, since she had come into office. And she had been coming at it from more of a hunger and health perspective, which is where a lot of people started out in the food policy world…really framing it in terms of obesity and hunger and diabetes. And so she had done a lot of initiatives on food stamps and getting a Food Policy Coordinator office (respondent 8).

It was young staffers to Quinn—influenced by the growing national movement around local food systems—who first helped to fully articulate and develop a broader approach to food policy beyond obesity and hunger that included a "systems perspective and looking at the system and where there are points of insecurity or like little fissures in this system that are creating, not just the health outcomes that we're seeing, but also

economic and environmental [outcomes], because you can't really disentangle those things" (respondent 8). Through a food systems framework, Quinn's office was able to address issues across the entire spectrum of production, processing, distribution, consumption, and post-consumption (NYC Council 2010).

*FoodWorks* was launched publicly as an initiative of the speaker in December 2009 and the plan was issued a year later in November 2010. According to respondents, the process of its development was not completely transparent or inclusive. Unlike the Stringer documents, which were shaped by broadly attended conferences (the "Politics of Food" conference had more than 600 participants and the "Food and Climate Summit" had several hundred), *FoodWorks* had a hand-picked set of nine advisers who gave input to the plan (Stringer 2009, 2010; NYC Council 2010). Indeed, by one of these adviser's accounts, it was he who brought the idea of a food systems plan or vision to the speaker and her staff (respondent 12). Quinn's staff conducted dozens of one-on-one interviews with experts and advocates, but these individuals were not brought together in a deliberative setting (respondent 9). Despite this outreach, some activists critiqued the planning process as exclusive and questioned its representativeness of diverse New York City constituencies:

> [I was] very, very upset with it, because when [Quinn] announced the unveiling of her plan and she brought up to the stage, the people who were behind the plan in terms of helping her, there was not one person of color. There was not a black. There was not a Latino. Not one person of color in the discussions. And so… I brought it up …. "People, let's get real. How are you talking about food when the most impact that food has is [on] low income neighborhoods, neighborhoods of color? And so if we're going to talk about solutions, we've got to be at the table." I think that was a big, big mistake that she had. I understand the intention, but if we as people of color are not in the process of fixing things, things are not going to happen. They're not. So I was very disappointed in the fact that all these people, all these non-profit organizations, and state and city agencies were

> called. And it's like, "Okay, where are we in this?" (respondent 29; see also respondent 33).

When probed further, the interviewee identified "unintentional racism" as the reason behind white leaders surrounding themselves with white "experts" with whom they are comfortable and share a common background (respondent 29). Because of the deep commitment to procedural justice on the part of many urban environmental groups, one activist claimed, "if it's [the process] not inclusive, it's flawed," (respondent 33).

It is instructive to examine *FoodWorks* in the context of mayoral politics. First, a source familiar with Quinn noted the impression that the 2009 Brooklyn Food Conference, organized by the BFC, had on Quinn. Speaking at the conference and expecting to see a few dozen to a few hundred activists, Quinn and her staff were shocked to see nearly one thousand participants inside on a Saturday talking about all aspects of the food system. This was a catalyzing moment for the speaker when she realized that this could be an important constituency for her and that this movement had 'legs' (respondent 8). Second, an interviewee familiar with the Stringer conferences and plans felt that *FoodWorks* built on this prior work, without explicitly acknowledging it (respondent 39). As both were at one time mayoral candidates, there was pressure to delineate and claim leadership in certain policy arenas. Finally, interviewees knowledgeable of the internal decision-making process in Quinn's office said that *FoodWorks* was 'fast-tracked' in order to precede the release of PlaNYC 2.0 in April of 2011. This was done knowing that Bloomberg's signature initiative would include some mention of food; and there was a desire to claim the intellectual turf around food policy for Quinn and *FoodWorks* (respondent 8). This maneuver had to be handled delicately, however, as Quinn and Bloomberg must maintain a positive working relationship as

speaker and mayor; and candidate Quinn would benefit immensely from a strong Bloomberg endorsement (respondent 12).

The 86-page document was sweeping and ambitious in its aims and networked in its approach. It situates the issue of food policy and food systems in a centuries-long timeline about food production and consumption in the introduction. It included recommendations that are certainly beyond the authorities of the city council, and it touched on geographies and policies beyond the municipal scale–including state agricultural regulations, federal food stamps, and farm subsidies. And it involves multiple sectors, reflecting the speaker and her staff's interest in networked governance among public, private, and nonprofit actors:

> [P]ublic policy has been moving toward this networked approach. That it's not just about government doing things and having a role, but it's about the way that government and private sector, and the not-for-profit sector can work together to achieve common goals. And one really successful example of a policy that took that kind of networked approach in the past, pre-*FoodWorks*, was the FRESH Initiative…. And the reason that the FRESH Initiative was really cool was because it took this networked and collaborative approach and this cross-sector approach (respondent 8).

In its introduction, the report frames the issues around economy ("seizing economic opportunity"); environment ("improving environmental sustainability"); and health ("improving public health"), rather than an explicit focus on social justice. *FoodWorks* also uses the framing of population growth that was the departure point for PlaNYC, but nuances it given the complicated relationship between food systems and population growth:

> Food systems have changed throughout history to support the evolution and economic growth of societies. Today we are once again confronted with the need for additional change to the food system. Our national food system evolved to support a rapidly growing population, and it has allowed us to feed more people than ever before. Yet, that evolution had unintended consequences…. As New

> York City is expected to add nearly one million new residents in the next two decades, we must identify ways to move from an unsustainable food system to one that promotes health, environmental sustainability, and a thriving economy (NYC Council 2010: 2).

Finally, throughout the text there are references to making New York City a "leader" in food policy and food systems change. There are examples from other cities, such as Detroit, and a certain amount of inter-urban competitiveness pervades the text (NYC Council 2010).

Related to food production[29], *FoodWorks* sets two primary goals that span the rural-to-urban gradient: "preserve and increase regional food production" and "increase urban food production" (NYC Council 2010: 18). The proposals within these goals echo many of the recommendations from earlier Stringer documents and conferences including building a permanent wholesale farmers market, expanding and supporting farmers markets and CSAs, and expanding the acceptance of EBT at farmers markets. Homing in on urban agriculture, the strategies aim to "better use existing space for urban food production" and to "restore food and horticultural knowledge". The focus on space continues the discussion around scarcity of land in the developed city and has proposals related to protecting community gardens that build on the garden preservation discussion. It also begins to address the 'lack of data' critique with proposals focusing on collecting data on urban farms citywide and creating a searchable database of city owned land. A suite of measures is related specifically to rooftop agriculture: identifying city-owned buildings that could potentially host rooftop farms, making changes to building requirements and waiving Floor Area Ratio requirements for rooftop greenhouses, changing green roof tax credits to encourage food producing roofs, and changing water

[29] While it is clear the food system is highly interconnected, I have chosen to only focus on the recommendations related to production, as these are most closely tied to supporting urban agriculture.

rates for rooftop agriculture sites (NYC Council 2010). Indeed, the number of proposals focusing on rooftop agriculture led one respondent to critique the emphasis that these sites receive in the document (respondent 43).

In order to show progress on this ambitious agenda, Quinn's legislative staff set about developing legislation, resolutions, and recommendations for policy changes that could be effected immediately at the municipal scale. Local laws were passed by the city council in August 2011, targeting different points in the food system (see Table 7.1 for a summary). To begin to address the question of how much land is potentially available for urban agriculture, local law 48 requires the Department of City Administrative Services (DCAS) to maintain an online database of all publicly owned property in the city, with information about its suitability for agricultural uses. DCAS is essentially the 'landlord to the city,' responsible for owning and operating city facilities and leasing city-owned land to private enterprises. It is also the renamed version of the previously existing Department of General Services, under which the original Operation GreenThumb was created in 1978. However, not since that time has this agency been heavily engaged in enabling or facilitating urban agriculture or gardening, so this local law will involve city agencies in new ways (respondent 6, 50). Local law 49 excludes rooftop greenhouses from contributing to height restrictions under zoning and building codes. As a first step in working to change public agency food procurement practices, local law 50 requires DOE and other agencies that procure food to report on the amount of regionally sourced foods. Local law 51 focuses on reducing packaging waste by developing guidelines for packaged food purchased by the city. Finally, local law 52 requires OLTPS to gather and report on information about New York City's food system and to develop an annual food

system metrics report (Cohen 2011b). All of these pertain to food systems, but laws 48, 49, and 52 have the most potential impact on urban agriculture. Most respondents focused their comments on either the vacant land database or the food procurement laws, depending on their interests (respondents 6, 8, 12, 19, 23, 29, 33, 37, 38, 39). While many respondents commended the progress, even those internal to the *FoodWorks* process noted that these local laws are only a first step. Much more work remains to be done to close loopholes, strengthen enforceability, and build on this early momentum (respondent 6, 12).

Table 7.1: Local laws passed by city council in August 2011 pertaining to the food system

| Local Law | Effective Date | Focus |
|---|---|---|
| 48 | 12/17/11 | Requires the department of citywide administrative services to maintain an online database of all property owned and leased by the city, including detailed data about the sites as well as whether land is potentially suitable for urban agriculture. |
| 49 | 8/17/11 | Adds greenhouses to the list of rooftop structures that can be excluded from height limitations, making it easier to install the structures on top of buildings |
| 50 | 11/17/11 | Requires the City Chief Procurement Officer to develop a set of guidelines for city agencies to follow to procure more food products whose components are grown, produced or harvested in New York State. |
| 51 | 11/17/11 | Requires the director of citywide environmental purchasing to develop packaging guidelines for food purchased by the City to eliminate packaging or minimize the amount of packaging used, and to use packaging that is recyclable or reusable. |
| 52 | An annual food system metrics report is due 9/1/12 and annually thereafter. | Requires the Office of Long-Term Planning and Sustainability to gather and report on key data about New York City's food system, including sources of food, including community gardens, how it is distributed, and consumed.. |

**Source**: Cohen, Nevin. 2011b. "Update on NYC FoodWorks Legislation" Urban Food Policy. Oct 12, 2011. Accessed online: www.urbanfoodpolicy.com/2011/10/update-on-foodworks-legislation.html (1 Aug 2013).

* To download the full text of the local laws, visit: http://legistar.council.nyc.gov/Legislation.aspx

Despite these first legislative steps and the excitement brought by this public attention to food policy, some activists critiqued the plan for not doing enough to support

actual on-the-ground programs and saw it as a "missed opportunity" to do more (respondent 23). For example, one nonprofit program manager noted that her program operates at the unique intersection of urban agriculture, job training, and strengthening healthy communities that is called for in the plan, but she saw no increase in funds received from Quinn's office or elsewhere in the council (respondent 43). A public official considered the local laws and resolutions as something of an "unfunded mandate" (respondent 6). Without commensurate budget increases to agencies involved in supporting urban agriculture like DPR and DSNY, how would all of the proposed innovations across the food cycle be carried out? These challenges bring us back full circle to the issue of the balance of power between the mayor and city council, the limits on the authority of the council, and the need for mayoral leadership in order for initiatives to reach full fruition. Hence, activists were excited about the potential for Quinn's engagement on these issues if she had been elected mayor, viewing her engagement while speaker as a sign of more things to come (respondent 54).

***Bloomberg: PlaNYC 2.0***

There was a clear public response to PlaNYC's failure to mention gardening, farming, agriculture, or food in any form, with focused advocacy and community organizing to help inform the 2011 PlaNYC update.[30] Individual residents, civic groups, and coalitions critiqued PlaNYC *substantively* for what it lacked and *procedurally*, for the lack of participation of the public in its development. An activist noted:

[30] There was an equally—if not more—prominent public critique of the plan's failure to address solid waste issues in any form. Solid waste was subsequently incorporated as a chapter in PlaNYC 2.0. Discussion of solid waste policies and programs is beyond the scope of this study. However it is important to note that many food advocates made note of this absence from PlaNYC and identified the connection of waste policies to food systems in the post-consumption phase (respondents 7, 26, 46, 49, 52, 56, 64).

> If you look at the plan, it did not talk about food. And so many of the listening tours brought that up. You're talking about housing, the trees, jobs. But you didn't talk about food. And that's critical. How are you going to feed all these people in the anticipation of millions of people? How are you going to address that? (respondent 29).

Reflecting on this absence, some interviewees noted that there is no single, vested agency that covers food issues for New York City (respondents 12, 32). While there still may not be one single municipal agency focused on food, there are several key agencies that offer long-standing support to urban agriculture and community gardens in the city. In particular, GreenThumb (under DPR) and NYCHA are the most heavily involved; and HPD, DCAS, DSNY, DOE, and DOT all have roles in supporting this system, as previously described. Moreover, the issue of inter-agency coordination should not prevent policy innovation, as PlaNYC and OLTPS were created to seed and ensure just such collaboration (respondents 20, 46). Another interviewee felt that the absence was due to the prior focus of PlaNYC on climate change and an over-emphasis on environmental dimensions of sustainability at the expense of other dimensions that might be highlighted through progressive food policy, such as the creation of green jobs (respondent 14). This leaning of PlaNYC toward environmental, over economic or social justice factors, has been noted in the literature (Finn and McCormick 2011; Rosan 2011). Similarly, another advocate felt that the omission was directly related to social justice, as city political leaders who do not experience hunger or poverty may fail to see the food systems as a critical issue (respondent 29). Procedurally, one respondent identified PlaNYC as a strategic planning document from the mayor, rather than an actual 'plan' that had been ratified by the council or publicly vetted (respondent 12).

Once Local Law 17 ensconced OLTPS in the charter and required an update to PlaNYC every four years, advocates began targeting the update to the plan to include food, farms, and gardens in its scope (respondents 14, 29, 38). Indeed, the Food Systems Network of NYC organized a formal policy memo response to PlaNYC, called "Food for the Future," that was sent directly to the Mayor and other key decision-makers. The authors aimed for this memo to be as quantitative as possible, in order to appeal to the authors of PlaNYC:

> I kind of understand the way the city thinks…the perspective of PlaNYC. They want everything to be measured: controllable, measurable, defined outcomes, progress against plan. All those good, rational bureaucratic things…. What we tried to do was to make [the Food for the Future memo] as quantifiable as we possibly could… And I think we did a respectable job. It was treated like a term paper, so there was a lot of research…. Because quantification is going to be the kind of thing that the authors of the plan get (respondent 38).

Community gardeners contacted GreenThumb and other city agencies to voice their discontent about the absence of gardens from PlaNYC. And they showed up en masse to outreach meetings organized around the development of PlaNYC 2.0 (respondent 6, 14, 29, 43, 52, 61).

OLTPS sought to give the public and civil society groups broader roles in the planning process surrounding PlaNYC 2.0. This served the dual function of both responding to prior criticism on procedural grounds as well as potentially leveraging the contributions and resources of outside entities in dire financial times. A public engagement process was developed to help shift PlaNYC "from an elite plan to a democratic plan" (respondent 49). Borough-based and thematically-focused outreach sessions were held at public venues and City Hall. And officials recalled being surprised by the number of attendees at the sessions on food and agriculture. Asking the public for

input–while framed as a way of 'gathering ideas'–was also a way of developing buy-in for ideas that planners and technocrats had already developed. In addition, these face-to-face meetings were supplemented with an online tool that was developed in concert with then-Deputy Mayor for Operations Stephen Goldsmith's office. Entitled 'Change by Us,' this website was designed to gather ideas, route people to municipal resources, and connect groups to each other; it was envisioned as a way of virtually helping to spur civic engagement in neighborhood and environmental issues (respondent 52). More critically, one could argue that Change by Us was a virtual tool for enabling neoliberal devolution of state responsibilities onto the citizenry.

Despite the public engagement, PlaNYC 2.0's food goals were more circumscribed (or 'actionable') in scope than those in *FoodNYC* or *FoodWorks*. First, the issue of food was framed, limited, and bracketed by caveats in the final text of the plan:

> Healthy, sustainable food systems are critical to the well-being of our communities and central to our ability to accommodate a growing population. Yet food presents a unique planning challenge; unlike sewers or streets, much of New York City's food systems infrastructure is privately owned and shaped by the tastes and decisions of millions of individual consumers. These complicated and inter-related subsystems aren't easily understood or influenced, even by concerted municipal interventions. Furthermore, many of food's most significant climate and environmental impacts are associated with food production, most of which takes place outside the city, and shaped by federal policy (City of New York 2011a: 164).

Second, during the plan's development, the mayor's office sought to identify goals that they knew the city had the jurisdiction, authorities, and resources to achieve. This limited ambition was driven by the fact that PlaNYC 2.0 was released in a completely different fiscal climate than the first version of the plan; there was no budget surplus with which to work and many municipal agencies were experiencing across the board budget cuts of 30%. City hall and agency staff were tasked with coming up with goals that could be met

with budgets that were already in-hand (respondents 6, 40, 50, 52). One decision-maker commented on PlaNYC 2.0 as focusing on incremental, no-cost changes, "You don't mention huge capital dollars. You need to *tweak* things. You need to nip and tuck" (respondent 52). In a feat of Flyvbjerg (1998)-style rationalization, participants involved in the planning process were asked to identify targets related to urban agriculture and community gardening that they knew they would meet regardless of the plan, according to one bureaucrat:

> It basically was right before they put the draft out.… I went in this meeting with them and they were like, "We need to put in something about food production and community gardens in PlaNYC. What can we put in? But please make sure that you understand that there's not going to be any additional budget for it at all and it has to be something that you can definitely do with your existing funding and nothing else." I was like, "this is the most cynical exercise I could possibly imagine." But I was still happy that they were going to be in there. So I said, "How about we work with Just Foods? Start a few more farmers markets. Let's make it a reasonable number like what we would probably do anyway. Like five. We increase the population of gardeners by a certain percentage cause that's what we have to report to OMB anyway. So it's what we're already trying to do. And we create more access to community gardens in areas that are underserved by community gardens,like Queens." Literally, that went into PlaNYC—almost word for word. The only thing they added was the…searchable database of property available for community gardening. That didn't come from me (respondent 6).

Because resources were not committed through PlaNYC 2.0, some advocates felt that the city is not ready to seriously engage in food policy (respondent 38).

Others acknowledged that just beginning to write about food, agriculture, and gardens was a step in right direction, albeit a tiny one. From no mention of these topics in the first iteration of the plan, PlaNYC 2.0 mentions community gardens/gardening more than thirty times. These references occur not only in the short, two page "cross-cutting theme" on food that was added at the end, but also in the core chapters on parks and public space and brownfields. Other cross-cutting themes added to the document

include public health, natural systems, green building, waterfront, economic opportunity, and public engagement—and an entire core chapter was added on solid waste issues (City of New York 2011a). One respondent noted:

> You know, the fact that…somewhere you can go to a website and show that New York City supports a food policy for the city, supports having an open space within walking distance of every resident in the city, that supports planting trees and supports any efforts to prevent erosion and pollution of the waterways. That's got to be a good thing because that wasn't there before. We have a supportive mayor who wants…to be known as an environmental mayor. We don't know that the next one is gonna be quite the same. I think it's gonna be really hard for that next mayor to sort of put the brakes on all of this stuff and reverse it. But they could be much less supportive. They could be much more development [focused]--doesn't matter whether it includes the open space along with the development as well (respondent 58).

The public space chapter takes an environmental justice-oriented approach to the goal of "Target[ing] high impact projects in neighborhoods underserved by parks." This goal includes an initiative to: "facilitate urban agriculture and community gardening" (City of New York 2011a: 35, 37). Following on the precedent set in the 2007 plan, PlaNYC 2.0 set numeric goals. It committed to planting 129 new NYCHA community gardens and creating one urban farm at a NYCHA site; registering 25 new school gardens per year to the Grow to Learn program and retaining at least 75% of registered gardens each year; increasing the number of registered GreenThumb garden volunteers by 25%; and establishing five new farmers markets at community garden sites, in a partnership between GreenThumb and Just Food (City of New York 2011a). While these numeric goals are easily tracked, they are also easily met, 'low-hanging fruit' goals that did not involve any commitment of funds or expansion of municipal programs. In essence, they are paper goals or 'rationalizations'.

Just as *FoodWorks* picked up on frameworks, concepts, goals, and policies identified in the earlier Stringer documents, so, too, did PlaNYC 2.0 build upon all three prior planning efforts. One of the areas of overlap was the call for a public, searchable database of city-owned vacant land that potentially could be used for urban agriculture, as codified in local law 48. PlaNYC 2.0 called for the city to "survey municipal lands to identify underutilized properties that may be suitable for urban agriculture or community gardens" (City of New York 2011a: 164). This goal catalyzed an Urban Agriculture Taskforce, which includes representatives from GreenThumb, DCAS, HPD, OLTPS, the FPC, and City Hall. PlaNYC 2.0 also connects to the ongoing discussions around rooftop farms, stating:

> We will also review existing regulations and laws to identify and remove unnecessary barriers to the creation of community gardens and urban farms. For example, only green roofs that use drought-resistant plants are currently eligible for the New York State green roof tax abatement. Broadening this legislation to include agricultural plants could encourage an increase in green roofs and urban food production (City of New York 2011a: 37).

Other goals suggest urban agriculture as a potential use for remediated brownfield sites, through the use of protective liners and other technologies. Some connections to upstate agriculture are made through the existing Watershed Protection Program, which works with farmers to "adopt sustainable agriculture practices" (City of New York 2011a: 164). Finally, the newly added solid waste chapter includes an initiative to "create additional opportunities to recover organic material"; including a specific effort to "reinstate leaf and yard waste collection for composting in the city" (City of New York 2011a: 140). Reinstating and expanding municipal composting programs was one of the key policy changes called for by garden advocates and articulated in *FoodWorks* (respondents 7, 12,

43, 44, 53; NYC Council 2010). See Table 7.2 for a comparison of goals related to urban and regional agricultural production in Stringer, Quinn, and Bloomberg's plans.

Table 7.2: Goals, initiatives, and proposals related to urban and regional agricultural production[31] in *FoodNYC*, *FoodWorks*, and *PlaNYC*.

| **FoodNYC** | | |
|---|---|---|
| **Goal** | **Strategy / Initiative** | **Proposal / Target Action** |
| Establish food production as a priority in NYC for personal, community, or commercial use by the year 2030 | Urban Agriculture | • Assess land availability and suitability for urban agriculture<br>• Create a citywide urban agriculture program<br>• Ensure the permanence of community gardens<br>• Facilitate the development of rooftop agricultural greenhouses<br>(pp. 9-10) |
| Promote and support regional agriculture by connecting upstate and Long Island farms with downstate consumers, and by mapping the food grown and sourced from the region within approx. 200 miles of NYC | Regional Food Production | • Determine the capacity of the regional foodshed<br>• Develop a state strategy for farmland and food production<br>• Accelerate the protection of New York's farmland<br>(p. 12) |
| Launch twin composting initiatives: (a) support for large-scale composting through creation of a municipal facility; and (b) support for small-scale composting through education, decentralized composting bins, and more pick-up locations. | Food Waste | • Eliminate Barriers to Food Composting in Community Gardens<br>(p. 26) |
| Educate New York City's children to become a new generation of healthy and environmentally aware eaters. | Education | • Expose City Students to Farms and Gardens- "The State Legislature should also mandate that every school has access to agriculture, be it a community garden, urban farm, or relationship with a rural farm."<br>(p. 24) |

[31] Recognizing the complexity and interconnectedness of the food system, this table focuses only on initiatives focused on strengthening *food production*. Thus, it does not cover issues like distribution (including farmers markets) and post-consumption (including composting) unless explicit reference is made linking these policies to production.

| FoodWorks | | |
|---|---|---|
| **Goal** | **Strategy / Initiative** | **Proposal / Target Action** |
| Preserve and increase regional food production | Strengthen regional food supply channels | • Reorient federal farm subsidies to support healthy, sustainable food production<br>• Improve the New York State Farmland Protection Fund.<br>• Encourage new farmers.<br>• Build a permanent wholesale farmers market.<br>• Expand and support farmers markets.<br>• Expand the electronic benefits transfer (EBT) program and acceptance of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) benefits at farmers markets.<br>• Expand and support community supported agriculture (CSA)<br>(pp. 18-22) |
| Preserve and increase regional food production | Leverage the city's economic power to support regional producers | • Track and encourage regional food procurement.<br>• Support farmers in the upstate watersheds (pp. 22-24) |
| Increase urban food production | Better use existing space for urban food production | • Protect community gardens.<br>• Ensure urban farms are counted in the Census of Agriculture.<br>• Create a searchable database of city-owned property.<br>• Identify city-owned properties with roofs suitable for urban agriculture.<br>• Waive the Floor to Area Ratio (FAR) requirements and height restrictions for certain rooftop greenhouses.<br>• Change the state green roofs tax credit to encourage food-producing green roofs.<br>• Change water rates to encourage green roofs.<br>• Streamline the green roof permit application process (pp. 26-29) |
| Increase urban food production | Restore food and horticultural knowledge | • Ensure garden education is available citywide.<br>• Support urban agriculture technology development (pp. 29-30) |
| Increase resource recapture in the food system | Increase residential, commercial, and governmental composting | Establish a voluntary household composting program…" By recapturing these source-separated organic materials, we are also diverting this byproduct from consumers into a stream to use the materials as a resource for growing food" (p. 71) |

| PlaNYC 2.0 | | | |
|---|---|---|---|
| **Chapter** | **Goal** | **Strategy / Initiative** | **Proposal / Target Action** |
| Parks and Public Space | Target high impact projects in neighborhoods underserved by parks | Facilitate urban agriculture and community gardening | • Increase the number of registered GreenThumb garden volunteers by 25%<br>• Establish five new farmers markets at community garden sites in partnership with Just Food<br>• Register 25 new school gardens per year to the Grow-to-Learn program and retain at least 75% of registered gardens each year<br>• Take a full inventory of municipal land and identify properties that could be suitable for urban agriculture.<br>• Review existing regulations and laws to identify and remove unnecessary barriers to the creation of community gardens and urban farms.<br>• Plant 129 new NYCHA community gardens and create one urban farm at a NYCHA site<br>(pp. 37, 164) |
| Solid Waste | Increase the recovery of resources from the waste stream | Create additional opportunities to recover organic material | • To capture the roughly 4% of residential waste made up of leaf and yard trimmings, we will reinstate leaf and yard waste collection for composting in the city. This will create a high-quality soil product for use by City agencies and non-profits in parks and natural resource programs.<br>(p. 140) |
| Brownfields | Expand the use of green remediation | Promote green space on remediated brownfield properties | • Design protective measures such as liners for state-of-the-art community gardens on remediated brownfield properties.<br>• Work with GreenThumb and the New York Restoration Project to pilot a community garden on a remediated brownfield site.<br>(pp. 57, 164) |
| Water Supply | Ensure the quality of our drinking water | Continue the Watershed Protection Program | • Continue our partnership with the Watershed Agricultural Council to promote sustainable farming techniques that limit the amount of fertilizer and other waste products that run into our reservoirs.<br>(pp. 81, 164) |

Besides the specific numeric goals, PlaNYC 2.0 contains essentially no new concepts or ideas related to urban agriculture or food systems and is much more reserved in scope and ambition than the Stringer and Quinn efforts. However, the PlaNYC imprimatur helps to bring food issues further into the institutional fold of the administration. Building upon the local legislation to create the interagency Urban Agriculture Taskforce to carry forth the database project is one clear example of how City Hall and OLTPS can facilitate collaboration across executive agencies (respondents 6, 46, 49, 50, 52). Moreover, even if PlaNYC 2.0 did not bring with it extensive food policy changes, it was seen as signifying potential future directions in which City Hall and agencies might head. Many of the long-term goals are contingent: they can and likely will change with future mayoral administrations. As an executive-led initiative, PlaNYC is identified fundamentally with Bloomberg, and future mayors will have to work to establish their own, unique programs and policies:

> I don't think PlaNYC will last because it's so associated with this mayor that I think the next mayor would be hard pressed to be able to adopt it, be able to contribute new ideas to it and then still have it be associated with—whatever new ideas get put into PlaNYC would be associated still with Mayor Bloomberg, at least for the next term. So I think what's going to happen is the office [OLTPS] will stay. I think the personalities in that office will change. And I think that the emphasis on certain issues may change. And maybe the name of the plan will change…. These mayors, they want to leave their own mark, which I don't blame them. And it's good for the city 'cause then these new ideas come up. But PlaNYC is a brand (respondent 26).

At the same time, despite the need to 're-brand' PlaNYC, this same respondent felt that the way of thinking about sustainability was institutionalized enough that it could not be easily reversed: "But this is now part of government's responsibility…promoting a sustainable city is now part of the mission of a good administration. And so in that sense I think it will live on probably forever" (respondent 26). This case study reveals the

complex, collaborative, and iterative fashion in which policymaking around urban agriculture occurs. Social movements, coalitions, political acts, and discursive practices—with their underlying ideological assumptions—all shape which issues are 'on the table' of municipal decision-making.

## Chapter Eight - Constructing the "greener, greater" city

The preceding cases reveal the ways in which two different components of urban nature in New York City are differently constructed—politically, discursively, and materially. One core distinction between urban forestry and urban agriculture is how these issues are treated in local policymaking and planning efforts. Urban forestry was embraced wholeheartedly via the top-down mayoral sustainability plan, PlaNYC2030, whereas urban agriculture was initially ignored by that process. Why was urban forestry so appealing that it merited its own signature initiative, whereas urban agriculture was overlooked? How was urban agriculture taken up as a part of a broader food policy conversation by other local political leaders and civic actors? From this starting point, I spiral out to examine the complex networks of (human and non-human) actors, overlapping and conflicting claims, and diverse sites and material practices through which urban farms, gardens, parks, street trees, and forests are constructed.

Informed by the preceding descriptions of urban forestry and urban agriculture policy in New York City, my discussion in this chapter considers four sets of issues. First, I aimed to reveal more about political power and the processes of sustainability planning and urban natural resource management in New York City. Who participates in the urban forestry and urban agriculture arenas and by what means? Who is ignored or excluded? To what extent do the cases reflect expectations suggested by theoretical understandings of urban politics, particularly from theories of urban regime and networked governance? Is there evidence of coherent sets of leaders controlling decision-making (as suggested by urban regime theory), rigid bureaucratic structures, or

flexible ties based on mutual trust or interdependence (as suggested by networked governance theory)? Or, as is likely the case, do we see a more complicated and hybrid mix of these ideal types? These cases also examine how politics do not stop once the plan is written; the practice and implementation of natural resource management are shot through with power and politics. I analyze the networks, public-private partnerships, elite ties, and bureaucratic structures that are involved in implementation, reporting, research, and revision of goals. I also show the ways in which sustainability planning is nested within relationships and histories that extend before the plan was written and beyond its bounds.

Second, approaching the construction of urban nature as a discursive process, I examined the rhetorical claims associated with urban forestry and urban agriculture, particularly as they are positioned within the planning documents *PlaNYC, Food in the Public Interest*, *FoodNYC*, and *FoodWorks*. In both cases, advocates make claims about the benefits of these types of nature (trees, farms) to human health and well-being, neighborhood livability, the environment, and the economy. What do these claims reveal about the values, ideology, and strategies of the developers of the plans? What tacit understandings of sustainability do they embrace? Are neoliberal notions of growth, entrepreneurialism, and inter-city competition hegemonic—and therefore threaded throughout the rationales and positioning of urban forestry and urban agriculture? Or are there counter-hegemonic strands related to justice and equity in these storylines as well? It is important to see how urban forestry and agriculture narratives are crafted and burnished to support (or contest) the competitive city discourse. I also examine what

claims and goals were bracketed out of the planning processes for failure to align with the dominant values and discourses of the plan.

Third, growing, planting, pruning, and watering trees, creating and maintaining gardens, and growing crops are materially and spatially differentiated processes. What role do nonhuman actors, both biotic and abiotic, play in the policymaking and natural resource management story? What capacities do trees and farms have that allow humans to make claims, extract value, measure and monitor changes, and find meanings in support of their policy and planning objectives? Conversely, what characteristics of trees and farms hinder our ability to make those claims? Moreover, changes to urban socio-nature are not occurring on a blank slate, they are being inserted into the already-existing, historically accreted, and path-dependent built form of New York City. How does that urban spatial form constrain or enable sustainability policymaking and natural resource management? In particular, as of 2007, New York City was highly developed, with few vacant parcels not already programmed for some future use. This spatiality is made all the more complex by the numerous authorities with property jurisdiction on different pieces of urban space. How does this sense of "lack of space," overwhelming density, and jurisdictional complexity shape discursive claims, political tactics, and material practices related to urban forestry and agriculture? And, going forward, how does the infusion of resources and labor (from both municipally-led policy efforts and civic-led movements) affect the built environment of New York City?

Fourth, these cases unfold and change over time in response and with respect to both external and internal factors. I selected a single city in a relatively narrow period of time, 2007-2011, as the focus of my analysis. Despite the narrow timeframe, we can

examine whether the construction of nature in New York City changes over time. What is the impact of the economic crisis of 2008 on urban forestry and agriculture? Internally, how do green infrastructure campaigns and local social movements change in response to leadership changes and organizational learning? And, finally, is there evidence of external shifts in societal attitudes toward these endeavors?

**Networked governance *meets* mayoral politics in the construction of urban nature**

These cases reveal how urban forestry and urban agriculture are differently situated with respect to the political maneuvers and governance networks of public, private, and civic actors in New York City. Within the urban environmental policy arena broadly construed, there are substantial differences between the actors, practices, structures, and relationships involved in forestry and agriculture. First, the mayor plays a direct role as a public official authorized to spend municipal funds, appoint agency heads, and direct strategic initiatives, as seen by Bloomberg's actions in the urban forestry case. *This* mayor in particular plays a role as a private philanthropist who can leverage personal finances and networks in support of his signature efforts. But the *office* of the mayor also plays an indirect role, as potential mayoral candidates vie for public recognition and a visible platform with which to make their name, as illustrated by Stringer and Quinn's work around food policy in the agriculture case. Second, urban forestry and sustainability planning are largely state-led, bureaucratic, and institutionalized political processes. Civil society groups are invited into policymaking and implementation of both PlaNYC and MillionTreesNYC in a controlled, formal manner such as in public comment periods, consultations, and advisory boards. Only certain, professionalized

nonprofit groups with access to key resources, such as elite ties, are able to trump this process and insert themselves in a central role, as illustrated by New York Restoration Project (NYRP). Conversely, urban agriculture in New York City functioned more like a civic-led social movement with key state and private sector allies, where diverse groups advance policy agendas and shape the policy discourse. Third, in moving from planning for to implementation of natural resource management, there are opportunities in both cases for civic groups and the public to be engaged, particularly via public-private partnerships and volunteer stewardship programs. Finally, methods of social network analysis (SNA) allow for a visual means of exploring the differences in the networks of these two domains, and reveal the more centralized, state-led network of urban forestry in contrast to the more diffuse and polycentric network of urban agriculture. I will present and discuss the results of SNA analysis on the two cases in the section on 'visualizing the networks' below.

***The mayor and his others***

The presence or absence of top-down endorsement from City Hall is one of several prominent differences between urban forestry and agriculture in New York City. The MillionTreesNYC campaign was developed as one of the 127 initiatives of PlaNYC, which was a centralized policymaking and planning effort led primarily by the mayor, his staff, and the executive municipal agencies—in this case, primarily the Parks Department (DPR). In contrast, urban agriculture in New York City is better understood as part of a broad and emergent, primarily civic-powered social movement around food, sustainable urbanism, and community-managed open space. This is not to suggest that forestry lacks

a network of concerned civic actors, nor to suggest that agriculture lacks crucial public allies and supporters. However, *at this point in their development*, one can identify a certain 'center of gravity' within each case in terms of which sector (and which particular actors) are participating in discussions, driving agenda setting, committing resources, and devoting labor. Indeed, it is entirely possible that urban agriculture will have a much stronger champion within the mayor's office following the mayoral election in November 2013. This is the hope of many garden and agriculture advocates in response to the current leadership shown by two individuals who were both at one point mayoral candidates, Manhattan Borough President Scott Stringer (now running for comptroller) and City Council Speaker Christine Quinn (who lost in the primary).

Critiques have been leveled against PlaNYC for its top-down nature and the way in which it was so thoroughly a set of mayoral executive initiatives, repackaged together as a 'plan,' without the public involvement and legislative oversight required of an actual city plan (Angotti 2010a). This study begins to shed some light on the diversity of actions and initiatives that constitute planning, and—in particular—the incredible power of mayoral-led planning and policymaking. The mayor, his deputy mayors, and the City Hall staff maintained tight control over agenda-setting, question formation, scope delimitation, timelines, participation, framing, and writing of the PlaNYC document as well as the heavily scripted roll-out of the document to outside entities, the public, and the media. The next ring of engagement involved key bureaucrats from city agencies making arguments, staking turf, and seeking to influence goal-setting through acts of inter-agency coordination and compromise. This is because PlaNYC is an undertaking of the executive branch, rather than a series of local laws and resolutions that might emerge

from a legislative initiative of the City Council, as was the case in the *FoodWorks* plan. Thus it was City Hall and city agencies that were primarily responsible for the inclusion of forestry-related goals and the lack of agriculture-related goals in the first iteration of the plan.[32]

This account, however, is too cut-and-dried. In both cases, we see the role of networked actors, public and private, outside of this inner circle of decision-makers influencing the development, implementation, and—later—revision of PlaNYC. First, a Sustainability Advisory Board with organizations from civil society, business, and other branches of government was built into the PlaNYC process from its outset. Second, and perhaps most notably, the nonprofit NYRP was able to use the elite ties of its celebrity founder in order to gain access to the highest levels of power within New York City government. Driven by motivations completely outside of the PlaNYC process, NYRP's aims were then folded into PlaNYC, and the truly hybrid MillionTreesNYC was created. No such equivalent endeavor existed in the case of urban agriculture. The issue was discussed, but without a powerful champion internal to the PlaNYC process, it did not gain much traction. The advocates for urban agriculture were viewed by City Hall as outsiders to the process with little savvy on how policies works and programs are made. Third, planning is not a moment-in-time endeavor. Particularly given requirements for reporting, monitoring, and updating, we can think of the 'implementation' stage as very much a part of the plan. It is in this implementation stage that the forestry case opens up to a much broader set of actors, through its advisory committee and subcommittees; partners in stewardship, education, green jobs and research; and its engagement with the

[32] One should not disentangle political actors, the actions they take, and the rhetoric they use to substantiate and articulate those actions, but a discussion of the rationales for *why* City Hall found urban forestry so appealing and urban agriculture much less so follows in the subsequent section of this chapter on discourse.

public as volunteers and stewards. MillionTreesNYC—through its resources, public visibility, timeline, and sense of momentum—became the 'train that left the station' for the already existing advocates and allies of urban forestry. A reorganization of the network began to occur as new ties were created and institutionalized throughout the life of the campaign.

In response to both public critique and the changes in the economy, the 2011 update to the plan—or "PlaNYC 2.0"—was approached in a more inclusive manner. Out of both conscience and necessity, more voices were brought into the planning process at earlier stages through greater numbers of both consultations with advocacy groups and nonprofits as well as more extensive public fora during the writing of the plan. The former were seen as a way to vet goals, but also to assess what resources outside entities might contribute toward PlaNYC ends—neoliberal policymaking during fiscally dire times. The latter were potentially a chance to gather ideas. But, as the technocrats felt most ideas had already been considered, expanded public engagement was more often used as a means to create buy-in and feelings of inclusion that would help build constituencies of support for the plan among different factions of the public. The process of revising the plan was a key advocacy moment and the public fora were important arenas for urban agriculture and community garden advocates who saw recognition within the plan as a politically meaningful step for the movement, even if it came without the substantial resources associated with the first iteration of the plan.

The urban agriculture case also reveals the way in which other municipal actors outside of City Hall, working in concert with civil society coalitions, in turn, influenced PlaNYC. While *FoodWorks, FoodNYC,* and *Food in the Public Interest* have policy

implications in their own right, they also helped create pressure on City Hall and the Office of Long Term Planning and Sustainability (OLTPS) to incorporate food as a 'cross-cutting issue' in the PlaNYC 2.0 update. Ideas and proposals around food and agriculture that were previously embraced primarily by civil society groups have come to be accepted by a handful of political figures, who readied the ground for at least tentative acceptance of these ideas by City Hall. In part, the impulse to incorporate food into PlaNYC was pure politics; Bloomberg and Quinn both were working to assert their policy turf in the environmental arena and Bloomberg did not want to be seen to lag behind Quinn. Meanwhile, Quinn's team worked to ensure that *FoodWorks* would be released before PlaNYC 2.0 was. As a result, there is clear, substantive overlap in the recommendations put forth in the two documents, although the scope and depth of *FoodWorks* is much broader (see Table 5.1 for a list of goals and initiatives related to urban and regional agricultural production in *FoodNYC*, *FoodWorks*, and *PlaNYC 2.0*).

***Public-private partnerships and coalitions***

Moving further into implementation, public-private partnerships are a key governance form in both cases, although they are certainly most central in the urban forestry case. The MillionTreesNYC campaign is a hybrid institution, comprised of DPR and NYRP, and carefully negotiated via City Hall at its outset, with initial funding from the Mayor's Fund, Bloomberg Philanthropies, and David Rockefeller. This partnership is characterized by joint goals, a formalized Memorandum of Understanding, and a shared external-facing identity through its website, logo, branding, and messaging. The participating organizations remain quite distinct, however, in terms of their staff, core

missions, office spaces and field sites, planting locations, and operational routines. Differences in expertise, jurisdictional authority, and ability to fundraise and spend on this initiative were all cited as core motivating reasons behind the partnership. This ability to leverage distinct sets of resources and expertise becomes even more acute in austere financial times. It is important to note that this partnership was forged in the boom year of 2007 and may therefore be more of a product of routine neoliberal modes of governance than a response to crisis.

In the urban agriculture case, the formal public-private partnership supporting school gardens, Grow to Learn, was created in 2010 and modeled to some extent after MillionTreesNYC. It is comprised of partners from the Department of Education (DOE), DPR's GreenThumb, and the nonprofit GrowNYC, with funding from the Mayor's Fund and several prominent private funders. However, the MillionTreesNYC campaign is more prominent and better funded than the Grow to Learn effort, perhaps a product of their different times and the way in which they were triggered. Nonetheless, it reveals the way in which institutional forms can perpetuate and become embedded in everyday practice the more they are used and seen as trusted or proven.

If the formalized public-private partnership is the central institutional arrangement in the forestry case, then complex and loose coalitions are the signature of the urban agriculture case. Coalitions involve an alliance of organizations and individuals working towards a common end or set of ends. These coalitions vary in their emphasis and composition. Some are catalyzed by formal convenings with the help of public officials. Stringer helped to trigger coalitions through his leadership in organizing the Politics of Food conference at Columbia University and the Food and Climate Summit at New York

University. These conferences and the documents they produced—while valuable in their own right—also helped to set the stage for the less broadly inclusive, but more formally institutionalized, *FoodWorks* plan led by Quinn. Other coalitions include civic-led efforts like the Brooklyn Food Coalition (BFC) and the Food Systems Network of New York City (FSNNYC), which seek to bring together disparate actors to engage in mutual learning, public education, on-the-ground projects, and advocacy. There are also coalitions that are historical legacies of prior efforts and crises that can be re-engaged and energized by current issues, as is the case of the New York City Community Garden Coalition (NYCCGC). The NYCCGC was developed out of the community gardening crisis of the 1990s when then-mayor Rudolph Giuliani tried to put up several hundred gardens for public auction. Since that acute moment of struggle, a broad network of participants in, advocates for, and allies of community gardens has formed. This group re-mobilized in 2010 when the Attorney General's Memorandum of Agreement that set the terms for garden management and dispensation expired and DPR had to create new garden rules. Finally, still other coalitions draw specific attention to diversity and potential imbalances or acts of exclusion within the food movement, as is the case of the Black Urban Growers.

There are other networks of individuals that might not be characterized as 'coalitions' but are similarly groups of individuals either connected through or served by a common umbrella organization. This includes participants in the variety of food and agriculture-related programs of Just Foods, New York Botanical Garden (NYBG), and Brooklyn Botanic Garden (BBG), as well as gardeners interacting with Green Guerillas, and gardeners working on sites owned and supported by NYRP, Trust for Public Land

(TPL), and GreenThumb. Even if not all of these participants are deliberately motivated toward advocacy in a social movement vein, they are connected by loose ties that allow for sharing knowledge, ideas, information, and storylines. Similar sets of organization members and program participants exist in the urban forestry case, as members of the public interact with forest-related programs of DPR, NYRP, Trees New York (TNY), and the MillionTreesNYC Stewardship Corps (delivered by GreenThumb, BBG, QBG, NYBG, and the Greenbelt Conservancy). Yet, perhaps because this arena was never threatened by an overt crisis like the one that affected the community gardening world, and perhaps because forestry does not involve the same deep history of re-appropriation of land and community-based management that community gardening entails, these groups do not operate as a social movement. In fact, in acknowledgement of this lack of a movement, leadership within MillionTreesNYC has attempted to "build a social movement around urban forestry" (respondent 15).

***Visualizing the networks***

While my primary methods in this study are qualitative case studies drawing upon interviews, participant observation, and discourse analysis, I also used SNA methods to help enhance and triangulate my case narratives. (For the complete description of SNA methods used, see chapter 1.) Using UCINET and NetDraw, I generated separate diagrams for the forestry network (based upon 34 respondents in 14 organizations) and the agriculture network (based upon 43 respondents in 36 organizations). The diagrams are color coded: blue nodes are government groups; yellow nodes are civic groups; and red nodes are business groups. The size of the node reflects the number of ties, both in-

degree (meaning the number of groups that identified working with that group as an alter) and out-degree (meaning the number of groups identified as partners/alters by that organization).

I present two different views of the forestry network: one that distinguishes between all the different DPR divisions—leadership, MillionTreesNYC, Partnerships for Parks, Central Forestry and Horticulture (CFH), Natural Resource Group (NRG), and GreenThumb (Figure 8.1); and one that combines them all into a single node (Figure 8.2). Figure 8.2 most clearly demonstrates the prominence of this agency within the network, with a far greater number of ties than any other node in the network. Even the private half of the MillionTreesNYC partnership, NYRP, is relatively smaller than the DPR node and is similar in number of ties to some of the main civic groups in the Stewardship Corps (TNY, BBG, and NYBG), which are the most prominent civic nodes. This representation reinforces my narrative account of the importance of DPR to the forestry case, from the earliest stages of PlaNYC goal-setting throughout all the stages and sites of implementation. In Figure 8.1, with the divisions of DPR presented separately, we see a slightly more complex picture, wherein each of these divisions has its own, relatively distinct set of partner groups with which it works. In this representation, one sees that NYRP and DPR's MillionTreesNYC divisions have roughly the same number of ties. In both views, we see that there are just a few business groups with more than one tie, including DPR's contractors, nurseries, and some of the key corporate funders of MillionTreesNYC (Toyota, BNP Paribas, Home Depot).

The agriculture network immediately presents quite a different visual display (see Figure 8.3). Both the number of nodes and the number of connections between them is

greater than the forestry network. The central component of the network is roughly divided between civic and government groups. There are relatively fewer private business groups (and with relatively fewer ties) as compared to civic and government actors. Yet, there are more private sector actors in the agriculture network than there are in the forestry network, likely due to the entrepreneurial ventures in urban farming, farmers markets, and restaurants that are proliferating in the city. Prominent civic groups include professionalized nonprofits (GrowNYC, Just Food, NYBG, BBG, TPL, Citizens Committee), grassroots-oriented or neighborhood-based groups (Green Guerillas, Added Value, East New York Farms), and research and funding entities (Columbia, Cornell, Seeing Green, Doris Duke, Heifer International). The government groups have a fair amount of overlap with the forestry case (DPR, OLTPS, and New York City Housing Authority—NYCHA), with the added prominence of the New York State Department of Ag and Markets, Stringer's Office, and various city council members.

Figure 8.1: Urban forestry network map with DPR divisions disaggregated.
**Source:** Created by Author.

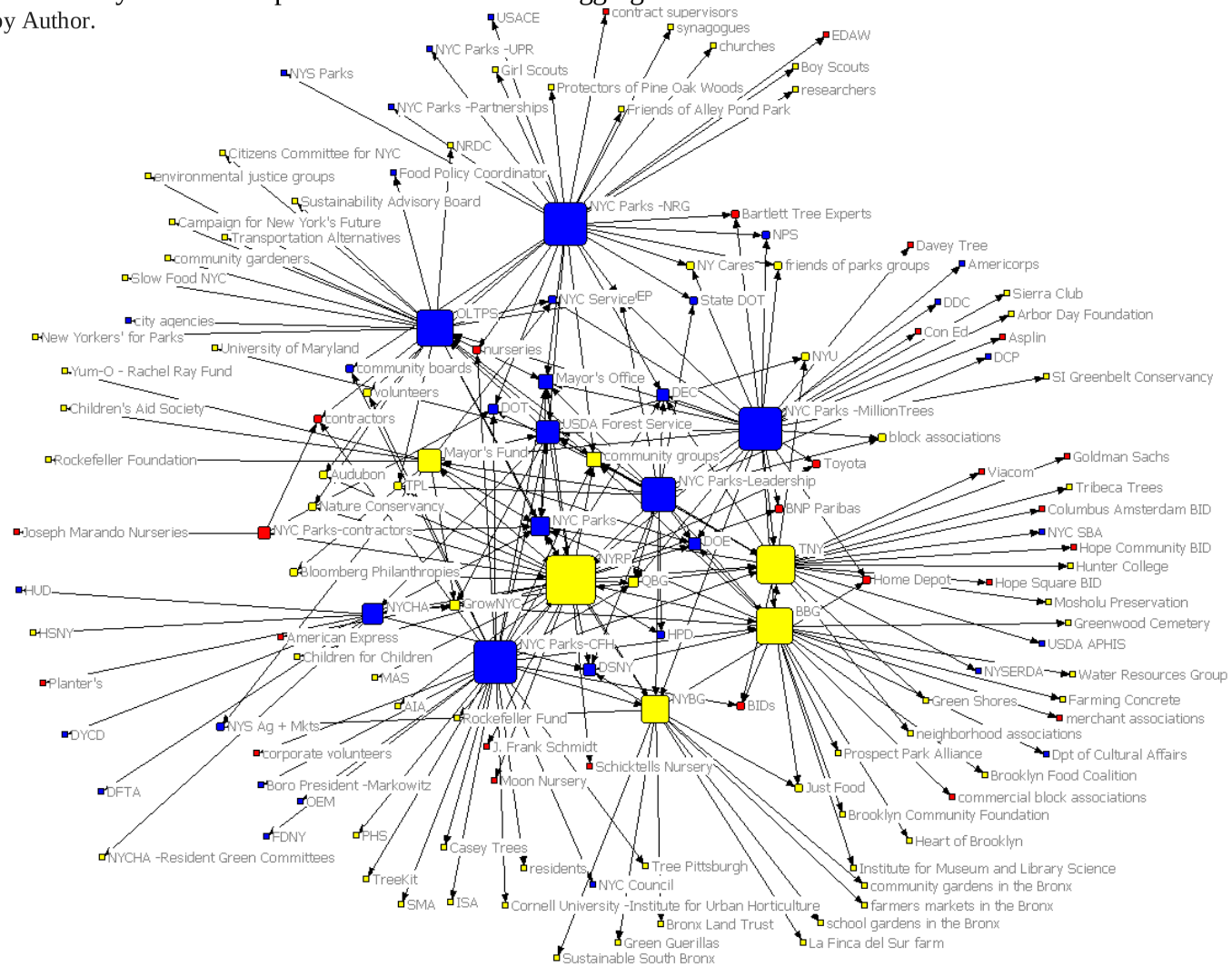


Figure 8.2: Urban forestry network map with DPR divisions combined.
**Source:** Created by Author.

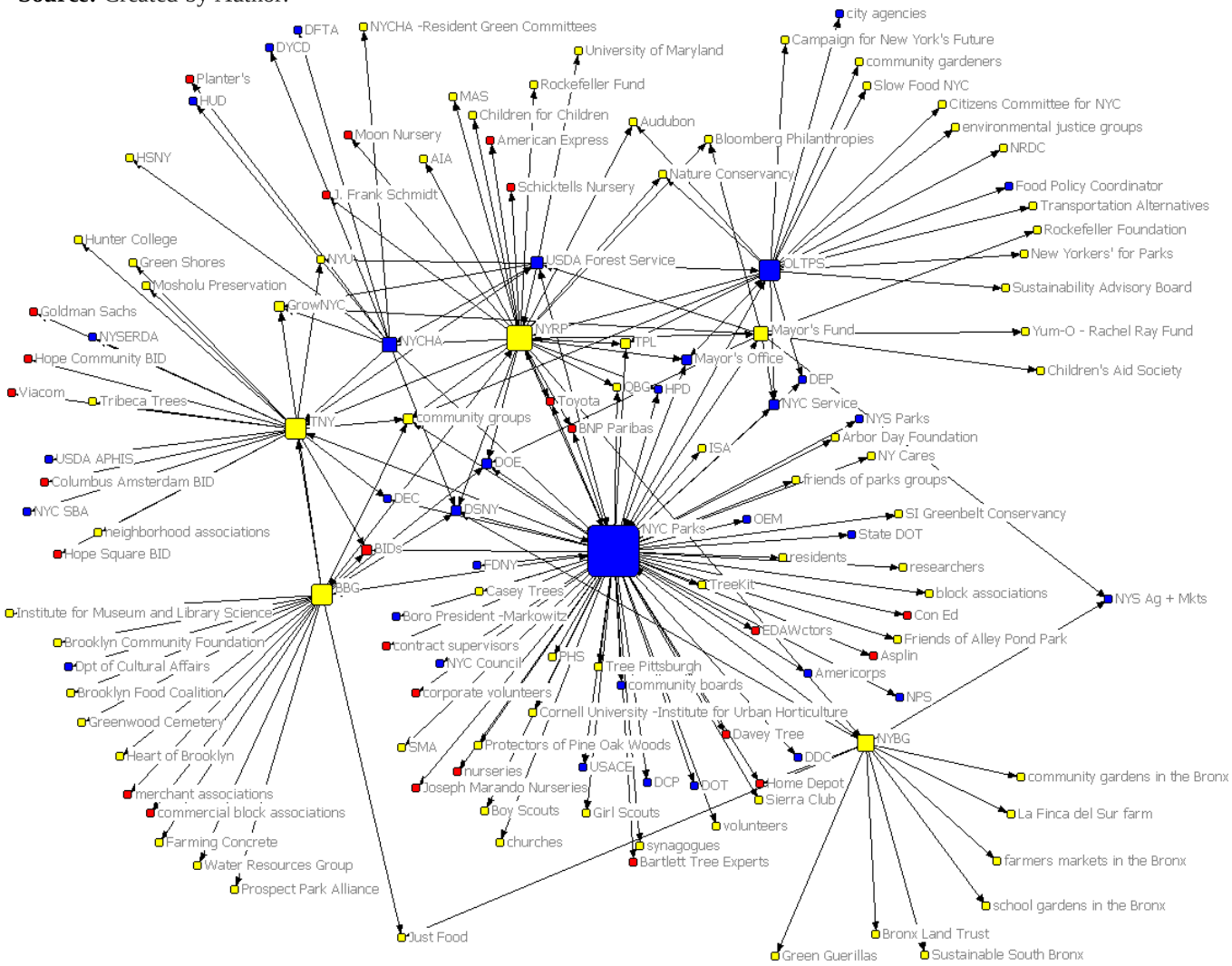
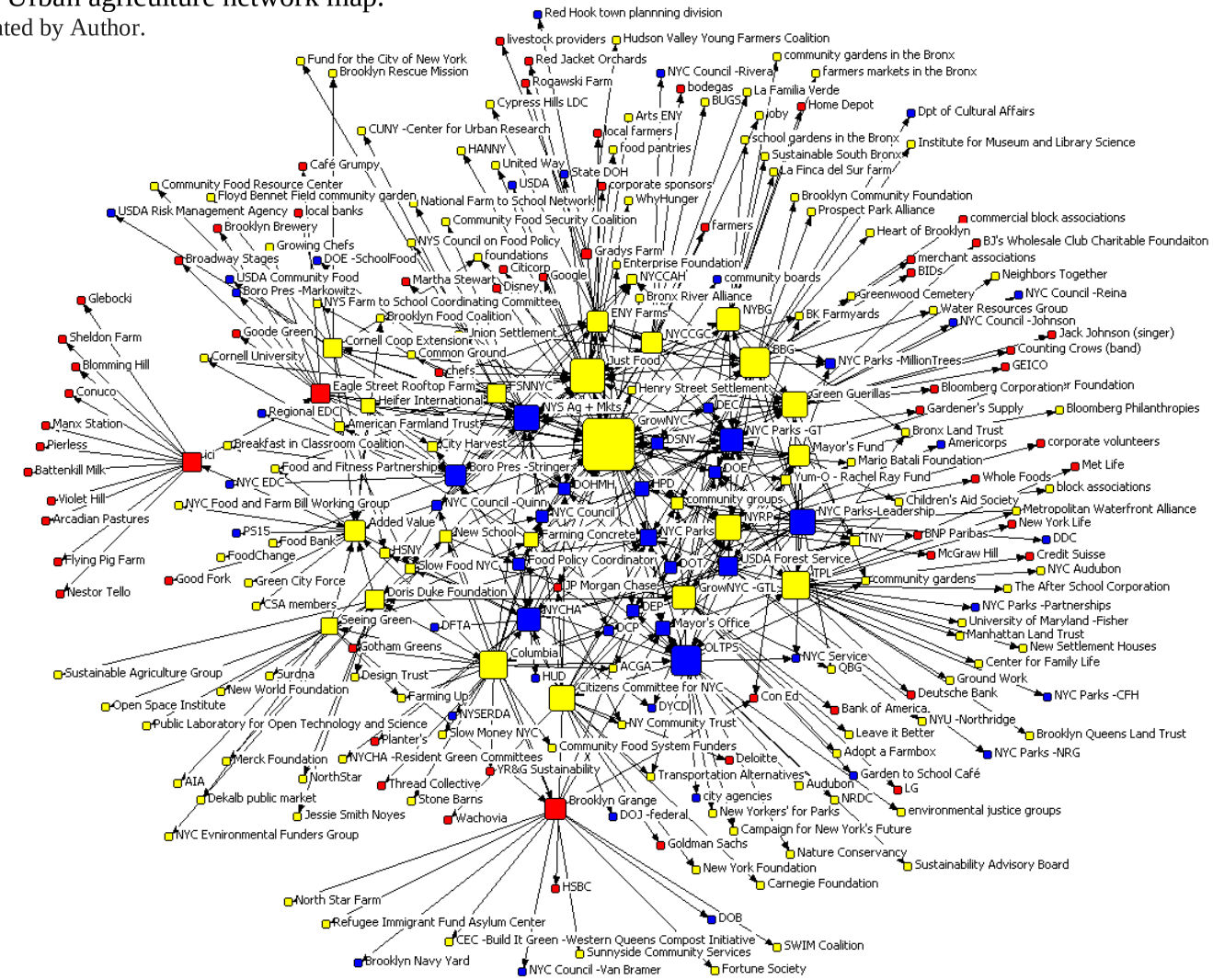


Figure 8.3: Urban agriculture network map.
**Source:** Created by Author.



Comparing these diagrams visually reinforces the sense that agriculture is a sprawling set of overlapping and distinct coalitions, whereas forestry is a more centralized effort that is primarily led by DPR. Both networks are broad and include a wide range of actors, but the agriculture network appears more complex. I'll briefly review the role of the different sets of actors shown in each diagram here.

- Both cases include *global corporations*, which serve as funders, donors, and sources of volunteer labor; New York City is unique in the preponderance of global firms that are located there and may choose to engage in corporate social responsibility through volunteer events 'in their own backyard.'
- Both networks include *city agencies* that control land and resources and regulate the urban environment. In the case of forestry, DPR is very prominent, with a high degree of expertise in managing trees and a depth of resources devoted to sustaining the urban forest, even prior to PlaNYC. DPR also has responsibility for many of the gardens in New York City, via the GreenThumb program, but it devotes markedly fewer staff and financial resources toward this end than it does to maintaining the city's urban forest.
- We can also see the influence of *elite actors* in both networks, although this is somewhat obscured in an organizational-level image of networks. Most notably, Bette Midler's celebrity provided her with access to political leaders and donors and visibility for the endeavors of her nonprofit, NYRP. In the agriculture case, we see the role of celebrity chefs-as-donors, such as Rachel Ray and Mario Batali, as well as a few musicians, like Jack Johnson and Counting Crows, who donate to community gardening efforts.

- The largest civic nodes in both cases are generally *professionalized, citywide nonprofits* that serve as 'umbrella organizations', or brokers, providing information, resources, and services to their constituents, and bridging to organizations in other sectors and fields (Connolly et al. 2013).
- Finally, we see a diverse array of *grassroots or community-based informal groups* as well as *small businesses and business organizations*. It is important to note that many of these groups are not even enumerated or named on the diagrams, because large categories of groups, like: 'block associations', 'community gardens', and 'volunteer groups' are used as placeholders for the hundreds of small groups in these categories.

Although the diagrams are not representations of the total network, these are the core actors involved in each of the cases. These diagrams serve as visual representations that can be used alongside the case narratives presented in chapters 4-7 in order to track key nodes, peripheral nodes, and the connections among them.

**Making claims: the discursive construction of urban nature**

Discursive frames have political and material effects. And vice-versa, politics and materiality help constitute discourses. Scholars in the Gramscian tradition examine the power of language to assert ideologies and to enforce (and reinforce) hegemony (Lees 2004; Crehan 2002; Loftus and Lumsden 2008). In this section, I examine the discursive framing of urban forestry and agriculture in sustainability plans, green infrastructure campaigns, and food systems plans as formalized enactments of networked environmental governance. First, I discuss the role of quantification, counting, and

metrics in the construction of rationales supporting investment in urban nature. Second, I examine the language of the entrepreneurial city in these plans, focusing on efficiency, growth, and competitiveness. Third, I trace the shifting framing that moves from community gardening to urban agriculture in new food policy arenas. Finally, I uncover unstated assumptions about the role of the state, the public, and the private sector that permeate the plans in their taken-for-granted absence. Of course, these narratives did not emerge wholesale out of the ether in these planning documents. They use storylines, tropes, evidence, and argumentation that are created and propagated via diverse sites, including television, print, and online media; peer-to-peer networks (both informal ties with peers and friends, as well as more formal conferences and meetings); social movement ties; celebrity engagement with issues; published research and fiction, and many others. The narratives reveal both hegemonic and counter-hegemonic ideologies at play in the construction of urban nature.

***Quantification and counting***

Advocates for urban forestry and agriculture make claims about the benefits of both these types of nature, leveraging research data, quantitative arguments, emotional appeals, and storytelling to make their case. Many respondents discussed the particular importance of quantitative evidence in making a compelling argument to the Bloomberg administration, which sought to apply businesslike reasoning to municipal governance. PlaNYC, in particular, emphasized the setting of numeric targets that could be tracked via metrics on a quarterly and annual basis. In the case of urban forestry, decades of data—often facilitated by DPR as a client or producer of research—were marshaled by

bureaucrats seeking to enhance their street tree planting and forest restoration work. DPR was aided by institutional infrastructure supporting research on urban forestry though the work of the USDA Forest Service and numerous university departments.

While all sorts of characterizations of the urban forest and quantification of benefits of trees to humans, the environment, and the economy were presented to City Hall, the decision-makers were convinced by the monetized view of street trees based off of the STRATUM model. This model allowed bureaucrats to argue that trees were a 'sound business investment' that would provide more financial returns than they cost to install and maintain, and that the investment would mature as trees grow. In particular, they were struck by the substantial gains in real estate value that are projected in association with street tree plantings. Although somewhat tacit in the language of the plan, these potential gains fit with a view of 'livability' that would attract and retain certain sorts of residents. PlaNYC states:

> There is no formula for the perfect New York City block. But neighborhoods with trees are generally more pleasant and beautiful than those without; sidewalks that encourage walking, with room for strollers, and gawkers, and *go-getters*, are more interesting and enjoyable than narrow strips of concrete. Our plan for open space will help bring to life the unique beauty of each of our neighborhoods…. It means filling out the remaining barren streets with trees that will add shade, color, cleaner air and *higher property values*; and it means encouraging an active, vibrant public realm as essential to the life of our city. (City of New York 2007: 36-37, emphasis added).

While the real estate returns may have convinced City Hall, the multiple benefits of trees provide nearly limitless rationales for investing substantially in the urban forest. In the plan itself, the investments are framed primarily as contributing to air quality and enhancing open space. But arguments were also made throughout the implementation and marketing of the MillionTreesNYC campaign about the broad and diverse benefits of

trees, including public health gains, stress reduction, and educational benefits. Even when some of these relationships were contested by new research or data, as in the case of the trees and asthma association, there remains an overall feeling from decision-makers that 'trees are good for the environment, the economy, and society, and they make sense as a municipal investment'.

Counting practices were crucial to the implementation of the MillionTreesNYC campaign. Weekly, quarterly, monthly, and annual reports summarize the number of trees planted by land jurisdiction and site type, while a large red LED clock (located at City Hall, DPR, and at least 13 other city agency offices) counts down the number of days left in the mayor's term (Barbaro 2008). There is a real sense that staying on track with the time-delimited program involves continuing to plant large volumes of trees ahead of schedule. Indeed, in late 2012, the timeline of the campaign was adjusted from ending in 2017 to ending in 2015. Counting individual trees also serves as a way to engage the public over the course of the campaign. The inaugural tree planted was marked with a sign saying "One in a Million," and the 500,000$^{th}$ tree planted was a cause for celebration and media fanfare (see Figure 4.3).

Many of the critiques of urban agriculture from decision-makers relate to the relative 'lack of data' about urban farming. This is largely due to the fact that many of the benefits and services of urban agriculture that are claimed by advocates remains un-quantified or unquantifiable, particularly in terms of the social benefits of farms and community gardens. Historically, these sites have been largely ignored or overlooked by research-supporting entities like the USDA and universities, with the exception of extension organizations. Many advocates have noted that the USDA's census of

agriculture defines farms in such a way that it excludes, and therefore does not count, most urban sites. Moreover, urban agriculture and community gardening have deep ties to activists and grassroots organizations, which have focused more on action than on research. Though DPR's GreenThumb does a substantial amount of work to register and track gardens over time, as community-managed open spaces rather than bureaucratically controlled sites, the diversity of land use and natural resource management practices on the hundreds of gardens citywide presents challenges for data gathering and tracking, as will be further discussed below in the section on materiality.

This lack of data is clearly changing, as evidenced by the proliferation of academic research and civic science on urban agriculture, followed by new municipal efforts at tracking and counting. Of particular note in New York City are the Columbia Urban Design Lab's *Report on the Potential for Urban Agriculture* and their research on the New York City foodshed; the *Five Borough Farm* project of the Design Trust for Public Space; civic science efforts to understand the impact of urban agriculture like Farming Concrete, Seeing Green; and other independent and smaller studies and reports. These efforts vary in their research questions and methods employed, but all attempt to develop and apply metrics and gather data to help understand the current impact of and potential for further development of urban (and regional) agriculture. In response to the various civic-led initiatives and the food-related plans of the borough president and the city council, City Hall and the municipal agencies have responded to place a greater emphasis on counting and quantification in relation to agriculture and gardening. They have created an Urban Agriculture Taskforce, which will build a publicly accessible, online database of city-owned vacant property. This taskforce involves the participation

of a wide range of agencies beyond DPR, as land can be held in many different jurisdictions and requires careful accounting and participation of all relevant landholding agencies.

***Competition, growth, and efficiency: the language of the plan***

PlaNYC's subtitle is "A Greener, Greater New York City," which positions the document right from the start within the competitive city discourse. This entrepreneurial view of inter-city competition is embedded deeply in the 'DNA' of the plan as well as its rhetorical presentation. According to the introduction to the plan, New York is competing with US cities as well as other global cities for residents, businesses, and tourists:

> Our competition today is no longer only cities like Chicago and Los Angeles—it's also London and Shanghai. Cities around the world are pushing themselves to become more convenient and enjoyable, without sacrificing excitement or energy. In order to compete in the 21st century economy, we must not only keep up with the innovations of others, but surpass them. (City of New York 2007: 10).

Public officials enable that competition directly through investments in the urban realm, while also seeking indirectly to influence changes in public perceptions and attitudes toward the city. As discussed, investments in the urban tree canopy fit with the view of city life that was held by key decision-makers and portrayed in the plan. Trees were believed to have multiple environmental, public health, and economic benefits that would enhance neighborhoods and help New York City compete in attracting discerning residents. Indeed, tree planting is presented at several points in the plan as helping to improve air quality, contributing toward New York City's goal of having "the cleanest air of any big city in America" (City of New York 2007: 11). This sense of comparison and competition is also embedded in the graphics presented in the plan. A map of New

York City's urban tree canopy levels by neighborhood is presented alongside a bar graph showing how New York City's citywide tree canopy level compares to that of Atlanta, Austin, Washington, D.C., Boston, Seattle, Baltimore, Wilmington, Philadelphia, Jersey City, Milwaukee, and Chicago.

In contrast, urban agriculture, with its historic association with periods of housing vacancy and decline followed by civic investment of sweat equity, did not fit with this narrative of urban competitiveness, at least at the time of the plan's writing in 2005-6. In New York City, gardens are generally located in the neighborhoods that saw the greatest decline in the 1970s and 1980s in terms of flight of capital and (particularly white) residents, such as the South Bronx, East Harlem, the Lower East Side, and Central Brooklyn. Community gardening and urban farming were seen by some decision-makers as antiquated, marginal, or idealistic practices left over from another era. Only once gardening came to be reframed as urban agriculture, associated with rooftop farming, greenhouses, hydroponics, and local entrepreneurialism—via a still-unfolding discursive shift that gained momentum throughout the late 2000s—then decision-makers could see a competitive value in incorporating it, however nominally, into PlaNYC 2.0 as part of the cross-cutting topic of food. Indeed, *FoodWorks* illustrates this reframing as it claims that strengthening urban and regional agriculture can "inspire urban agriculture innovation" and enhance the competitiveness of the New York City region, including its competitive advantage in certain agricultural products (NYC Council 2010).

PlaNYC places great value on growth and efficiency. The starting question that Deputy Mayor Doctoroff posed to his City Hall staff and agency representatives was: "given an increase in 1 million new residents in New York City by 2030, how can

municipal resources be used most efficiently and effectively to serve those residents?" A respondent elaborated on this process of planning for efficiency in growth:

> We found out that over thirty years we were expecting a million new people, which is huge…and it was the foundation for everything…. And then we started looking at the different ways that we could plan for growth citywide, as opposed to neighborhood-by-neighborhood. And the conversation was always starting out with: "What more resources do you need? So if this neighborhood grew by x number of people, how many more school seats would you need. How many more firehouses? How many more waste transfer stations?" Those type of municipal uses. And as the conversation evolved, you got the same answer back, which is, "we could use more physical resources." Like you could use x number more megawatts of energy per person. Or you could tell people to use less energy. And then more people could use the same amount of resources that we have now. And that was sort of true across the board. If people use land more efficiently, if people used energy, if people used traffic resources, everything dealing with infrastructure, basically. There's a physical answer, which would mean more land, more money, more whatever; or there's the sustainability answer. So that's how PlaNYC evolved (respondent 26).

The transition from Doctoroff's sustainable land use planning effort to PlaNYC, both of which are fundamentally oriented around growth and efficiency, is presented as follows in the plan:

> This effort began more than a year ago as an attempt to develop a strategy for managing the city's growing needs within a limited amount of land. It quickly became clear that this narrow focus was insufficient. The scale, intricacy, and interdependency of the physical challenges we face required a more holistic approach; choices in one area had unavoidable impacts in another. Each problem in isolation had many possible solutions. But to develop a plan that was not only comprehensive, but also coherent, we realized that we had to think more broadly… The growth that prompted this effort in the first place will also enable us to pay for many of the answers. By guiding and shaping this growth, we believe it can be harnessed to make a city of 9.1 million people easier, more beautiful, healthier, and more fair than our city of 8.2 million today (City of New York 2007: 10-11).

The plan discusses both the efficiency *of* cities (because of their density, and as opposed to other patterns of human habitation) as well as the need for efficiency *in* cities (in terms of use of resources, energy, and land). Efficiency is thus a flexible concept that can help

assert the importance of and need for investments in New York City, because it offers an environmentally friendly model of living. As PlaNYC states:

> And we will also make a difference in the fight against global warming simply by making our city stronger: By absorbing 900,000 new residents—instead of having them live elsewhere in the United States—we can prevent an additional 15.6 million metric tons of greenhouse gases from being released into the atmosphere (City of New York 2007: 13).

Efficiency also highlights the hard choices that must always be made in planning and development without ever challenging the first premise of growth. Finally, efficiency arguments enable neoliberal calls for volunteer investments and public-private partnerships, while providing a backup rationale for why not every scheme, investment, or call for resources might be feasible.

A formal content analysis of the introductory chapter to PlaNYC lays out the scope of and rationales behind the effort, many of which pertain to growth and efficiency. The main themes the content analysis identified were:

- *history of New York City:* a narrative of growth, decline, and resurgence, with the need to invest in physical infrastructure to maintain that growth;
- *city greatness*: New York City as a competitive, growing, diverse city that can be a center for innovation;
- *challenges that the city faces*, in rough rank order of prominence in the document, these include: population growth, demographic shifts, infrastructure and environmental degradation, scarcity of land in the developed city, climate change, complexity of inter-related issues, and health concerns; and

- *goals and values of the plan*, sustainability, defined as: economic development, quality of life, environmental quality, with a particular emphasis on land use and the built city, rather than social services.

A final theme focuses on the *approaches and strategies for action involved in the implementation of the plan*. This includes:

- *procedural/governance approaches*: citizen engagement, collaboration between agencies, and creation of new institutions;
- *scalar approaches*: need for New York City local action, regional collaboration, and advocacy at New York State and federal levels;
- *financial approaches*: the city budget, new financing mechanisms, requests for federal and state funds, public private partnerships, and citizen investment;
- *physical approaches*, such as: new technologies, repairs of old infrastructure, creation of new infrastructure, investment in green infrastructure, and conservation of upstate land;
- emphasis on *density and efficiency* of cities;
- *informational approaches*: including quantification, monitoring, evaluation, and research;
- and *temporal approaches*: need for long term planning and work under future administrations.

Word frequency counts offer a complementary, quantitative means for triangulating my qualitative findings and revealing general patterns in language use in the

document. A search of PlaNYC's text finds 204 references to efficiency[33], 159 to growth, 139 to infrastructure, 138 to environment, 124 to land, 89 to sustainability, 82 to challenges, 56 to economy, and 56 to health. In contrast, justice and fairness were referenced just seven times and twice, respectively, and there were 10 references to poverty, the poor, and low income people. Word frequencies can also be used to examine how PlaNYC discusses urban nature, and on which particular components it focuses. The plan refers to *open space* 50 times, *parks* 40 times, and *trees* 26 times. It does not use the language of urban forestry, with only one reference to the *forest*. *Farms* are discussed only in terms of upstate farmland and water quality; there is just one reference to *roof gardens*; and there are no references to *urban agriculture* or *community gardens* (See Table 8.1).

Table 8.1: Word frequency of language related to sustainability and urban nature in PlaNYC

| | | |
|---|---|---|
| Sustainability terms | Efficiency | 204 |
| | Growth | 159 |
| | Infrastructure | 139 |
| | Environment | 138 |
| | Land | 124 |
| | Sustainability | 89 |
| | Challenges | 82 |
| | Economy | 56 |
| | Health | 56 |
| | Poverty/ the poor/low-income | 10 |
| | Justice/fairness | 7 |
| Urban nature sites | Open Space | 50 |
| | Parks | 40 |
| | Trees | 26 |
| | Roof gardens | 1 |
| | Forest | 1 |

[33] In all cases, these counts includes other iterations of the root word, such as efficient, efficiently, efficiencies.

***From community gardens to urban agriculture and food systems plans***

The relative absence of gardening and farming from PlaNYC is countered by their proliferation in networks that formed external to, and exert influence on, the plan. Chapter 6 explored in detail the numerous discursive themes that are emerging surrounding food and agriculture in urban and peri-urban areas including: locavorism and improving the regional food system; healthy eating, food access, food security, and food justice; lack of open space in the city; and connections to local economy, community empowerment, and education. Each of these themes is associated with distinct but overlapping constituencies of activists, community-based organizations, formal nonprofits, and public sector allies, responding to or triggered by different sets of concerns, which might not have converged in the past. The broadly inclusive conceptual frame of a "food system" has been used to weave together these disparate threads of interest into one, coherent (if complex) discussion around how food is produced and consumed.

These diverse networks of activists and public officials have coalesced to produce three key documents: *Food in the Public Interest*, *FoodNYC,* and *FoodWorks,* which in turn have further concretized and solidified a certain variant of the food system narrative in the New York City context, as ideas and policies continue to gain traction through their repetition. The act of bringing 'food' into the arena of 'environmental issues' that are on the table for municipal policy discussion is much of the work that civil society activists, aided by Stringer and Quinn, have done. As discussed in the previous section, the political pressure brought by Quinn's engagement on food issues helped pave the way for the incorporation of food into PlaNYC 2.0. Thinking about urban agriculture as part of

the ‘production’ stage in a food system cycle that includes production, processing, distribution, consumption, and post-consumption (e.g. waste processing, recycling, and composting) is one of the main discursive tactics of these plans. This view of the food system is melded with a definition of sustainability that focuses, again, on economic growth, environmental quality, and public health.

Drawing attention to scalar politics of food not only in the five boroughs of New York City, but also in its connection to a 100- or 200-mile foodshed, as well as to all of New York State, is another important approach of these plans. Although urban agriculture is a part of this food system, it is certainly not the most prominent or visible aspect within the policy documents. Much attention is paid to rural producers throughout the region and state and how to build urban-rural linkages. There is also an emphasis placed on consumption and processing, for the links to local job creation, the importance of the food retail and restaurant sector, and the role of the city as a purchaser of foodstuffs. Further, since New York City’s local food system is fundamentally enmeshed in a globalized food system, the plans also acknowledge the limitations on actions that occur locally, but pursues them nonetheless. According to *FoodWorks:*

> Although the New York City food system is part of a national and international system that will also require large scale changes, there are significant opportunities on the local level to restructure the food system to create positive outcomes. Historically, the actions of individual consumers, businesses, and municipalities have often led the way for positive changes (NYC Council 2010: 10).

Thus, the plans occupy a unique rhetorical space that represents the complex, multi-scalar, historic, and embedded nature of the problems they are trying to address, but then pivots to propose pragmatic, first-step solutions that are limited in scope and implementable locally. They reflect the current pragmatism surrounding local

sustainability efforts, such as those associated with ICLEI and the Local Agenda 21 efforts.

Beyond the bounds of the plans and documents, however, we see calls for more radical action and change, particularly in the food justice movement. Interest in shifting power to the poor and disenfranchised, forming trans-national alliances with rural peasant producers, and solidarity with a wide range of progressive and radical social movements are all discussed and pursued. Food politics are inherently scalar politics. Because the food system is multi-scaled and there are limits to the power of the municipality to change the food system, activists are working to forge urban-rural, or "upstate-downstate," connections. These alliances between regional and small-scale urban and rural producers serve to critique and challenge the global corporate food system. The discourse and practice of localization and regionalization are—in many cases—a direct counter to the perceived flaws of the globalized, industrialized food system. The localization narrative, though, is coupled with transnational alliance building that transcends place, a frequently employed social movement tactic (See, for example, Keck and Sikkink 1998).

The local food movement in New York City—both within and beyond the plans—places particular attention in its rhetoric and policies on youth, in part because of the epidemic of childhood obesity. The sense of crisis and urgency associated with the obesity and diabetes epidemics builds awareness of the need to focus on healthy food access issues; and these issues are advanced by prominent figures like Michele Obama and funders like the Robert Wood Johnson Foundation. The emphasis on youth may also allow for easier or more convincing normative claims of need, justice, and fairness

related to healthy food access. There is a long tradition in America of social services, and welfare focused on the needs of the 'deserving poor', which has often included children. For example, one of the longest lasting federal safety nets is the Women, Infants, and Children (WIC) supplemental nutrition program. Some local charitable efforts to remedy child hunger, malnutrition, and obesity fit in this lineage. At the same time, more radical efforts focused on shifting power and agency in the food system also work to empower youth as leaders, such as the Flip the Table youth Food Policy Council. Focusing on youth can also meet very real needs by leveraging the power of the massive New York City public school system as a purchaser and preparer of school lunches and breakfasts. Thus, for varying strategic and ideological reasons, youth are an important focus of this work.

Accompanying this explosion of discourses and interests, there has been (for some) a notable shift in language from *community gardening* to *urban agriculture,* couched within a broader context of food systems planning[34]. Activists, the public, and political leaders may be converging on this new terminology for very disparate reasons. Politicians may once again be trying to harness another component of urban nature into inter-city competitiveness, as urban agriculture, food policy, and food plans become a 'trendy' policy topic with cache due to their advancement and use in London, Philadelphia, San Francisco, and elsewhere. Indeed, we see some of the same language of comparison and competition in the later food plans, particularly *FoodWorks*. Or, less cynically, policy transfer, shared communication, and knowledge exchange is enabled via

[34] One can think of community gardens and urban agriculture as overlapping circles in a Venn diagram: not all gardens are 'agricultural' or food-producing sites, and not all urban agriculture sites are managed as community gardens, however there is a substantial overlap between people and sites across these two categories.

professional associations such as the American Planning Association, which recently issued reports on both urban agriculture (Hodgson et al. 2011) and food systems planning (Hodgson 2012).

Still others contest the shift in language entirely, and draw attention to the fact that nothing is so *new* about urban agriculture; it is part of a long lineage of people growing food in cities. This work has been done for decades with little fanfare in the press and policymaking circles, which raises all sorts of questions about inclusion and institutional racism—why now is agriculture so appealing? And might it have to do with the demographic profile of some of the current wave of participants in the practice (young, white, educated) as compared to gardeners and farmers from low-income communities of color? Others contest the foregrounding of food production over the many other important functions of community gardens. Many of these sites were created to promote neighborhood stabilization, to serve as gathering spaces, or as recreational, arts, political, and inter-generational spaces. While the hundreds of community gardens in New York City are highly variable in their intent and management practices, in many cases the growing of plants and crops was more of a means than an end. By casting community gardens whole cloth as part of urban agriculture, there is a danger in the production of food eclipsing the many other important reasons why we might want gardens (or even farms!) in the city. In fact, many of the current practitioners of larger scale urban food production recognize that one of the most valuable contributions of these sites is to educate urban residents about food, agriculture, and ecology. These sites are inherently multi-functional and are about much more than just 'food production'. So while a food systems approach allows for elaborate coalition-building and plan-making, it

is important that it not eclipse the nuance and history of gardening in the city that long precedes the current wave of interest in hyper-local food.

***What role for the state? What role for citizens?***

When conducting discourse analysis, one of the most important—but also most challenging—tasks is to be mindful of what is *not* said. The tacit assumptions that underlie a plan, particularly with regard to the appropriate role for the state, the economy, and citizens, can often be so hegemonic or taken-for-granted that they are not explicitly stated. In this case, PlaNYC represents a unique form of Bloomberg-era neoliberal 'roll out' of the state (Peck and Tickell 2002). The state can serve to make the city more hospitable (and competitive) to businesses and residents. Moreover, the focus of this plan is *not* primarily on social justice or redistribution of wealth. The 'social' components of sustainability are couched more in a language of public health than of justice, which provides flexibility that can allow for neighborhood investments without radical social change. This finding is supported by the relative absence of references to poverty and the poor as demonstrated by the word frequency analysis I conducted. Moreover, while its scope and complexity expanded from its initial strict focus on land use alone, PlaNYC is not fundamentally focused on social services or education. This sort of service delivery, including by municipal agencies under the mayor's control, is for the most part bracketed out of this 'sustainability plan'. Nor is PlaNYC focused on creating a suite of new environmental regulations—for the most part. When the city *did* attempt to create regulations, as was the case with the proposed congestion pricing for driving in Lower Manhattan, this effort was thwarted by public opposition and state-level

veto. In the 2011 update to the plan, the banning and phasing out of #6 and #4 home heating oil was similarly controversial and opposed by many building operators and developers.

PlaNYC's decision-makers referred to the need to focus on goals and initiatives that are 'actionable' or 'implementable'. Some of the motivation for this reasoning is a desire not to create ambitious plans that merely sit on the shelf and are ignored. It also serves, however, to limit the scope of initiatives that make it into the plan largely to ones that are politically and financially feasible. Very little is proposed that prominent political forces could oppose or prevent and nothing is articulated that the city (along with private partnerships, tri-state cooperation in the metropolitan region, and selected state support) can't fund. For example, while there is a national conversation about the importance of 'green jobs' to the sustainability of cities, the plan does not propose large-scale government funding to train or employ the unemployed in these fields. This is not considered the role of this municipal plan. When green jobs training and employment programs are created they are small in scale, limited in duration, and supported with private funding. Other potential initiatives disregarded as 'future ideas' include technologically-dependent efforts, like vertical farms or large-scale hydroponic agriculture. Although the technology does exist for these approaches, it is not yet affordable, nor is it being demanded by the private market at a broad scale, so it is not seen as the role of government to intervene. Most strikingly, the notion of doing only what is implementable produced the rationalizations of PlaNYC 2.0's goal setting, which merely articulated what agencies were *already* doing anyway, with no new commitment of human or financial resources.

While neoliberal, competitive city, and growth-centric rhetoric abounds in PlaNYC, there is also a less prominent, but still important, justice narrative. Perhaps most notably, the goal that every New Yorker should live within a 10 minute walk of a park reflects a sense of distributional justice that has proliferated within planning circles, particularly those focused on urban greening and walkable streets. This goal is positioned on the front page of the open space chapter as the overarching aim to which all of the initiatives contribute. A visually compelling map shows all the areas in New York City that are projected by 2030 to be within a 10 minute walk of a park, if all of the PlaNYC initiatives are successfully implemented. The 10 minute walk concept was developed *after* initiatives were proposed and vetted by various divisions within DPR; this argument provides a conceptual rationale for explaining the many disparate DPR initiatives to the public. In terms of urban forestry, distributional unevenness is highlighted through a map in the plan that shows the street tree stocking levels and how they vary by neighborhood. This metric, along with considerations of air quality and asthma incidence, was used to select the Trees for Public Health (TPH) neighborhoods where intensive block planting was focused first. DPR bureaucrats sought a publicly defensible rationale for correcting unevenness in the urban forest that manifested due to an individual request-based system (i.e. “the squeaky wheel”) for planting street trees. Similarly, NYRP was interested in prioritizing planting in communities of need first, and focused their private tree plantings and giveaways in TPH neighborhoods first.

Despite the attention to distributional justice, there is less of an emphasis on procedural justice or devolution of power in the MillionTreesNYC campaign. For the most part, the planting of trees is the result of a professionalized and bureaucratic process

managed by the state, in partnership with one nonprofit group, and implemented through private sector contracts with the landscape industry. While the campaign seeks vigorous volunteer engagement and participation in the planting of forest restoration sites and the maintenance of street trees, it is not rooted in a community forestry approach. Instead, it seeks to harness volunteer labor to help ensure the survival of street trees beyond their two year contractual guarantees and to reduce the cost of large scale reforestation plantings. DPR hoped that volunteers would come to feel more invested in reforestation sites and street trees on their blocks in the long term. MillionTreesNYC worked to create a comprehensive volunteer program, with tree planting events serving as one of the key points of contact between the public and the campaign.

To understand how community forestry differs in ethos and implementation from this model, however, it is instructive to examine a few examples. Community forestry focuses on trees as a 'means' rather than an 'ends' and is epitomized in programs like community greenspace program of the Urban Resources Initiative (URI) of New Haven, CT, and Baltimore. In this model, local residents and neighborhood organizations use greening in order to achieve goals of neighborhood stabilization, beautification, recreation, education, and so on. Residents have a high degree of control over what trees are planted where and when and are provided with both material and technical assistance by URI staff and interns (Murphy-Dunning 2009). Similarly, programs like the Greening of Detroit shift power by hiring local residents and paying them in order to water and care for trees in the urban forest. Indeed, one respondent bemoaned the fact that MillionTreesNYC focused so much attention on volunteer stewardship and its expensive MillionTreesNYC Training Program, rather than having a broad-based entry level hiring

program for tree care (respondent 55). In the Greening of Detroit model, tree maintenance is treated as a paid job rather than a volunteer activity, but it is one that is being supported by a private nonprofit operating in the face of a bankrupt municipality. Interestingly, it was the fiscal crisis of the 1970s in New York City that sparked the creation of TNY and GrowNYC (then, Council on the Environment of New York City), both nonprofits devoted to resident engagement in the maintenance of trees and open space, respectively. Clearly, fiscal crisis can drive non-traditional solutions to the maintenance of the urban forest.

Another one of the main discursive assumptions of PlaNYC and MillionTreesNYC is that trees, parks, and the public right of way (PROW) can be considered 'green infrastructure' provided by the state for the benefit of the public. Just like a stop sign, a fire hydrant, or any other piece of infrastructure in the PROW, DPR officials ensured that City Hall specified that street trees cannot be refused by residents. This was in anticipation of potential complaints from some homeowners who view the sidewalk in front of their house—although in actuality a public space—as part of their private property. Because of the requirement that residents remove garbage, debris, and snow from the sidewalk and maintain the sidewalk in good condition, but are prohibited from cutting roots or pruning trees without City permission or citizen pruner certification, the PROW becomes something of a jurisdictional 'grey zone' (Rae et al. 2010; DOT 2013). At the same time, this notion of green infrastructure might be at odds with the cultivation of community engagement, which the MillionTreesNYC campaign has tried to do through its various marketing, stewardship, and education efforts. For, we do not

ask residents to maintain roads, tunnels, bridges, or the utility grid–‘infrastructure’ is generally understood to be a public good.

The food policy plans differ substantively from PlaNYC in how they bound the role of the municipality, specifically, and the state more broadly. Both the Stringer documents and *FoodWorks* articulate principles and goals that will require substantial collaboration and investment from state and federal levels that is by no means guaranteed. Acknowledging the importance of the public food safety net, the reports call for changes to benefits programs and the Farm Bill. Nonetheless, these plans still do not use a regulatory-first approach. Although the current city council is known for being more progressive than the mayor’s office within New York City government, *FoodWorks*’s policies related to urban agriculture work primarily through rhetoric, programmatic support, small tweaks to bureaucratic practices and reporting, and rather innocuous local laws. Similarly, in the Stringer reports, government is viewed as a convener, a purchaser of foodstuffs (with implications for demand-side policies), and a partner with the private sector—but its job is not to mandate. In discussing the food system, the plans repeatedly articulate the important role of the private sector in all stages of production, processing, distribution, consumption, and post-consumption. Critiques of the private sector’s role in the creation of food insecurity and food injustice are more overt in the Stringer documents, but all reports note the need for the public sector to work hand-in-hand with the private sector to achieve changes to the food system.

The food plans are more overt in their commitment to social justice, the poor, and the underserved than is PlaNYC. In both Stringer documents, the problems of hunger, obesity, and diet-related diseases are framed as problems prevalent among low-income

populations. So, too, does *FoodWorks* note that hunger is due to poverty and inequality—not lack of supply. Moreover, the context of the economic recession and the impact it has on people's lives is acknowledged in these reports, which were released in 2009 and 2010. And policy recommendations are made related to addressing food security and low income 'food deserts'. In addition to the commitment that the government should help address these issues, the reports call for a broad-based social movement to effect change (Stringer 2009). The food system is also discussed as an economic sector and a potential source of local jobs; calls for fair wages in the food sector show alliances with labor and food sovereignty movements. In addition, the Stringer documents and *FoodWorks* call for a formal role for citizens in policymaking via a proposed Food Policy Council, which is a form of collaborative, stakeholder-driven governance.

**Green stuff, gray stuff: the spatiality and materiality of urban nature**

Thus far in this chapter, urban 'nature' has been treated rather passively as the substrate or outcome of human actions—a limitation that this section aims to address by examining the role of nonhuman actors in local sustainability policymaking and green infrastructure campaigns. We can see that these plans are being formulated in the context of the developed city, with a distinct spatial politics that flows from the condition of—or at least a perception of—'lack of space'. The urban landscape is not an undifferentiated mass; rather, it is subdivided and crisscrossed into territorial domains. In particular, property ownership and land jurisdiction are key institutions that define and delimit the scope of actors' interventions and therefore influence natural resource management.

Trees, themselves, have needs, capacities, and limitations that shape the discursive claims that are made about them and the material practices that are used to manage them. Farms and gardens are complex assemblages of space, plants, soil, buildings, labor, water, air, and sun. In their sheer diversity of form and management, they present challenges for municipal policymakers' bureaucratic processes and rationalized views of nature.

***Spatial politics in the developed city***

Given a discourse of growth and inter-urban competition, and policies that seek to balance development, open space, and infrastructural needs, PlaNYC engages in the spatial politics of urban land use. Throughout PlaNYC—as well as the three food plans—there is an acute awareness of New York City as a developed city that lacks available space for large scale projects (be they housing, commerce, open space, or transportation-related):

> As virtually every part of our city grows, one piece remains fixed: the supply of land. That's why we must use our space more efficiently to accommodate growth while preserving—and enhancing—the city's quality of life. We must provide enough housing; but we must not allow the production of units to eclipse other neighborhood needs—the balance of open space, parks, retail, and aesthetics that is essential to a healthy community. With competing needs and limited land, we must unlock unrealized housing capacity, complete unfinished parks, and direct growth toward transit centers. By being smarter about our land-use strategies, we can realize the promise of an expanding population, while avoiding the pitfalls of unplanned and unbalanced growth (City of New York 2007: 14).

Sustainability planning in New York City is not the same as sustainability planning in smaller, steady, or shrinking cities; it must focus primarily on 'small tweaks' to the urban fabric that yield gains and efficiencies. One bureaucrat noted "this is not Las Vegas," saying that planning in New York City cannot start from scratch; it must address the already-existing, densely built urban environment (respondent 49). Strategies discussed

in PlaNYC include co-locating facilities, extending hours of use (e.g. opening schoolyards during summer, adding lights to parks), adaptively reusing underutilized or contaminated lands (including a chapter on brownfields), and enhancing the PROW / streetscape. As part of the housing chapter of PlaNYC, the city engaged in a comprehensive effort to identify and bundle sites for the future development of market-rate and affordable housing, particularly emphasizing the creation of density near transit hubs in the outer boroughs. Active debates circulate about the appropriate balance of development and open space in the city, including whether precisely the efficiencies and density that makes New York City more environmentally 'sustainable' are threatened by further creation of open space (Owen 2009; Light 2003). Overall, population growth, aging infrastructure, finite land, and climate change combine to create the planning quandary that drives PlaNYC. And the explicit challenge of maintaining affordability amidst that population growth is acknowledged in the plan, even though the word gentrification is avoided.

From a spatial perspective, we can easily understand why growth-oriented municipal decision-makers would be more likely to embrace and fund ambitious urban forestry endeavors than urban agriculture ones. In the case of street trees, which was the aspect of tree planting that DPR primarily used to make the case to City Hall for investments in the urban canopy, trees can be inserted into the already-existing urban fabric of the PROW. Thus the trees enhance, rather than compete with, commercial and residential buildings. Indeed, the increase in real estate values linked to street tree planting was a major selling point to Bloomberg's inner circle, which sought to attract elite residents to New York City interested in high-amenity neighborhoods. At the same

time, DPR bureaucrats made equity arguments that every New York City resident deserved a high quality public sphere, and enhancing sidewalks with street trees was one affordable and rather innocuous way to do this.

In contrast, agriculture generally requires open space that is flat, wide, and sun-exposed. While there are certainly technological fixes including greenhouses and hydroponics, for the most part crops require more contiguous land area than individual trees. Indeed, 'lack of space' is seen by activists and policymakers alike as the greatest barrier to urban agriculture in New York City. *FoodWorks* identified these challenges and placed them in a policy context:

> New York City is the largest and densest metropolitan area in the country. Yet residents and organizations throughout the city have discovered creative ways to produce food within this environment using rooftops, vacant parcels and raised beds. Some new technologies are even able to grow food inside buildings. However, gardeners still face challenges protecting the gardens they have from development, finding new space for gardens, and navigating the city's approval processes. Other cities also face these issues and have begun to implement policy changes to facilitate urban agriculture. For example, the Mayor of San Francisco issued an executive order requiring all city agencies to report on city-owned land available and appropriate for growing food. Additionally, Detroit is now trying to position itself as a leader in urban agriculture. One thing Detroit has at its disposal that is not easily identified in New York City is inexpensive, available space. However, as demonstrated by urban agriculture already underway in the city, much can be done with the little space we do have (NYC Council 2010: 26-27).

Given this material reality and narrative framing, it is unsurprising that rooftop farming came to be championed as a 'win-win' opportunity for advancing urban agriculture in New York City and received several mentions in PlaNYC 2.0. Underutilized roofs could be put to new uses, and rooftop agriculture does not compete with any other potential ratable in the way a vacant lot garden or farm does. Rooftop agriculture requires structurally sound, wide, and flat roofs and thus is well-suited as an adaptive reuse for the

post-industrial city. Large warehouses and former factory buildings that were designed to support the weight of heavy machinery–such as those at the Brooklyn Navy Yard, site of the Brooklyn Grange Rooftop Farm—can safely be retrofitted to handle the weight of soil media and vegetation. There are just a handful of these rooftop agriculture sites at this time, but they have immense symbolic and rhetorical value for activists and policymakers alike as they represent a 'way out' of the bind of the developed city.

***Property jurisdiction***

From a governance perspective, jurisdictional authority over space plays a large role in shaping sustainability goals and natural resource management practices. Long before the creation of PlaNYC, DPR has been responsible for planting and managing trees in the PROW and in all city parkland, including both active recreation sites as well as 'natural areas' citywide. Thus, the agency views these sites as part of its turf and mandate; the landscapes are monitored and tracked as part of everyday operations. The divisions within DPR responsible for tree planting (CFH and NRG) made quantified, compelling arguments using that data to the mayor's office about the need for and ability to roll out a large-scale, citywide tree planting endeavor that would have a large impact on New Yorkers. The engagement of NYRP meant that that campaign could cross both public and private lands. In contrast, although there is a formal program within DPR supporting community gardens (GreenThumb), property jurisdiction of garden and farm sites is far from stable, given the long history of resident re-appropriation of vacant space, the garden crisis of the 1990s, and the subsequent garden settlement. Community gardens are also relatively small in terms of acreage (comprising just 86 acres citywide)

and unevenly distributed throughout the city (Ackerman 2011: 33). During the development of PlaNYC, CFH was better positioned than GreenThumb to make its pitch to City Hall for investment in its programs. Tree planting seemed like an 'easy win' that could be rolled out under current DPR authority, enhanced with the private support of NYRP. In contrast, community gardening involves a whole host of non-state actors, including formalized nonprofits (serving as landowners, advocates, activists, providers of technical assistance) and hundreds of grassroots community groups serving as local land managers.

Despite DPR's authority to plant trees in the PROW, these sites are not entirely devoid of controversy. The ambiguity of who truly 'owns' the sidewalk produced challenges in the implementation stage of the MillionTreesNYC campaign. This ambiguity is produced, in part, because the city plants trees, installs signs, and builds and repairs the sidewalk, but residents are responsible for snow, garbage, and leaf litter removal. If residents do not maintain sidewalks in good condition, the city can repair the sidewalk but can bill the owner for the cost of the work (NYC DOT 2013). Also, the visual and physical proximity of the PROW to adjacent buildings means that, in many cases, this turf becomes an extension of the home; a sense of ownership extends to the PROW (Rae et al. 2010). While the city (and its private contractors) is responsible for tree planting, with contract guarantees for the first two years of the tree's life, DPR hopes that New York City residents will engage in the care of this green infrastructure over its lifespan. Although MillionTreesNYC presents itself as a campaign to plant and care for a million new trees in New York City, the way in which capital monies were allocated and the processes through which DPR plants trees leave a gap in the long term stewardship of

trees that is widely acknowledged, even by the leadership of the campaign. Numerous programmatic efforts have attempted to cultivate that stewardship, but it was not initially built into the DNA of this tree *planting* campaign as deeply as the rigorous attention devoted to the number of stems planted. An enhanced emphasis on stewardship programs did, however, develop over the course of the campaign.

By wrapping afforestation and reforestation efforts under the PlaNYC tree-planting mantle, DPR saw an opportunity to garner much-needed resources to manage 'natural areas'. These are sites managed for ecological functions, including woodlands, grasslands, and wetlands that are under the purview of DPR's NRG division. They are generally highly disturbed, landfilled, or vestigial sites, often adjacent to roadways and other infrastructure; the legacies of prior uses drive the spatial location of these parks. In addition, the 'natural areas' are generally less well-resourced, less visited, and less visible than recreational parks. Using PlaNYC funding, NRG is attempting to create primarily native, multi-storied forests wherever they deem it ecologically appropriate. This involves aggressive and sustained management practices to remove invasive species physically (by hand removal, cutting, mowing) and chemically (via herbicide application), followed by the dense planting of native canopy trees—in an attempt to close the canopy and outcompete other species. Whether these management practices are succeeding in their aims of creating healthy forests that last over time is still actively being researched by DPR and its academic partners.

NYRP's interest in tree planting was initially more conceptual than material; they lacked jurisdictional authority over urban trees with the exception of a handful of sites where they served as the lead stewardship group. The founder, Bette Midler, was

inspired by the *idea* of a million trees campaign and negotiated terms of a partnership with the City at the highest levels of municipal government. Although NYRP was involved in park maintenance in a handful of Northern Manhattan parks and owns several dozen community gardens, they had not previously done large-scale tree giveaways, planting, or stewardship. Thus, planting site selection was truly a novel and evolving process. With DPR handling planting on public lands, NYRP began first with identifying the largest private landholders in the city. They began a partnership with NYCHA—the city's public housing agency—which operates generally outside of traditional executive agency politics because of its funding structure, governance, and unique history. After this relationship soured for a host of political and personality reasons, NYRP continued to work with other large landholders like the CUNY system and Co-Op City in the Bronx. Due to the high cost of these direct-planting efforts, they later pivoted to focus more resources and attention on tree giveaways to individual residents who intend to plant the trees in their private lawns, front yards, and backyards.

Community gardens are unevenly distributed across space throughout the city and are overseen by a patchwork of land managers. Gardens are predominantly located in neighborhoods that experienced previous cycles of economic disinvestment and capital flight that led to the proliferation of vacant lots most recently in the 1970s fiscal crisis. Despite ongoing development and gentrification, the more than 500 gardens citywide are most heavily clustered in the East Village/Lower East Side and Harlem in Manhattan; the South Bronx; and central Brooklyn including Bedford Stuyvesant and East New York. There are many fewer gardens in the lower density, more suburbanized areas of much of Queens and Staten Island where private lawns are more common. Historically viewed as

a temporary solution to the abundance of vacant land, gardening was a strategy used by individual residents and community groups to re-appropriate and reclaim space for neighborhood use. Over time, these groups became more established, undertook lasting management of the landscape, experienced leadership transitions, and asserted their right to land tenure. When Mayor Giuliani tried to put up more than 100 gardens for auction, the question of community garden land preservation was brought to the fore. The subsequent legal settlement divided the parcels between DPR-owned sites that would be preserved as gardens; other city-owned sites that could be subject to development; and privately owned lots bought by NYRP and TPL for protection as community gardens, albeit under non-city ownership. To this day, gardens are characterized by their grassroots, bottom-up governance, and the community garden network is spatially dispersed and jurisdictionally fragmented, requiring different styles of communication and management than the rest of the DPR bureaucracy. Any efforts to try and change, manage, enhance, or challenge gardens necessarily works with (or faces opposition from) this complex, polycentric network.

***Trees as actants***

Trees are also actants in this story. They have properties that shape and delimit what discourses are plausible and what policies and management practices are possible. Their inherent, material characteristics provide a basis for people with certain objectives (e.g. a 'livable city') to mobilize claims and develop policies. And their biological needs for certain environmental conditions and resources that comprise their niche create

challenges that managers meet through trial-and-error, expertise, rules, institutions, and relationships.

Although trees can be considered as parts of communities—such as stands or forests, or in aggregate measures—such as percent tree canopy per unit area, the MillionTreesNYC campaign has homed in on *individual stems* as the entity that is manipulated in this effort. Trees, unlike rhizomes such as grasses, do grow in large, discrete units that can be manipulated and understood individually. The very *treeness* of a tree is defined by its largely above-ground, single-stemmed form, which can also be contrasted to, say, multi-stemmed shrubs. These individual units allow for easy tracking that fits with the reporting mechanisms and practices of DPR and the mayor's office. As individual entities, the trees are human-scale at the time of planting (although they may grow as high as several stories over time). When trees are first installed on streets, they are 2.5-3" caliper in diameter and approximately 10-15 feet high; reforestation trees are potted, only up to a few feet high, and can be handled by individual volunteers. Thus, trees invite direct, tangible, and physical interaction at the individual scale. This is not to discount, however, the impact of the trees when they are planted in groups as forest communities or spanning neighborhood blocks.

As part of their biology, trees produce externalities and interact with human and atmospheric domains in ways that have been framed as environmental benefits and services. Starting from this biological and material base, quantified data and modeling about the benefits and services of trees (including Forest Service programs like UFORE, STRATUM, and iTree) have become a core part of the discourse about the urban forest. I'll review several of these key benefits in turn. First, perhaps most historically important

across time and culture: tree limbs and leaves provide shade. Long before the techniques existed to estimate the impacts of shade trees on home energy bills or on mediating the effects of the urban heat island by lowering surface air temperature, people have sought out the cool air underneath trees. Second, trees are associated with cleaning water. In a rural context, forested lands are crucial to the protection of freshwater sources; as agriculture and residential development threaten the quality of surface and underground water. In aging cities dealing with combined sewer systems, the ability of trees (and the tree pits in which they are planted) to absorb and retain water is an environmental service in that it helps keep additional water out of the combined sewage system and therefore lessens the likelihood that untreated sewage will be released into the surrounding waterways. Third, trees transform the visual landscape as they grow and are lauded as providing beauty. Although more difficult to quantify with quantitative modeling techniques, numerous studies have demonstrated the impact of trees on creating 'walkable,' pedestrian-filled streets and vibrant commercial areas, and raising property values. This property value increase was particularly compelling to City Hall as it contemplated investing in trees as part of PlaNYC. The aesthetic transformation of an area through tree planting has been documented with before-and-after images and renderings and also used as part of the 'pitch' for the campaign.

Sometimes the relationships among trees, humans, and the environment are not as straightforward. By taking in carbon dioxide and emitting oxygen, trees are associated with cleaning the air. However, this association is complicated by the fact that (1) as trees grow, they also emit other particles, such as Volatile Organic Compounds, which are a pollutant; (2) the shape of the urban tree canopy can have effects on the distribution

of ground level ozone and other pollutants; and (3) trees can also release pollen and other allergens that affect air quality and human health. The relationship between neighborhood tree canopy and childhood asthma, for example, is actively being contested and explored in the scientific, policy, and management arenas. Although the science is far from settled, this did not stop managers from instituting the TPH effort to concentrate tree planting in neighborhoods with high incidences of childhood asthma.

Similarly, urban trees' role in carbon sequestration is *not* as foregrounded in the discourse, for numerous reasons. The primary impact of urban trees on carbon emissions comes indirectly, via the reduction of energy used for home cooling (because of shade provisioning) and home heating (because of wind breaks) (McPherson et al. 2008). The direct sequestration of carbon in urban forests has a small impact because: urban forests have a relatively smaller land area compared to rural forests; only large, mature trees sequester significant amounts of carbon and many urban trees are quite small; and urban forests are often intensively managed, requiring the use of petroleum-based inputs (gasoline, fertilizer, pesticides) that change the carbon balance. Further, the way trees are handled after they die affects carbon storage—wood products can store carbon for quite some time, though currently few urban forest wood products are made—and landfilling, chipping, and mulching all have different effects on the way carbon is stored and released (Ryan et al. 2010; McPherson et al. 2008).

In order to survive, trees have needs for water, soil (including both biotic and abiotic elements), sun, and space—in particular configurations that define their ecological niche. Urban foresters have determined shortcuts, rules-of-thumb, and management practices that can provide many of these basic needs to help ensure the longest possible

survival of trees in the urban environment. These practices are woven throughout the actor-network of public DPR managers, private contractors, and resident stewards. For example, the first two years of life of a street tree are the most tenuous, so DPR requires private contractors to guarantee (and replace, if needed) their trees for two years, which triggers the contractors to water these young trees on hot summer days. After these two years, street trees have much higher survival rates, but do benefit from ongoing maintenance and care including watering and pruning. While DPR provides some maintenance, numerous stewardship programs have been developed to enlist the help of resident volunteers in street tree care (again, primarily watering, pruning, and mitigating soil compaction or amending soil with compost). Another example relates to the space and orientation of the tree pit / planting area. While previously tree pits were 4 ft. x 4 ft., DPR expanded that standard size and encourages pits to be as large as the sidewalk will permit, ideally 4 ft. x 10ft., because of the observation that the larger the potential rooting volume, the healthier the urban tree. DPR has also experimented with locating trees off the curb, in the middle or the interior edge of the sidewalk, away from the hazard of car doors, although these planting arrangements are still non-routine. While CFH has routinized and refined many of its management practices in the PROW, NRG's reforestation and afforestation efforts remain somewhat experimental. Having only begun the work on invasive species removal and forest restoration in the 1980s, there has not been sufficient time to know which practices work best for the long-term health of the forest. NRG does have standard restoration practices to which it adheres, but the managers have demonstrated a willingness to work with academic researchers in testing

different planting palettes and mixes of trees and shrubs in experimental plots across the city.

We can trace the material network of the urban forest further backward in time and outward in space from New York City. Regardless of where they are planted, all of New York City's trees originate from commercial nurseries throughout the mid-Atlantic and Northeast region. These large-scale nurseries apply arboriculture expertise, labor, and material inputs including water and chemical pesticides. Following the revision of tree procurement contracts, DPR began to purchase directly from nurseries rather than having private contractors do the purchasing. Thus, nurseries began growing trees to the exact specifications of the City in terms of species selection, size, height, shape, and hardiness. As part of quality control and oversight, DPR foresters engage in inspections both when they tag trees at the nursery and when the trees are delivered to the city. Prior to the nurseries, the trees are purchased as 'starts' – or tiny saplings—from large scale tree farms, such as J. Frank Schmidt in Oregon. Trees are shipped across the country and the region on flatbed trucks, which requires all the inputs associated with long-haul shipping. Another key input, particularly for street-tree planting, is fresh soil. While the excavated soil from a tree pit is replaced back in the ground, the process often requires the addition of fresh fill. This soil is acquired from 'greenfield'–meaning uncontaminated, undeveloped— sites throughout the region.

A fundamental material reality of trees that influences how they are planned for, managed, and interact with the built environment is the fact that they *grow*—in many cases dramatically changing shape over time. On the PROW, the interaction between trees, sidewalks, people, and power lines is an intricate dance in a finite amount of space.

Trained arborists from both DPR and utility companies are involved in pruning trees to avoid overhead wires and selecting trees that work best for sites with wires. Citizen pruners are also engaged in street-level pruning (not around power lines) to maintain the health and appearance of the tree and the accessibility of the sidewalk. Particular tree species are selected, pit size is expanded, and sidewalks are repaired to address the raising of the sidewalk by growing tree roots. And the perception that tree roots will damage sidewalks, basements, and foundations is one of the areas of concern from homeowner complaints to 311 (Rae et al. 2010). In addition to the spatial interactions on the PROW, this tree growth has a temporal dimension, as many trees take years or decades to reach full maturity. Planning for the duration of the campaign, DPR entered into the contract growing arrangements with nurseries in order to ensure sufficient, high quality stock of trees that must be grown 3-4 years at the nurseries. In addition, investments into the urban built environment are being made essentially for the benefit of future generations. Although young trees do make a visual impact upon planting, many of the benefits and services described previously are not discernible until trees mature.

Finally, as living entities, trees *die*. Although they are being treated as infrastructure "like a stop sign" (respondent 27), a tree is materially different from a stop sign and city managers will have to address the mortality of their green infrastructure in the long term. Currently, when street trees die, they are cut down and chipped, either to use as mulch or landfilled in the case of trees in the Asian Longhorned Beetle quarantine zones. Recycling and adaptive reuse of urban wood waste is currently being explored in a number of cities, such as Baltimore, although the practice is not widespread (Solid Waste Association of America 2002; Bratkovich 2001; Sherrill 2003). Some critics have

called for greater acknowledgement of the full life cycle of trees in the PROW, encouraging DPR to leave standing dead trees on the street, rather than removing them and managing the streetscape to look like a 'climax forest' (Hoffman Brandt 2012). Finally, for all of the tracking of individual trees planted in the MillionTreesNYC campaign, there is not a similar degree of tracking tree survival. For example, the campaign counts every tree that it plants in reforestation plantings toward the million tree goal, with full understanding that some of these trees will be outcompeted and die in the forest setting. This tree death in the context of the forest is not considered a failure by any means, as it is part of natural forest growth (as contrasted with the death of a tree in the PROW, which managers seek to stave off by every means necessary). DPR is conducting some research of mortality on the reforestation sites, but it is not tracked as regularly or as publicly as the sheer number of trees *planted*. Finally, though NYRP counts the number of trees it gives away to the public, it has no way of tracking how many of these trees survive. Overall, these examples may call into question the meaning of the million tree goal.

***Farms and gardens as assemblages***

Urban farms are highly varied assemblages of the built environment, biotic actors, human labor, and institutions. I examine these assemblages as resource-use systems, looking both at what claims are made about farms and gardens as well as what basic material conditions they require. In their sheer diversity of form and function, urban farms and gardens can serve as material touchstones for far-ranging discursive claims. There are, however, some basic inputs and resources that all urban farms and gardens

require that shape the way in which agriculture is managed in the city and how it enters policy conversations. They range widely in their material qualities such as lot size, soil quality, water access, and sun/shade exposure; and these material differences have inspired individual, organizational, and networked approaches to resource management. Their assortment of material forms and governance arrangements poses challenges to municipal policymakers who try to monitor, track, and understand the meaning and 'impact' of these sites; and leads to the claim that there is insufficient data about urban agriculture.

Urban agricultural sites and urban agricultural discourses co-constitute each other. Food provisioning is one of the dominant practices and discourses associated with agriculture throughout history and across space. Informed by agricultural knowledge, climate, and cultural traditions, people grow plants and raise livestock to provide food for themselves, their families, their communities, and market consumers. Efforts are currently underway to quantify, qualify, understand, celebrate, and promote *urban* sites as valid and important sites of food production (Gittleman et al. 2012; Ackerman 2011). More generally, these spaces are harnessed into broader discussions about food justice, food security, healthy eating, combating hunger, obesity and diabetes, and eating local. Through the prism of a food systems lens, which informs all of the city-led food visions and plans, urban agricultural sites are evaluated for and understood as sites of local food production.

At the same time, much of the space within urban agricultural sites is *not* cultivated for food production. These spaces may include shade trees and non-edible plants, but also pathways, seating areas, stages, picnic tables, *casitas*, and other

structures. In particular, the community gardening tradition in New York City is as deeply connected to social space, cultural space, educational space, democratic space, and recreational space—as it is to agricultural space (Mees and Stone 2012). Numerous efforts attempt to catalog, qualify, and quantify the multidimensional benefits (economic, environmental, and social) of urban agricultural sites (Cohen et al. 2012). This push toward metrics and quantification is part of an effort to speak to policymakers and funders in order to garner their political and financial support (much like the use of UFORE, STRATUM, and iTree in quantifying urban tree benefits). For example, one area of policy innovation is the Department of Environmental Protection (DEP)'s Green Infrastructure program, which offers grants for installations of green infrastructure technologies (green roofs, bioswales) that retain stormwater on private land. Drawing upon data about urban farms' ability to retain stormwater, urban agriculturalists successfully advocated that DEP expand its categorization of green roofs to include rooftop agriculture as an eligible green infrastructure technology. Subsequently the Brooklyn Grange rooftop farm at the Brooklyn Navy Yard was partially funded via DEP. On the other hand, leaders, publications, and research reference repeatedly the more intangible and unquantifiable value of urban agricultural sites, particularly as sites of beauty, solace, inspiration, creative expression, cultural heritage, social cohesion, and memory (Baker 2004; Saldivar-Tanaka and Krasny 2004; Glover et al. 2005; Mees and Stone 2012; Stone 2009; Svendsen 2009; Tidball et al. 2010). Gardens and farms are also prized as educational spaces where youth and adults can learn about the environment, ecology and the lifecycle, collaborative planning, and management,

particularly given the dynamism of the sites that is discussed below (Marvy 2009; Ferris et al. 2001; Fusco 2001; Sheffield 1992; Sandler et al. 1995).

The basic needs of plants for space, *sun, water, soil,* and *labor* serve as challenges that land managers and institutions work to address–and shape the practices of urban agriculture*;* each of these needs/challenges will be examined in turn:

*Sun and space.* In the developed city, identifying wide, flat, sun-exposed sites is *the* primary challenge. It is what has driven the move to rooftop farming previously discussed, as well as the experimentation with growing on temporary Housing Preservation and Development (HPD)-owned sites that are subject to future development. It has also driven the emergence of groups like 596 Acres, which provides online geospatial data about citywide vacant lots, places signage on vacant lots, and does community organizing to help support the adoption of lots. More formally embedded within government is the newly-created Urban Agriculture Taskforce, an effort to identify vacant city-owned land and assess its potential for use in urban agriculture.

*Water.* The need for water is a constant challenge for farms and gardens in the urban environment. It has led to the development of rainwater harvesting systems, ranging from simple rain barrels to more complex cistern systems. Depending on capacity and interest, groups can implement these technologies on their own or can seek the assistance of nonprofits like GrowNYC, which has helped install more than 80 rainwater harvesting systems citywide. DPR and DEP have developed an institutional arrangement to address water access for community gardens such that all groups registered with GreenThumb can receive permits and tools to gain access to nearby hydrants.

*Soil.* The need for healthy, contaminant-free, and fertile soil has led to a range of management practices, informal to formal. At the site level, gardeners engage in soil quality testing and amend their beds with compost—enhancing the quality of soil over the course of seasons and years is part of the natural, accretive process of planting and tilling the land. In addition, GreenThumb and NYCHA provide assistance on how to build raised beds and offer soil and compost to community and resident gardeners. The Department of Sanitation (DSNY) is another crucial entity in this network because of its leaf litter collection and compost programs. Cutbacks to this program were strongly opposed by community gardeners and were an important subject at public meetings leading up to PlaNYC 2.0. Rooftop agriculture requires new technologies, such as lightweight soil mixes. With this new technology come questions about the longevity of rooftop farming and the nutritional quality of plants grown in these new soil mixes.

*Labor.* Farms and gardens require human labor to thrive. Work is involved in planning sites, preparing soil, planting seeds and plants, harvesting crops, composting and managing waste, general maintenance, and holding events. This labor comes from a wide variety of participants and users, including volunteers and paid staff. In an urban context, these sites are managed by a broad set of civic, private, and public actors through polycentric governance arrangements that are less hierarchical and more bottom-up than those supporting the construction of the urban forest. One key moment where individual sites intersect larger nodes in the network is through the ‘site visit’, in which outreach coordinators and staff from umbrella nonprofits and municipal agencies visit gardens and farms to offer technical assistance, materials, information, programming, and support. These points of interaction in the field help reinforce networked ties between sites that

are physically dispersed across the city. Nonetheless, the material forms, planting palettes, management techniques, and use of these sites vary widely in response to the localized expertise and needs of stewards.

*Seasons.* Just as trees grow, mature, and die, so, too, do urban farms and gardens change over time, particularly in response to the seasons of the Mid-Atlantic United States. This seasonality informs the rhythm of how farms are managed. The main growing season is spring through fall (from roughly April to October) with high agricultural output throughout the summer and fall harvest season. As such, the large umbrella organizations that support urban agriculture and community gardening hold their seasonal events in spring (seed and plant giveaways and sales), summer (tours, stewardship events), and fall (harvest celebrations). This seasonality has historically led to challenges in establishing school gardens in New York City, given that schools are not in session during the primary season of productivity. The school garden network Grow to Learn provides information and case studies about options for managing the garden with interns, staff, or summer school students or advises school gardeners to "let it be" by planting cover crops to restore the soil over summer (Grow to Learn 2013b). The winter season is a time when gardens and farms mostly go dormant, with only perennial plants, shrubs, and trees visible on the site and less human activity and use. Gardeners and farmers have implemented technologies to extend the growing season including cold frames, hoop houses, and more elaborate greenhouses. The nonprofit New York Sun Works has created numerous educational and community greenhouses across the city, particularly emphasizing rooftop greenhouses. Rooftop greenhouses are also used by private firms like Gotham Greens that grow greens hydroponically for sale.

Truly understanding a farm or garden as an assemblage requires an in-depth analysis of how these various biotic and abiotic actors are enmeshed. The deeply situated, ethnographic approach that is required to understand the micro-politics of site management (see for example, Baker 2004; Glover 2003) does not align with the citywide scale of my research questions. Moreover, generalizing about urban agricultural assemblages in New York City is challenging because of the amount and variability of these sites, with more than 500 community gardens; approximately 650 NYCHA gardens; 15-30 urban farms—depending upon one's criteria used; as well as innumerable gardens on private yards (Ackerman 2011; Bennaton 2009; Stone 2009). My goal with this section was to highlight some of the common patterns and issues that arise from the material realities of these sites so one can begin to trace the role of nonhuman actors in citywide policy discussions about urban agriculture. Land, water, and soil (for example) have voices in the policy arena and they 'speak' through the maps we make, the institutional arrangements we configure, the claims we make at public hearings, and the policies we choose to pursue or ignore.

**Temporal changes: external and internal**

Massive changes to the economy occurred during 2007-2011, starting in 2008, due to the global/local economic crisis. These changes had major ramifications for the implementation of PlaNYC and the goal-setting of PlaNYC 2.0, as well as for municipal management and nonprofit program delivery more generally. Many of the temporal changes observed in these cases—budget cuts, shifts to the use of volunteer labor, and adoption of less ambitious goals in the revised plan without capital funding

commitments—are linked directly to the economic decline. Other examples of change over time are due to internal factors, such as changes in organizational leadership and staffing, as well as organizational learning, and social movement maturation. Finally, broader changes in societal attitudes can also impact the politics, discourses, and material practices of urban natural resource management within New York City. The growing interest in food and the environment was referenced repeatedly by respondents as contributing to the perceived rising level of engagement in and awareness of urban agriculture and sustainability planning in New York City.

***Economic changes***

Changes in the global economy have clear effects on the creation and management of urban nature. Although this study tracks a single city in a relatively short period of time (2007-2011), within that period the economy went from booming to a massive financial crisis leading to a subsequent global recession. In 2007, the City of New York was operating with a budget surplus and had been for the prior four fiscal years. As such, $199 million was included in the 2008 budget and $1.6 billion were committed across a 10 year capital budget for PlaNYC projects (ICLEI 2010b: 39). DPR, alone, received $400 million for tree planting efforts. Similarly, nonprofits faced a period of relative prosperity, with corporations, philanthropies, and private donors making commitments to support urban environmental activities.[35] For example, the Mayor's Fund received a combined $10 million from Bloomberg Philanthropies and David Rockefeller in 2008; and NYRP secured Toyota, Home Depot, and BNP Paribas as lead

[35] Nationally, across all sectors, philanthropic giving increased from 2006-2007: "Individuals and institutions made $306.69 billion in charitable donations and pledges in 2007, a 1 percent increase on an inflation-adjusted basis over the $294.91 billion given in 2006" (Strom 2008).

corporate sponsors, starting in 2007, for the MillionTreesNYC campaign. On the other hand, it is clear that economy is not the only driving force shaping degree of investment in urban nature, as all of the visions, plans, and commitments of private funding for urban agriculture came *after* 2007.

The 2008 global crisis triggered rising unemployment, declining consumption, and the failure of many of the prominent banks and financial firms that power large sectors of the New York City economy, with cascading effects on local environmental work. The municipal government faced declining city revenues starting in FY2008 and all city agencies had to meet targets of 30% across-the-board budget cuts. These budget cuts helped trigger the shift within DPR from planting reforestation areas with employees and contractors to more heavily engaging volunteers as a cost-cutting measure, and also led to cuts to the maintenance budget for the care and pruning of trees in the PROW. Finally, it led to a hiring freeze across DPR that limited the agency's ability to handle staff turnover, which became a more acute issue when the agency sought to reorganize and restructure its NRG after that division failed to expediently spend $11 million in PlaNYC capital funds. In addition to cuts to the municipal budget, federal cuts to the Department of Housing and Urban Development's Community Development Block Grant program threatened the GreenThumb budget, which relies almost solely on this source. More generally, respondents observed that, in lean times, funding for parks and open space is more likely to be cut than funding for police, fire, and education. In the political jockeying over the municipal budget, the 'environment' can sometimes be seen as an amenity rather than a necessity of urban life (see also Brecher et al. 1993).

At the same time, this period saw a *growing* engagement of the philanthropic sector, high level donors, and individuals in urban agriculture work. The Doris Duke Charitable Foundation began supporting urban agriculture research and analysis initiatives in the New York City region in 2010. The Community Food Funders Group is an affinity group of local foundations in the New York metro area that formed in 2011, including Doris Duke, NorthStar Fund, Jessie Smith Noyes, Rockefeller Foundation, the Merck Family Fund, New World Foundation, and the Surdna Foundation. Chef Rachel Ray's Yum-O! Organization and chef Mario Batali's Foundation both pledged funding support for the creation and development of the Grow to Learn school garden network in 2010-2011. At the individual level, many respondents speculated whether the challenges in the economy were (1) pushing young people more often to pursue non-traditional employment paths, including urban agriculture entrepreneurial ventures; and (2) encouraging more people to engage in gardening and farming to supplement their food budgets. It is beyond the scope of this study to verify whether or not the phenomenon of increased interest in urban agriculture is, in fact, a result of the slackening of the economy. It is important to note, however, that this discourse is prominent and widely circulating among activists, policymakers, and media alike; and it fits with Lawson's (2005) linking of economic crisis and community gardening throughout American history.

The financial crisis also altered the process of sustainability planning. When PlaNYC was being updated in 2011, no capital funds were committed to its initiatives. This was a stark change from the prior plan, which was celebrated by municipal leaders and in publications for not just being 'a plan on a shelf', but for placing substantial city

resources behind the initiatives. Thus, although urban agriculture *was* included in PlaNYC 2.0, this inclusion was more of a symbolic gesture of good faith and intention, rather than a commitment of tangible municipal support. Moreover, in 2007, city leaders explicitly stated that they sought for the initiatives of PlaNYC to be within New York City's jurisdiction, budget, and political capacity to implement—congestion pricing being a notable exception to this approach. In contrast, the 2011 plan includes references to harnessing the energy and capacity of civil society in implementing the plan, touting the importance of the role of civic groups and individuals. This shift was both a response to the critique of the process of PlaNYC as top-down, but also a pragmatic, neoliberal approach in the face of declining municipal budgets.

Although PlaNYC 2.0 did not offer any additional financial resources, it is important to note that the DEP Green Infrastructure Plan was released in September 2010. This plan became an important source of funding both for DPR efforts, such as bioswales in the PROW and stormwater-retention retrofitted traffic islands, as well as private efforts including green roofs and rooftop agriculture through the green infrastructure grants program. It was the city's response to complying with Clean Water Act regulations from the Environmental Protection Agency and the state Department of Environmental Conservation and it reflects the way in which municipal austerity did not trump ambitious planning processes that had been started years before and advanced incrementally via PlaNYC, the *Sustainable Stormwater Management Plan*, and the ongoing work of public bureaucrats.

***Leadership changes***

These case studies are deliberately contained within the timeframe of the Bloomberg mayoral administration, such that there is a certain amount of consistency across leadership in sustainability planning and urban natural resource management at the highest level. In addition to Bloomberg and many of his City Hall staff remaining in place, the Bloomberg-appointed heads of most of the city agencies were consistent. Adrian Benepe remained as Commissioner of DPR from 2002-2012, and worked with the agency for the better part of three decades over the course of his career. A remarkable amount of continuity and stability is also conveyed by the public bureaucrats whose jobs do not necessarily change with the mayoral administration, which includes the DPR First Deputy Commissioner, the head of Central Forestry, Horticulture and Natural Resources, and all the staff below them, many of whom worked at DPR for decades.

Both municipal agencies and nonprofit organizations involved in urban agriculture have had a high level of consistent leadership as well. GreenThumb has been under the direction of Edie Stone since 2001; GrowNYC (despite its name change in March 2010) has been headed by Marcel Van Ooyen since 2006; and Just Food has been headed by Jaquie Berger since 2006. Moreover, there are staff members at both GreenThumb and GrowNYC who have worked at the line level and in community outreach support for decades. These are three of the most prominent nodes in the urban agriculture network (see Figure 8.3), so they provide a source of stability across this complex movement. As a social movement, though, we see a certain amount of fluidity across organizations—where individuals can remain engaged in the movement from various points of institutional affiliation. Indeed, some interviewees mentioned having

two to three simultaneous affiliations via their professional roles, board service, teaching capacities, and volunteer commitments. For example the FSNNYC was set up explicitly to allow individual members to participate in the network without requiring institutional sign-off from their employers as organizations. Notable changes in the leadership around urban agriculture in New York City mentioned by interviewees included the retirement of long-time Cornell extension agent and agronomist John Ameroso and the departure of Christine Grace from the New York State Department of Agriculture and Markets. Despite their departure from these roles, both remain engaged in new positions in the practice (Ameroso) and policy (Grace) of food production in New York City.

Whenever there is leadership change, we observe cascading effects of changed relationships and altered organizational practices. Indeed, PlaNYC was spearheaded by Deputy Mayor for Economic Development Dan Doctoroff when it was still called the Strategic Land Use Plan and was an offshoot of the failed 2012 Olympic bid. From Doctoroff's leadership, we see the plan infused with the aims and rhetoric of inter-city competitiveness, efficiency, and innovation. In contrast, interviewees noted that once PlaNYC was handed off to Deputy Mayor Ed Skyler it was "not his baby" (respondent 50). But perhaps more importantly, the massive amount of staff time and strategic thinking that was involved in the *creation* of the plan was not sustained within City Hall once the plan was in existence, as responsibility for coordinating and implementing the plan shifted to OLTPS and the other city agencies (DPR, DEP, DSNY, and Department of Transportation most notably in the cases of forestry and agriculture). For OLTPS, numerous interviewees identified stark differences in the leadership style, networks, and approaches of Rit Aggarwala (2006-2010) and David Bragdon (2010-2012). Aggarwala

was heavily involved in the conception and implementation of PlaNYC, while Bradgon oversaw primarily implementation and the PlaNYC 2.0 update. The former was noted for his brash leadership style and heavy emphasis on 'bottom line' quantitative metrics, whereas Bragdon was seen as a bit more inclusive, but perhaps less forceful as a leader. For DPR, the departure of Fiona Watt in 2010 had ripple effects for several years as the agency had to promote-from-within to fill behind her. Watt had been a strong advocate for trees and one of the key players in both the formulation of PlaNYC goals related to trees as well as their implementation within DPR, and her departure left a pronounced void. The MillionTresNYC campaign itself had three different leaders on both the DPR side and the NYRP side. For urban agriculture, only one major leadership position changed within the mayoral administration: the position of Food Policy Coordinator (FPC) went from Ben Thomases (2007-2010) to Kim Kessler (2011-present). Interviewees reported Kessler to be more involved in discussions with civic groups and open to considering gardening and farming as part of the FPC's scope, which focused initially on healthy food.

Leadership changes among nonprofit partners in urban forestry are crucial to consider as well. Interviewees commented on the shifts within NYRP both when Drew Becher was brought on as Executive Director (2006) and when he departed (2010). MillionTreesNYC was very much associated with Becher and his 'right hand man' Darin Johnson. Becher's aggressive fundraising and ambitious goals for the growth of the organization, however, did not always match with a measured approach to implementation, staff development, and partnership-building with DPR. After Becher, Amy Freitag was hired as Executive Director, and she came with a much higher degree of

DPR trust, having worked for the agency for years. Indeed, identifying a candidate who could work well with DPR staff in the implementation of MillionTreesNYC was one consideration in this hiring process. And Freitag worked hard to reorient and reshape NYRP's practices to focus more on sustainable, high performance landscapes. Finally, one of the intents behind the broader engagement of the members of the advisory committee was to help support the breadth and longevity of the MillionTreesNYC campaign despite changes in leadership and even the mayoral administration.

***Organizational learning and social movement change***

This study has attempted to show how policymaking is not a moment in time when goals are formulated, but rather is an extended process of goal setting, implementation, learning, and revision. The urban forestry case includes both the iterative learning of professionalized organizations (public and private), as well as the development of the campaign in its evolving attempts to cultivate a broad base of public support. In contrast, the urban agriculture case is closer in its institutional form to a social movement, with some examples of professionalized learning and practice embedded within that network. This movement also changed in terms of relationships and tactics among its members. I'll illustrate these claims with several examples.

First, DPR reforestation efforts showed substantial evolution in their framing and execution. The stated goal in PlaNYC was to reforest 2,000 acres citywide, an effort that DPR initially attempted to pursue via its $1 million design contract with the firm EDAW. Having combed the city's landscape through GIS and field-based research, DPR determined that this goal was not attainable, and instead shifted their emphasis to the

number of trees planted in reforestation efforts, which, in turn, helped solidify and cement the million trees figure as *the* tree goal of PlaNYC. Regarding implementation, reforestation was able to incorporate research plots into the design of the plantings. The plantings were also reorganized to have a substantial volunteer stewardship program, thereby enhancing the constituents interested in the care and maintenance of these sites.

Second, DPR showed evolving understanding in how best to support tree survival via (1) altered planting practices and (2) various partnership strategies and outreach techniques to cultivate volunteer stewardship. Initially, critiques circulated about the provision of capital funds through PlaNYC without sufficient expense funds to cover the maintenance of this green infrastructure. As part of the professionalized practice of urban forestry, DPR foresters implemented best practices in tree selection and installation to help support the longevity and health of trees on the PROW. They altered terms with private contractors planting in the PROW, engaged in contract-growing arrangements with regional nurseries, and built in a high level of oversight and supervision. Beyond these large contractual shifts that were built into DPR's institutionalized practices from the outset of implementing PlaNYC, there were many more fine-grained examples of constant tweaking of the campaign. DPR and NYRP both learned-by-doing, with feedback from foresters and field crews helping refine the practice of planting each successive season. In terms of stewardship, campaign leaders worked hard to draw in all potential allies and critics through the advisory committee and invite them to be a part of building a stronger, networked campaign that would leverage private and nonprofit resources. Starting in 2009, they built a Stewardship Corps among the largest nonprofit greening nodes in each borough, essentially sub-contracting with these groups to deliver

stewardship trainings and providing resources to support this effort. By 2011, MillionTreesNYC had developed both a finely honed volunteer experience for single-day tree planting events, as well as opportunities for longer term engagements of the public via the Natural Areas Volunteers and the TreeLC workshops and mini-grants.

Third, NYRP shifted its strategies away from an emphasis on direct-planting efforts and towards more tree giveaways to homeowners, working in partnership with community groups. Part of this was driven out of financial necessity, as direct-planting efforts were substantially more costly than tree giveaways, and after securing the three lead corporate sponsors, NYRP was less successful in raising large-scale corporate funding for the continuation of the ten year campaign. Another challenge was logistical and even political, as NYRP faced challenges in partnering with major public landowners like NYCHA in order to plant on their lands. This led NYRP to focus on planting partnerships with large-scale private landowners, such as Co-Op City in the Bronx. In re-focusing on tree giveaways, NYRP used the tree as a way to build rapport with residents and neighborhood groups—to 'meet them where they are' by offering a free resource, in the hopes of engaging them in other sorts of environmental acts and open space landscapes (including parks, gardens, and the waterfront). NYRP also sought to alter the perception that it was a "go-it-alone organization" (respondent 11). As such, the giveaway process was refined from reaching out directly to the public to partnering more with community-based groups that would help get the word out to their constituents about the availability of and need to care for trees. Via the latter approach, they were able to draw upon more of the nodes in the urban environmental network.

The social movement around community gardening and urban agriculture in New York City has evolved and shifted over the last 40 years. With deep roots in shared (but diverse) experiences of disinvestment and decline, many community gardeners in New York City first became engaged in gardening in the wake of the 1970s fiscal crisis. Those involved in community gardening were the people who either could not or would not leave New York City during this challenging time; there were many people of color, low-income people, and people committed to their neighborhoods throughout all the many challenges they endured. Community gardening has rarely proliferated as a top-down, municipally-led strategy; it thrives as a grassroots, participatory, and neighborhood-scale endeavor. At the same time, I note the important baseline material and organizational support provided to gardeners over the years by the GreenThumb program since its founding in 1978. And the nonprofit, umbrella organizations serving gardeners citywide have grown in their capacity and sophistication. While these municipal programs institutionalize and nonprofits professionalize, so, too, are new organizations and endeavors constantly forming—ensuring that the movement remains dynamic. Many of the newer organizations and coalitions (such as FSNNYC, Flip the Table, Food Action, and BFC) have brought an increased attention to issues of food systems, beyond the original focus of gardens on neighborhood stabilization.

Another notable shift has been the change from straightforward land stewardship; to more adversarial tactics; to negotiation and compromise. At the height of the 'garden wars' in the late 1990s, when Mayor Giuliani bulldozed and attempted to auction off gardens, garden activists were in full-on oppositional mode to city policies. They worked to elevate the visibility of the problem via print and other media, staged protests, and

engaged in street demonstrations, parades, and sit-ins at gardens. They called upon local, national, and international networks of allies, while individual residents formed bulldozer hotlines, and peer networks circulated information, rumors, and strategies. Then, nonprofits TPL and NYRP got involved to help purchase land for the preservation of several dozen gardens. Meanwhile, sympathetic public bureaucrats worked from inside the system to help gardeners however they could: as advocates, as information leaks to media, and eventually as part of the settlement with the Attorney General. Over the course of many years of pre-and-post settlement work, these bureaucrats across agencies of DPR, HPD, and Department of City Administrative Services formed working ties and mutual understanding; they learned to work across their institutional structures in support of their various missions, swapping lots for use as gardens or housing, and avoiding further crises on the scale of what had happened before. These bureaucrats learned to mediate between agency heads and city leaders with certain sets of priorities and residents, gardeners, and activists with other, very different sets of priorities. The 2011 formation of the Urban Agriculture Taskforce out of the mayor's office, with participation of all city landholding agencies and garden advocates serving in an advisory capacity, represented an important shift. One of the first meetings at City Hall drew humorous comments from participants about how previously they were protesting on the steps, and now they—quite literally—had a seat at the table.

However, these tactical shifts have not been across-the-board, as contestation and guerilla-style tactics remain in use. For example, when the Attorney General settlement expired in 2010 and garden rules were being renegotiated, garden activists (particularly through the NYCCGC) began to mobilize again, to attend public hearings, to call upon

the media, and to pressure GreenThumb, DPR, and city leaders to offer strong protections to community gardens. In essence, the relationship between garden advocates and public officials is a dynamic one, with advocates continuing to push for recognition and rights for gardens so that they are never again viewed as temporary or expendable spaces. At the same time, a new wave of activists *not* previously engaged in the long history of garden advocacy is bringing a different perspective to the abiding quandary of how to find space to farm and garden in the city. For example, the group 596 Acres presents a mix of street-level tactics such as placing informational signage on vacant lots, community organizing, and digital mapmaking to engage residents in making claims on vacant public and private land. In some ways, the tactics of re-appropriation of space have come full circle to some of those used in the 1970s, but in a very different historical and political economic context. As such, this group is simultaneously both embraced and critiqued by long-time garden advocates, who see the need for such organizing but who note that this group is working outside what has become a somewhat formalized process for creating, accessing, and maintaining community gardens.

***Changes in societal values***

Many respondents placed engagement in urban natural resources stewardship and sustainability policymaking within the context of longer term shifts in societal values. This finding was notable to me, because it was not something that I sought out in this temporally tightly bound study, but it kept being repeated in respondents' understandings of why PlaNYC was happening *now*, or why urban agriculture was so popular *now*. This could not simply be chocked up to Bloomberg's power, or the steady march of

gentrification in step with a strong economy, nor to the networked savvy of nonprofit groups, nor to the social movement tactics of the grassroots—something at a more *societal* level was also afoot. Just as movements around feminism, civil rights, and marriage equality have progressed over time through normative shifts across the generations, so, too, have environmental awareness and pro-environmental values become more mainstream among younger generations. Caring about 'the environment' is a broad issue, with many fissures and nuances within it. Nonetheless, we can detect that people who have grown up since the wave of environmental advocacy of the 1960s and policies of the 1970s have a very different standpoint from those who grew up prior to that period.

First, we can examine who is participating in municipal public service and what values they carry with them. In addition to the stability of leadership and expertise provided by long-time public agency bureaucrats previously discussed, many respondents noted the importance of young staffers in City Hall, the city council, and the executive agencies in bringing new ideas and perspectives about environmental issues. Bringing with them progressive environmental values, these young staffers are able to 'push the envelope' on a wide range of policies and innovations around food systems, green infrastructure, and open space design, to name just a few issue areas that were mentioned by respondents. In addition, because sustainability requires cross-sector solutions and agencies working beyond the bounds of their conventional 'silos', individuals who are somewhat less entrenched in these existing bureaucratic structures may be more free to challenge or alter those structures.

Second, we see a rise in young people engaging in self-driven, entrepreneurial and community-based ventures around urban agriculture. Many of the most prominent examples of urban agriculture projects and leaders in the print media, online, in public visions and plans, and at public meetings and conferences come from a demographic of young, educated people opting into gardening and farming as professional and/or lifestyle choices, often associated with preferences around local, organic, seasonal, and artisanal food. These young people come to serve as 'hipster archetypes' of what urban agriculture *is;* and have led to a troublesome linking of urban agriculture and gentrification. This raises questions about what is lost when gardening shifts from being a neighborhood stabilization strategy in times of decline to a bourgeois, lifestyle choice. This archetype is, in turn, parodied and critiqued as necessarily incomplete and potentially even detrimental, in obscuring the decades of work of a very different demographic of people engaged in gardening and farming in the city, to much less fanfare. At the same time, it is important not to consider all newcomers to urban agriculture as an undifferentiated mass. First, there is considerable variation among the participants in this new wave of urban agriculture. And second, even when there is some surface uniformity by age, race, or class, these agriculturalists vary widely in their values. They might care about urban farming and gardening because of preferences about their individual food consumption, or because of broader worldviews and values of ecological sustainability, social justice, and economic self-sufficiency, as evidenced by the complex constellation of discourses associated with food, farming, and gardening discussed in Chapter 6.

## Chapter Nine - Conclusions and future research

This study aimed to unpack the contemporary construction of urban nature in New York City. Examining political, discursive, and material dimensions, it explores how and why we create and maintain urban forests and urban agricultural sites. In particular, it examines the construction of these two different forms of urban nature as they are embedded within municipal sustainability plans, green infrastructure campaigns, and food policy visions and plans. The starting point for this exploration is probing why PlaNYC, a major blueprint guiding New York City's development over the next few decades, included a robust urban forestry agenda, but lacked an urban agriculture agenda. While the structural context of a capitalist economy and neoliberal ideology has some explanatory power for which agendas are pursued, gain traction, and become institutionalized, it does not easily suggest how and why *variation* can be explained. By examining a single city in a fixed period of time in two highly related domains of urban nature, we see the variations that can and do occur. I will now examine each of the three domains—politics, discourse, and materiality—to review the key findings from this study and its contributions to the literature. Bringing together attention to discursive practices and non-human actors, we gain a richer understanding of the urban political process. And vice-versa, bringing a detailed understanding of urban politics into nature-society scholarship can make a contribution to this field of work. Lessons learned and questions raised from this in-depth case study of New York City's urban nature can be applied to and explored in other cities that are similarly engaging in municipal sustainability

planning and investments in green infrastructure. I then close this chapter and the dissertation with questions that remain and areas for future research.

***Politics and governance***

Municipal sustainability planning and green infrastructure campaigns can be examined as exemplars of rescaled environmental governance and inter-urban competition. PlaNYC fits with Harvey's (1989) description of the entrepreneurial city trying to enhance its competitiveness through green image-making and quality-of-life investments. Rather than waiting for federal or state policy, mandate, or funding, municipal officials drove the scope, timeline, and content of PlaNYC. Both leaders at City Hall and the language of the plan itself clearly articulate the vision of PlaNYC as contributing to the growth and competitiveness of New York City. While both cases demonstrate a process of rescaling from national to subnational scales (Jessop 2002; Bulkeley 2005; Gibbs and Jonas 2000; Cohen 2012), urban agriculture has stronger ties to regional governance and economies than urban forestry. Although Heynen (2003) has challenged us to re-conceptualize scale surrounding urban forestry practices, generally municipal policymakers see increases to urban tree canopy as providing ecological, social, and economic benefits at the city scale. In contrast, the local food debate is already framed in a multi-scalar (local, regional, national) way by social movement actors who have called for changes in policies and economies both within and beyond the city (Donald et al. 2010; Kneafsey 2010). As such, the policy conversations very quickly become more complex and multi-scalar, as evidenced by the broad reach and scope of *FoodNYC*, *Food in the Public Interest*, and *FoodWorks*.

From an urban politics perspective, the study reveals that we must attend to *both* mayoral politics and networked governance in the processes of transforming the city's built environment. Neither case fits an ideal theorized type of governing structure: networks based on reciprocity and trust (Rhodes 1996; Davies 2011), nor an unflinching growth machine (Molotch 1976; Logan and Molotch 1987), nor a regime that governs across space, time, and issue-area (Stone 1989; Mossberger and Stoker 2001). Clearly, we cannot discount the role of the mayor's office in defining the focus and direction of city policy (Stone 1989; Dahl 1961; Mollenkopf 1992). In New York City, the executive branch wields substantial authority to determine capital budgets, set agency priorities, hire key public bureaucrats, and start special initiatives (Bellush and Netzer 1990; Eichenthal 1990; Brecher et al. 1993). This particular mayor also used his status as a billionaire businessman and philanthropist (Brash 2011), pivoting back and forth between these public, private, and civic personae. But the mayor does not act alone; he engages a staff and appoints officials from among a trusted cohort of fellow executives and business-minded public servants, such as former Deputy Mayor Doctoroff, head of economic development and originator of PlaNYC. Among this set of leaders, the neoliberal, competitive-city approach is unquestioned. When a set of practices doesn't align with that vision, or isn't seen as making 'business sense'—as in the case of urban agriculture and community gardening in the 2007 iteration of PlaNYC—it is bracketed out of the policy process. Beyond that, what remains in play are the questions of *how* that competitive vision will be articulated and pursued.

At the same time, we can see the immense power of hundreds of networked civil society groups—with approximately a dozen key, professionalized nonprofit nodes—that

engaged in the shaping, modifying, and implementing of that vision. This study offered a detailed comparison of the urban forestry and urban agriculture networks using qualitative case studies supplemented with SNA visualizations, building on the literature on civic networks and urban environmental stewardship (Fisher et al. 2012; Connolly et al. 2013; Baldassari and Diani 2007). These civic groups play a variety of roles: they advocate for policy changes and resources, help with natural resource management as formal and informal partners with the state, provide programs and services directly to the public, share information, and leverage private resources. In situations where the nonprofits have substantial resources, clout, and access to bring to the table, they can engage in formal public-private partnerships (Pincetl 2010), as is the case with NYRP in the MillionTreesNYC campaign and GrowNYC in the Grow to Learn school garden program. Thus, in the construction of urban nature, we can see that policymaking is neither state-led (Skocpol 1985) nor society-led (Piven and Cloward 1979); it is hybrid and characterized by the porosity of the state-society boundary (Mitchell 1991; Evans 1996; Svendsen 2010).

Both PlaNYC generally and MillionTreesNYC as a campaign reflect Stone's social production view of power. This coalitional form of power is at work when "actors work together across institutional lines to produce a capacity to govern and to bring about publicly significant results." (1989: 8-9). MillionTreesNYC is an opportunistic converging of interests that began as a public-private partnership but quickly expanded to include a broader network of like-minded nonprofits and agencies. This large-scale initiative with funding, prestige, momentum, and feasibility, became a program to which interest groups wanted to contribute resources and be a part. In the case of urban

agriculture, no single, coherent partnership has emerged as dominant, though there are numerous, overlapping coalitions. There is certainly a wide network of activists, many of whom "experienced the same crisis [and] are especially likely to develop tacit understandings. If they interact on a continuing basis, they can learn to trust one another and to expect dependability from one another" (Stone 1989: 4). The *FoodWorks* report and the (relatively nominal) incorporation of food into PlaNYC 2.0 are signs that the municipal government is beginning to institutionalize agriculture and food policy within its scope. As such, there is potential for a future, dominant coalition to develop.

Often, studies of policymaking focus on the formulation of goals and policies; this study follows the longer trajectory of implementation and goal revision in order to understand how policies make their way into more routine operations of natural resource management (but see Pincetl 2010; Mendes 2008). This extended view allows us to uncover the potentially more subtle, but equally important, roles of line level bureaucrats (Blank 1990; Kjaer 2009; Keil and Bourdreau 2006; Brecher et al. 1993), nonprofit organizations (Martin 2004; Wolch 1990), and the public (Sirianni and Friedland 2001; Boyte 2004; Light 2003) in the construction of urban nature. Indeed, the urban forestry case reveals how bureaucrats helped *both* in the formulation and in the implementation of tree planting goals—from marshaling data and arguing for investment in trees, to revising tree procurement and reforestation contracts, to iteratively creating new stewardship programs. The urban agriculture case reveals that in the *absence* of municipal policy leadership (see also Pothukuchi and Kaufman 2000; Clancy 2004), civic groups, private firms, and individuals are taking steps to transform the landscape. Creating new productive spaces (rooftops, temporary sites), introducing new programs (garden to

school café, city chicken program, CSAs), and generating new knowledge (Farming Concrete citizen science project, Five Borough Farm Project, the Farm School) are all part of the broad swath of practices involved in implementing urban agriculture. The existence of these innovative programs and spaces draws attention to the burgeoning interest in urban farming and gardening, which—in turn—places pressure on policymakers to pay attention to these issues.

***Discourse***

This study shows, to a certain extent, the continued promulgation of a neoliberal view of society and an entrepreneurial approach to municipal governance in local sustainability plans and urban forestry campaigns. Critical scholars argue that the environmental movement has been co-opted by urban growth regimes as local green initiatives fail to address larger structural roots of problems, focusing instead on minor and incremental changes with detrimental effects for both social justice and the environment (Brand 2007: 628). Gibbs and Jonas (2000) argue that ultimately weaker forms of sustainability are being advanced to be compatible with urban development aims. And Brenner and Theodore (2002) claim that sustainability planning amounts to nothing more than a "flanking mechanism" to mitigate the worst effects of previous, harsher forms of neoliberalism (see also Jessop 2002). Indeed, PlaNYC's discourses of growth, efficiency, and competition fit with the hegemonic view of neoliberal, post-industrial, global cities competing with each other to attract residents and businesses–including via the environmental amenities they provide. A significant critique from an equity perspective is that the City of New York's attention to urban form and investment

in urban green infrastructure without concurrent protections against gentrification and displacement is problematic. One respondent asked: if the city plants one million more trees and invests in its parks, is it doing so only to serve the population that can afford to remain there? Full assessment of this critique requires at least an examination of PlaNYC's affordable housing provisions, which is beyond the scope of this study. But it is important to note that the critique is, indeed, circulating.

Differing views of the urban environment are put forth in these plans and practices: from the instrumental and monetized to the intrinsic and the unquantifiable (Merchant 1992; Light 2001). Practices of quantification and valuation of nature reveal an instrumental and rationalized view of the environment as a bundle of goods and services (Scott 1998; Castree 2005; Robbins 2004). Both bureaucrats and advocates attempt to assign numeric and monetary value to trees, in order to make convincing arguments to politicians and the public about a rationale for investing in urban forests and green infrastructure (McPherson et al. 1997; Peper et al. 2007; Nowak et al. 2010). So, too, are researchers and civic scientists attempting to quantify the ecosystem benefits of urban agricultural sites (Gittleman et al. 2012; Cohen et al. 2012; Seeing Green 2013). From a pragmatic stance, these figures allow for a common metric against which various types of environmental investments and programs can be considered (Nowak et al. 2008; Bell and Morse 2008). But from a critical standpoint, these calculations are potentially reductive, misleading, or essentialist (Livingstone 1992; Heynen et al. 2007; Robertson 2007; Enticott 2001; Bear 2006). At the same time, discourses associated with both the forestry and agriculture efforts promote the use value and intangible value of the environment—including the unquantifiable values of beauty and community cohesion

(Schmelzkopf 2002; Westphal 2003; Svendsen and Campbell 2010; Wolf 2008; Svendsen 2009, 2011). Hundreds of individuals, civil society groups, and public agency bureaucrats are engaged in forestry and agriculture for reasons other than capital accumulation, offering narratives of (and practices focused on) health, safety, peace, neighborhood stabilization, environmental conservation, education, and empowerment.

Discourses associated with both forestry and agriculture efforts reveal counter-hegemonic narratives focused on justice and engaging subaltern communities (Bryner 2002; Schlosberg 2003; Fraser 1992). In the urban forestry case, bureaucrats were motivated to correct inequalities in the spatial distribution of tree canopy that had developed due to the individual request-based system. In a display of commitment to distributional justice, DPR began planting street trees most intensively in TPH neighborhoods that had low street tree stocking levels and high incidences of childhood asthma. NYRP also focused its private planting and tree giveaways in these TPH neighborhoods first; more generally NYRP was founded out of Midler's sense of inequality across the urban landscape and the lack of maintenance in northern Manhattan parks. As a result, MillionTreesNYC's public and private resources were concentrated first and most heavily in low income, historically underserved communities. Community gardens—at least since the 1970s in New York City—proliferated most strongly in neighborhoods that were low income, disinvested, and often communities of color. They emphasize grassroots engagement, local democratic decision making, and sweat equity (Stone 2009; Mees and Stone 2012). When gardens were threatened in the 1990s, advocates mobilized into a social movement and made calls for procedural justice in the decision-making around developing garden sites (Lawson 2005; Von Hassel 2002).

Broadening the scope to food, we see progressive and even radical visions of food justice and food sovereignty among the discursive frames currently in play—drawing attention to food as a right and the right to self-determination (Allen 2010; Campbell 2004; Werkerle 2004). When food systems policy is institutionalized via plans and documents, however, it is becoming iteratively more narrow, pragmatic, and de-radicalized, as we can witness in the change in scope and language from the Stringer documents, to Quinn's *FoodWorks*, to PlaNYC 2.0.

There are key differences and nuances in the discourses of forestry and agriculture, but there are also important overlaps. As forestry is more deeply embedded in municipal government, the state's planning goals, rationales, and reporting practices all reinforce a focus on green infrastructure, ecosystem services, and the competitive city. Agriculture has deep roots in civil society, with social movement ties to a wide set of actors focusing on diverse causes of healthy food access, addressing food inequalities, neighborhood stabilization, strengthening regional farms, and much more. Yet, *both* domains show attention to quality of life and justice—in ways that might be missed if we simply viewed these efforts as contemporary neoliberal environmentalism at work. McCarthy and Prudham note that the relationship between neoliberalism and environmentalism is not one-way: "neoliberalism and modern environmentalism have together emerged as the most serious political and ideological foundations of post-Fordist social regulation… and environmental concerns also represent the most powerful source of political opposition to neoliberalism" (2004: 275). When Harvey sweeps "gentrification, innovation, and physical up-grading of the environment…consumer attractions…and entertainment" all together as "strategies for urban regeneration" (1989:

9), he gives little attention to the differences among these strategies, which one could argue are substantial. Overall, we can nuance Harvey, Brenner and Theodore, and others, by arguing that actually existing sustainabilities are products of multiple competing and overlapping ideologies, discourses, and strategies, including entrepreneurialism, neoliberalism, environmentalism, and social justice.

***Materiality***

Diverse theoretical approaches including Actor Network Theory (Latour 2005), assemblage geographies (Robbins and Marks 2010), and material geographies (Bakker and Bridge 2006; Whatmore 2006) encourage us to revisit the role of nonhuman actors (biotic and abiotic) in the accounts we make of phenomena. We can examine the spatial form of the developed, capitalist city from a political economy perspective that is materially grounded and historically specific (Harvey 1996; Scobey 2002). Scholars have noted that the form of cities and their infrastructures "become fixed, obdurate. As a consequence, urban artifacts that are remnants of earlier planning decisions, the logic of which is no longer applicable, may prove to be annoying obstacles for those who aspire to bring about urban innovation" (Hommels 2005: 324). Urban forestry, as framed in PlaNYC's goal of planting street trees in the public realm, does not compete with any other land uses and can be inserted into the already-existing built environment. Indeed, sidewalk trees are incorporated into new developments and are seen as enhancing residential land value and the vibrancy of commercial districts. In contrast, urban agriculture is not as easily integrated into the growing, capitalist city. Giving over land to food production competes with other uses (housing, commerce); as such, policymakers

have displayed greater interest in rooftop farms and integrating green space into new development (like the Via Verde housing development in the Bronx). The sense of 'lack of space' in New York City is an overriding discourse and practical concern, shaping policy possibilities and natural resource management practices in both cases. For example, DPR scoured GIS databases in an attempt to identify 2,000 acres to reforest, before abandoning this PlaNYC goal in favor of the million tree goal. And the *Potential for Urban Agriculture* report similarly uses GIS to identify current and potential spaces for urban cultivation on public and private lands in order to assess whether the case for urban agriculture is viable in New York City. Thus, we cannot disentangle the spatial form of forests and farms in the city from the contemporary and recent history of a development boom, noting that these practices are always shaped, at least partially, by the real estate cycle.

Numerous scholars have shown that property rights are one of the key constructs and institutions shaping the production of nature, as they set the 'rules of the game' for how land will be used and exchanged (MacPherson 1978; Smith 1984; Mansfield 2007). Urban space is differentiated into public and private property that is differently managed by a variety of actors toward a wide range of ends. Heynen and Perkins (2007) discussed the way in which public and private property in the neoliberal city affect the implementation of urban forestry campaigns, with implications for social justice. This study goes further to show differences in management among various pieces of the bureaucratic state and diverse civil society actors. PlaNYC, as an executive-led strategic plan, was primarily an effort of inter-agency coordination focused on city-owned and operated lands. The study reveals that even among departments within a single city

agency, there are differing degrees of power, types of expertise, funding levels, views of the role of the public, and ideologies; all of these beliefs and resources combine to shape management practices that then become accreted in landscape that is under that department's jurisdiction. A clear example of this are the differences between DPR's CFH, NRG, and GreenThumb divisions, which manage street trees, 'natural areas', and community gardens, respectively. Furthermore, sustainability policymaking is often framed as overcoming territorial and jurisdictional silos to create holistic and cross-cutting policy solutions (ICLEI 2010b). Although there is often substantial institutional inertia to doing so, we do see examples of this in both cases: the MillionTreesNYC campaign is a public-private partnership that crosses jurisdictional space citywide; and the Urban Agriculture Taskforce brings together all city agencies that own or manage vacant land to build a public database and assess the land's potential for urban agriculture. Disputes over land jurisdiction and land tenure have historically characterized the history of community gardening in New York City (Schmelzkopf 1995, 2002; Von Hassel 2002; Lawson 2005). We continue to see contemporary examples of residents challenging hegemonic property regimes through guerilla gardening and 596 acres' vacant lot signage, mapping, and organizing efforts.

This study also supports the argument that we cannot understand urban socio-nature without acknowledging that trees, plants, and the built environment all are actors (Braun 2005; Castree and Braun 2001). Prior research has examined non-human actors such as lawns (Robbins 2007), tubewells (Birkenholtz 2009), moss (Gabrys 2012), and dog strangling vine (Sandilands 2013). Perkins (2007) combines a Marxist approach and ANT to examine the way in which trees—and Dutch elm disease—perform labor as part

of an assemblage. This study examines the capacities and properties of these laboring trees (providing shade, storing carbon, buffering wind, etc) that allow for a wide range of discursive claims to be made about their benefits in the city. Even when some of these tree-human-built environment relationships may be confounding or negative, the primary discourses that currently circulate among forestry professionals and city leaders, alike, are celebrating and quantifying these benefits. The study also identifies the basic needs that trees have in order to live and thrive and reveals the way in which these needs shape both very routine and institutionalized practices of urban forestry (e.g. curb cut sizing) as well as create challenges that are addressed programmatically (e.g. through volunteer stewardship efforts). Although trees have a wide range of diversity across species type, age, variety, and climactic zone, many of the management techniques used by bureaucrats help narrow that complexity, quantitatively monitor, and create standardized practices for dealing with the conditions of the PROW, parks, and 'natural areas'. Similarly, from a material perspective, there are some basic needs of *all* farms for space, sun, water, soil, and labor that drive the management practices that are used.

Others have examined urban socio-nature as a matrix, hybrid, or cyborg (Swngedouw 1996; Kaika 2005; Gandy 2002). Both urban forests and urban farms and gardens are, indeed, complex hybrid assemblages, wherein humans and non-humans exist in "relations of care" (Power 2005). The difference between agriculture and forestry comes in the wider range of actors engaged in the management of the former. Instead of responsibility being centralized primarily within one agency (DPR, in the case of forestry), agricultural management occurs through a wider, polycentric network of individuals, organizations, and agencies. Thus, the material flows and management

practices dialectically shape and are shaped by the governance network. In all their variability of form and management structure, agricultural sites resist easy calculation and quantification and present debates or controversies over their impact (Scott 1998; Whatmore 2009; see also Enticott 2001; Bear 2006 for other components of nature resisting quantification). This variability and these controversies, in turn, place limits on their ability to be 'taken up' in policy spheres, and goes some distance in explaining the earlier absence of urban agriculture from PlaNYC. Concurrently, the controversies presented an opening for civic-led efforts to monitor, map, quantify, count, and make legible the importance of these sites.

***Future research***

It is important to acknowledge what this study does *not* do. It is not a fully contextualized history of the construction of urban forests and farms in New York City. This study is intentionally tightly bound to 2007-2011, in order to focus on one crucial moment in politics and policymaking surrounding the creation and update of PlaNYC. As discussed in chapter 8, there is clearly evidence of change over time during that period in terms of the economy, leadership, and the evolution of campaigns, professionalized practice, and social movements. And through the background chapter, Chapter 3, as well as in Chapters 6-7, I have tried to situate these empirical phenomena in the context of post-1970s fiscal crisis New York City. Still, a longer historical perspective, such as that provided by Gandy (2002), Lawson (2005), Scobey (2002), and D. Taylor (2009) would provide different insights on how large shifts in the political economy, demographics, and cultural practices shape urban nature.

Looking forward, it remains to be seen how the practices of urban forestry and agriculture will change with a new mayoral administration in New York City starting in 2014. Certainly PlaNYC will change, as it is very much a Bloomberg initiative that remains tied to his legacy. It is institutionalized via the chartered creation of OLTPS, but what form future sustainability plans take and whether they even retain the name PlaNYC is unknown. In the case of urban forestry, though, the longer-term effects of the 2007 planning exercise will certainly continue going forward. The purposeful setting of publicly acknowledged goals, capital commitments to DPR, formalized partnership with NYRP, changes to DPR procurement and contracting processes with the private sector, and development of new volunteer stewardship programming are all ways in which an enhanced commitment to the development of the urban forest has been triggered and institutionalized in New York City. In the case of urban agriculture, because the mayor's office has not been the lead actor in this movement, there is potential for future mayors to take a much more prominent role. Indeed, many of the advocates are hopeful that, if she had been elected, Quinn would take on food policy, community gardens, and urban agriculture as part of her signature, defining policy agenda to build on her prior leadership in *FoodWorks*. Regardless of future changes in the mayoral administration, engagement in urban agriculture—particularly as embedded in a larger movement around local food systems—is on an upswing.

Finally, we can ask: what are the effects of these changes to urban nature on the lives of New York City residents? How long will changes in the physical landscape persist, in what geographic distribution across the city, and to whose benefit and whose detriment? And how will people participate in the process of that transformation? The

concept of urban metabolism has been taken up by scholars writing in the urban political ecology tradition to examine the question of the relationship between human labor, the natural environment, and urban form (see, for example Swynegedouw 2004; Keil 2005; Heynen et al. 2006). By changing physical land use, including by creating productive (and sometimes socialized) spaces such as urban farms and community gardens, we are altering the metabolic relation between humans and nature. As well, trees and gardens help to comprise the physical environment and contribute to neighborhood quality of life, which has a role in attracting residents/labor to live and reproduce in that location. Changing the physical form of the city by planting trees and creating urban farms will certainly alter human-environment relations in subtle (or perhaps not-so-subtle) ways. Future research can further explore the dialectic relations between changes in policy, the socio-natural environment, and people's lived experiences.

## Appendix 1: Pre-dissertation background interview protocol

Source: Dana R. Fisher, Lindsay K. Campbell, and Erika S. Svendsen. "Understanding the Dynamic Connections Among Stewardship, Land Cover and Ecosystem Services in New York City's Urban Forest" Interview Protocol." Questions 4 and 5 were used for pre-dissertation research.

For all of the following questions, please consider the programs of your organization that deal directly with environmental stewardship.

Please state your name, your position and how long you have been working/volunteering with [use organization name].

1. What year was your organization founded? Can you tell me the story of its founding? (Who, where, how?) Have there been any major milestones in your organization's history? Has the work of your organization changed since the time of its founding? If so, in what way?

2. Can you describe the area where your group physically worked when your organization was founded? If it has changed at all, can you describe the ways it has changed (and why)?

3. Does your organization have individual members? If so, please explain what members do at your organization (if there are many types of "membership" please explain how members are distributed across these different types). Has membership in your organization changed since the organization was founded? If so, how?

4. **Are there particular government policies or programs that have historically shaped your organization's work to a large extent (e.g. dedicated funding, administrative practices or partnerships; laws that affect your work)? Can you provide examples?**

5. **Has PlaNYC2030, the Mayor's Long Term Sustainability Plan, and its associated campaigns (such as MillionTreesNYC) had any effect on your group's work? If so, what has that been?**

6. Do you work with specific civic organizations, community organizations and non-profits around the city? Who and How (follow-up regarding resources and formal agreements)? Have your connections to these groups changed over time? If so, how?

7. Do you work with specific government agencies in the city? Who and How (follow-up regarding resources and formal agreements)? Have your connections to these groups changed over time? If so, how?

8. Do you work with specific business groups and/or businesses around the city? Who and How (follow-up regarding resources and formal agreements)? Have your connections to these groups changed over time? If so, how?

9. Are there any organizations, individuals, or entities that you would describe as opponents or adversaries? Who? Has your relationship to these groups or individuals changed over time? If so, how?

10. Is there anyone whom you recommend I speak with who can help to provide more information on the last 25 years of environmental efforts in New York City?

11. Would you be willing to be contacted again for follow-up questions? If so, please confirm your email address

## Appendix 2: Dissertation interview protocols

### Urban Forestry Protocol

1. Please state your name, position, and how long you've worked in your current job.

2. Briefly, can you describe your role in the MillionTreesNYC campaign?

3. Was your organization at all involved in the planning and development of PlaNYC 1.0 or 2.0?
    a. If so, how?
    b. Can you tell be about how the goal of planting a million trees came about?
    c. And how has PlaNYC affected your own work?

4. What do you see as the overarching goal of PlaNYC? Of MillionTrees? Prompts:
    a. Why engage in these efforts?
    b. If they use the term 'sustainability': How do you define sustainability?

5. MillionTreesNYC is a public-private partnership. Why was it set up that way? What do you see as the role of each partner in this effort?

6. Let's talk about who else is involved in MillionTreesNYC:
    a. What is the role of the Advisory Board and how were these groups selected?
    b. Has their role changed over the course of the campaign at all?
    c. Is there anyone else besides the Advisory Board that has been crucial this effort?
    d. What is the role of the public or citizens in this campaign? (prompts: As volunteers; As advocates; With opportunity for input)

7. How have the city's forestry practices changed from prior to MillionTreesNYC to during the campaign?
    (prompts, depending on interviewee: Planning (how select where to plant); Capital (budget #, # trees planted); Operations (growing, purchasing, contracts); Partnerships; Maintenance; Stewardship)

8. And what about the evolution of the campaign itself? What--if anything--has changed since it began in 2007? What about since the financial crisis? Since PlaNYC 2.0?

9. Has there been any opposition, conflicts, or potential stumbling blocks related to MillionTreesNYC? How were these dealt with? (probe for competition with other nonprofits, SSBX, issues surrounding stewardship and tree survival)

10. Thinking about all of your organization's partners in urban forestry (not just related to MillionTreesNYC), can you identify your top partners from government, civil society, and business? How do you work together?

11. If I'm interested in understanding the evolution of MillionTreesNYC and urban forestry in New York City from 2007-2011, with whom would you recommend that I speak?

12. Is there anything else you'd like to add or to ask me?

**Urban Agriculture Protocol**

1. Please state your name, position, and how long you've worked in your current job.

2. Briefly, can you tell me about your involvement in urban agriculture in NYC (focus mostly on 2007-onward, but with other background as needed for context)?

3. Would you say that there is a coherent coalition of people that is organized around urban agriculture in NYC? Or would you say that people are working separately from each other?
    a. If a coalition, what are they organized around?
    b. If separate, what sorts of efforts are going on?

4. Was your organization at all involved in the planning and development of PlaNYC 1.0 or 2.0? FoodWorksNYC?
    a. If so, how?
    b. Can you tell more about how these efforts came about?
    c. Do you see any relationship between these efforts? Do they interact?
    d. And how have these efforts affected your own work?

5. What do you see as the overarching goal of PlaNYC? Of FoodWorksNYC? Prompts:
    a. Why engage in these efforts?
    b. If they use the term 'sustainability': How do you define sustainability?

6. What-- if anything--has changed in urban agriculture policies or practices in NYC since these efforts got underway?
    a. What about since the financial crisis?
    b. Since PlaNYC 2.0?

7. Thinking about <u>all</u> of your organization's partners in urban agriculture in New York City, can you identify your top partners from government, civil society, and business? How do you work together?

8. Has there been any opposition, conflicts, or potential stumbling blocks related to work in urban agriculture in NYC? How were these dealt with?

9. If I'm interested in understanding the evolution of urban agriculture efforts in New York City from 2007-2011, with whom would you recommend that I speak?

10. Is there anything else you'd like to add or to ask me?

## Appendix 3: Stewardship Mapping and Assessment Project Survey

Source: United States Department of Agriculture Forest Service. 2007. *Stewardship Mapping and Assessment Project.* New York: USDA Forest Service, 2007.

### STEW-MAP: The Citywide Stewardship Census

The intent of this study is to understand environmental stewardship in New York City. **We define stewardship as the act of conserving, managing, monitoring, advocating for, and educating the public about their local environments.** In this assessment we ask questions about your organization, who you work with, where you work, what you do, and how you do it. It should take about 15-20 minutes to complete. Based on the information we collect, we will develop maps to show how people work together to improve the urban environment of New York City. Thank you for participating in this effort.

**Organizational Contact Information**

**Organization name:**

**Web site (if available):**

**Mailing Address (with City, State, ZIP):**

**Key Contact Name:**

**Organization Email:** **Organization Phone:**

**Does your organization wish to be listed in a public, online stewardship database?**

YES NO

This identifying information is confidential. We will not share your name, personal email, personal phone number, or other identifying information with anyone.

Respondent name _____

Respondent email _____

Respondent phone _____

**I. Tell us about your group's environmental stewardship activities:**

**1. Does your group aim to conserve the local environment?**

YES NO

**2. Does your group manage some area of the local environment?**

YES NO

**3. Does your group monitor the quality of the local environment?**

YES NO

**4. Does your group advocate for the local environment?**

YES NO

**5. Does your group aim to educate the public about the local environment?**

YES NO

**II. Tell us about what your organization does:**

**6. What is your group's primary focus? (Please choose all that apply).**

- Public health (including mental health, crisis intervention, health care)
- Education
- Housing and shelter
- Community improvement and capacity building
- Environment (including gardening, forestry, water and air protection)
- Animal related
- Human services (including day care, family services)
- Employment, job related
- Legal services, civil rights
- Arts, culture
- Recreation and sports (including birding and angling)
- Crime, criminal justice
- International, foreign affairs, and national security
- Research in science, technology, and social sciences
- Religion related
- Private grantmaking foundation
- Seniors
- Youth
- Transportation related
- Development (including business, community, real estate)
- Other: _____

7. **What is your group's mission statement?** (200 words or less please.)

**8. What year was organization founded?** _____

**9. At which types of sites does your group physically work**? (Please circle all that apply.)

| **Water** | **Land** | **Building** |
|---|---|---|
| Watershed / Sewershed | "Natural" / Restoration Area | Green building |
| Stream / River / Canal | Park | Rooftop |
| Waterfront / Beach / Shoreline | Community Garden | Courtyard / Atrium / Plaza |
| | Vacant Land | Front yard / Back yard |
| | Playing field / Ballfield | School yard |
| | Dog run | Apartment grounds |
| | Street tree | |
| | Botanical garden | |
| | Greenway / Rail-trail | |
| | Flower box / Planter | |
| | Public right of way (e.g. street ends / roadside / traffic island / greenstreet) | |
| | Urban farm | |

**10. My organization: (Please <u>fill</u> in all that apply).**

- Is a 501(c)(3)
- Has applied for 501(c)(3) status
- Receives funding through the following 501(c)(3) organization: _____
- Is a branch of a larger 501(c)(3)
- Is a community group without 501c3 status
- Is a school-affiliated community group
- Is a religious congregation (church, synagogue, mosque, etc), but not a 501(c)(3)
- Is not tax exempt (private firm, etc)
- Is a government agency
- Is a 501(c)(4)
- Is a public – private partnership
- Other _____

**Since the purpose of this study is to learn more about nonprofit organizations and community groups, if you chose "is not tax exempt" or "is a government agency", you do not need to complete the entire form. Please return the form in the enclosed envelope. Thank you.**

**11. How many of the following does your organization have?** (Please circle the appropriate range in each category).

| Paid Staff | Volunteers | Members |
|---|---|---|
| 0-1 | 0-1 | 0-1 |
| 2-3 | 2-3 | 2-3 |
| 4-5 | 4-5 | 4-5 |
| 6-10 | 6-10 | 6-10 |
| 11+ | 11+ | 11+ |

**III. Tell us where your group conducts its stewardship activities:**

**12. Where does your group physically work?** (Please answer all that apply in 12A through 12E.)

12a. International _____(specify where)

12b. National / Statewide
- All States
- New York
- New Jersey
- Connecticut
- Other: _____(list)

12c. Counties / Boroughs

NYC
- Kings County (Brooklyn)
- Bronx County
- New York County (Manhattan)
- Queens
- Richmond County (Staten Island)

Long Island
- Nassau County
- Suffolk County

Westchester + Surrounding Counties
- Orange County
- Putnam County
- Rockland County
- Westchester County

New Jersey
- Bergen County
- Essex County
- Hudson County
- Middlesex County
- Monmouth County
- Passaic County
- Union County
- Other Counties: _____

12d. NYC Community Boards: _____(list borough and number)

12e. Neighborhoods: _____(please specify)

**13. Please describe in detail the boundaries of where your group works.** (Be as specific as possible and you can list multiple locations). For example:

- *"On Wyckoff St. between Court St. and Smith St"*
- *"Lower Manhattan south of Canal St."*
- *"the Arthur Kill between Staten Island and New Jersey"*
- *"All of the shoreline in the Hudson River Estuary"*
- *"all of ZIP code 10007"*
- *"The Croton Watershed"*

- *"The Guangdong Province of China"*

**14. Who owns the property on which your organization typically works?** (Please choose all that apply.)

- Federal government
- State government
- Local government
- Other government(e.g. NY-NJ Port Authority) _____
- Individual
- Corporation (including joint ventures, REITs)
- Nonprofit

**IV. Tell us about your organization's relationship to other groups:**

**15. Please list up to three groups/organizations in each of the following categories with which you collaborate most intensely.**

| **Business groups** |
|---|
| 1. |
| 2. |
| 3. |
| **Civic groups / community groups/ nonprofits** |
| 1. |
| 2. |
| 3. |
| **Government agencies** |
| 1. |
| 2. |
| 3. |
| **School groups** |
| 1. |
| 2. |
| 3. |

**III. Tell us a bit more about what your group does:**

**16. What type of services does your group currently provide?** (Please choose all that apply.)

| | | |
|---|---|---|
| Educational Curricula | Legal resources | Buildings/Facilities |
| Plant materials/equipment | Technical assistance | Labor: (Volunteers/Students/Interns) |
| Grants | Community organizing | Computing / internet |
| Public relations/outreach | Data | Other: _____ |

**17. How does your group share information with the public?**

- N/A, we don't share information
- National media
- Local media
- Direct mailing / newsletters
- Door-to-Door outreach
- Flyers / Signs
- Website
- Listserv
- Blog
- National conferences/meetings
- Regional conferences/meetings
- City conferences/meetings
- Neighborhood-based conferences/meetings
- Radio
- TV
- Other: _____

**18. What is your organization's annual budget?** (Please choose one range.)

| | |
|---|---|
| $0-$1,000 | $200,000-$500,000 |
| $1,000-$10,000 | $500,000-$1 million |
| $10,000-$50,000 | $1-$2 million |
| $50,000-$100,000 | $2-$5 million |
| $100,000-$200,000 | $5 million + |

**19. What is your primary funding source?** (Please choose one.)

- Government agencies
- Foundations
- Endowment
- Individual memberships
- Fees/program income
- Corporate giving/Sponsorship
- Other _____

Would you or another person from your organization is willing to participate in a follow-up interview or focus group related to the STEW-MAP Project?
YES NO

Would you like to receive a copy of the final report?
YES NO

## Appendix 4: New York City approved Street Tree List, as of 2010

Source: NYC DPR. 2010. "Forester Handbook." Compiled by Abby Jameson, Brandon Schmitt, and Jennifer Greenfeld.

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| LARGE TREES: Mature height greater than 50 feet tall | Acer rubrum | Red Maple |  | | Sparingly |
| | Aesculus hippocastanum | Horsechestnut |  | White May flowers | Sparingly |
| | Aesculus octandra | Yellow Buckeye |  | Yellow May Flowers | Sparingly |
| | Betula nigra | River Birch |  | Ornamental Bark | Sparingly |
| | Celtis occidentalis | Hackberry |  | Ornamental Bark | Sparingly |
| | Cercidiphyllum japonicum | Katsura Tree |  | | Sparingly |
| | Corylus colurna | Turkish Filbert |  | | Sparingly |
| | Eucommia ulmoides | Hardy Rubber Tree |  | | Frequently |
| | Fagus sylvatica | European Beech |  | | Sparingly |
| | Ginkgo biloba | Ginkgo |  | Yellow Fall Color | Moderately |
| | Gleditsia triacanthos var inermis | Honeylocust |  | Yellow Fall Color | Moderately |
| | Gymnocladus dioicus | Kentucky Coffeetree |  | Large Tropical Leaves | Frequently |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| LARGE TREES: Mature height greater than 50 feet tall | Liquidambar styraciflua | Sweetgum |  | Excellent Fall Color | Frequently |
| | Liriodendron tulipifera | Tulip Tree |  | Orange/Green June Flowers | Moderately |
| | Metasequoia glyptostroboides | Dawn Redwood |  | Strong Pyramidal Shape | Moderately |
| | Nyssa sylvatica | Tupelo |  | Excellent Red Fall Color | Moderately |
| | Platanus x acerifolia | London Planetree |  | Ornamental Bark | Sparingly |
| | Quercus acutissima | Sawtooth Oak |  | | Moderately |
| | Quercus alba | White Oak |  | Ornamental Bark | Sparingly |
| | Quercus bicolor | Swamp White Oak |  | Ornamental Bark | Moderately |
| | Quercus coccinea | Scarlet Oak |  | Excellent Red Fall Color | Sparingly |
| | Quercus dentata | Daimio Oak |  | | Sparingly |
| | Quercus frainetto | Italian Oak |  | Glossy Deep Green Leaves | Moderately |
| | Quercus imbricaria | Shingle Oak |  | Blade-like Leaf | Moderately |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| LARGE TREES: Mature height greater than 50 feet tall | Quercus macrocarpa | Bur Oak |  | | Moderately |
| | Quercus muehlenbergii | Chinkapin Oak |  | | Moderately |
| | Quercus palustris | Pin Oak |  | | Sparingly |
| | Quercus phellos | Willow Oak |  | Blade-like Leaf | Moderately |
| | Quercus prinus | Chestnut Oak |  | | Sparingly |
| | Quercus robur | English Oak |  | Exceptionally Salt Tolerant | Moderately |
| | Quercus rubra | Red Oak |  | | Sparingly |
| | Quercus shumardii | Shumard Oak |  | | Moderately |
| | Quercus texana | Nuttall Oak |  | | Moderately |
| | Quercus velutina | Black Oak |  | | Sparingly |
| | Styphnolobium japonicum | Japanese Pagoda Tree |  | White June Flowers | Sparingly |
| | Taxodium distichum | Bald Cypress |  | Strong Pyramidal Shape | Moderately |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| LARGE TREES: Mature height greater than 50 feet tall | Tilia americana | American Linden |  | Red Winter Twigs | Moderately |
| | Tilia cordata | Littleleaf Linden |  | | Sparingly |
| | Tilia tomentosa | Silver Linden |  | Fragrant Spring Flowers Silver Undersides to Leaves | Frequently |
| | Tilia x euchlora | Crimean Linden |  | Fragrant Spring Flowers | Moderately |
| | Ulmus americana | American Elm |  | | Sparingly |
| | Ulmus cultivars | Elm Hybrids |  | | Sparingly |
| | Ulmus parvifolia | Asian Elm |  | | Sparingly |
| | Zelkova serrata | Zelkova |  | | Moderately |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| MEDIUM TREES: Mature height greater than 35 but less than 50 feet tall | Aesculus x carnea | Red Horsechestnut |  | Red May Flowers | Sparingly |
| | Carpinus betulus | European Hornbeam |  | | Moderately |
| | Carpinus caroliniana | American Hornbeam |  | | Moderately |
| | Carpinus japonicum | Japanese Hornbeam |  | | Sparingly |
| | Cladrastis kentukea | Yellowwood |  | Fragrant Early Summer Flowers | Moderately |
| | Koelreuteria paniculata | Goldenraintree |  | Yellow Flowers | Frequently |
| | Maackia amurensis | Amur Maackia |  | White Flowers | Frequently |
| | Magnolia cvs. | |  | | Sparingly |
| | Ostrya virginiana | Ironwood |  | Ornamental Bark | Moderately |
| | Parrotia persica | Persian Parrotia |  | Ornamental Bark Excellent Fall Color | Sparingly |
| | Pyrus calleryana | Flowering Pear |  | | Rarely |
| | Stewartia koreana | Korean Stewartia |  | Large White Summer Flowers | Sparingly |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| SMALL TREES: Mature height less than 35 feet tall | Acer campestre | Hedge Maple |  | | Sparingly |
| | Acer ginnala | Amur Maple |  | | Sparingly |
| | Acer griseum | Paperbark Maple |  | Ornamental Bark | Sparingly |
| | Acer tataricum | Tatarian Maple |  | | Sparingly |
| | Acer truncatum | Painted Maple |  | Purple spring flowers<br>Excellent Fall Color | Sparingly |
| | Amelanchier canadensis | Serviceberry |  | White spring flowers<br>Excellent Fall Color | Frequently |
| | Cercis canadensis | Redbud |  | Early Spring Flowers | Moderately |
| | Chionanthus retusus | Fringe Tree |  | White Flowers | Moderately |
| | Cornus kousa | Kousa Dogwood |  | Large summer flowers | Sparingly |
| | Cornus mas | Cornelian-Cherry Dogwood |  | Yellow Flowers | Sparingly |
| | Crataegus crusgalli var. inermis | Cockspur Hawthorne |  | White Spring Flowers | Moderately |
| | Malus | Crabapple |  | Spring flowers | Sparingly |

| | Tree Species | | Shape | Visual interest | Suggested Frequency of Planting |
|---|---|---|---|---|---|
| | Scientific Name | Common Name | | | |
| SMALL TREES: Mature height less than 35 feet tall | Prunus 'Okame' | Okame Cherry |  | | Moderately |
| | Prunus sargentii | Sargent Cherry |  | Spring flowers, Red Fall Color | Sparingly |
| | Prunus cerasifera | Purple Leaf Plum |  | Purple Leaves | Sparingly |
| | Prunus serrulata 'Kwanzan' | Kwanzan Cherry |  | Large Pink Spring Flowers | Sparingly |
| | Prunus 'Snow Goose' | Snow Goose Cherry |  | Pure White Flowers | Moderately |
| | Prunus virginiana var. Shubert 'Canada Red' | Canada Red Cherry |  | White pendulous flowers | Sparingly |
| | Prunus x yedoensis 'Akebono' | Yoshino Cherry |  | Spring White/Pink Flowers | Sparingly |
| | Syringa reticulata | Tree Lilac |  | White May Flowers | Frequently |
| | Syringa pekinensis | Tree Lilac |  | White May Flowers | Frequently |

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