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# Increasing community engagement in NYC's green-space planning with PPGIS and deliberative democracy

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# Certificate of Original Authorship

I, Erika Whillas declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in the Institute for Sustainable Futures at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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# Abstract

My research explores community engagement in New York City's (NYC) green space planning to understand how urban governance can be more inclusive and accountable to help cities adapt to climate change. Increasing green spaces in cities is a proven strategy to reduce the effects of heat waves and storms, and community participation in urban green space planning is a key attribute for their successful design, maintenance and sustainable development. My research provides recommendations for green space advocates working with communities and local governments, and for decision makers looking for democratic innovations to increase engagement in planning decisions.

This thesis contributes to the knowledge of public participation geographic information systems (PPGIS) as a beneficial tool for community engagement in urban green-space planning. In this case PPGIS proved to be an effective tool for green-space organizations to gather comments at community meetings, capture comments of those who cannot attend meetings and help facilitators direct contributions of shy and dominating meeting participants. This is the first known action research project to develop a PPGIS application for urban green space planning in NYC with an emphasis on co-design. Recommendations are made to use PPGIS with deliberative discussion focus groups to develop and refine PPGIS web-surveys so as to improve their language, interface design and overall relevance for their target audience.

This dissertation contributes to the understanding of how deliberative systems thinking can be used to improve governance in practice, by applying this framework to NYC's formal community engagement mechanisms, and identifying opportunities to make them more deliberative. Guidance is taken from international democratic innovations to make recommendations for NYC Parks scoping sessions, NYC's Participatory Budgeting and District Service Cabinet Meetings.

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# Contents

# 1. Introduction

We are now living in the Anthropocene, an epoch in which human influence has introduced a level of instability in the Earth system unprecedented in human history (Dryzek 2016). The previous 10,000-year Holocene epoch was a period of unusual stability in which ecological shifts on a global level were non-existent. This contrasts with the preceding Pleistocene epoch, whose frequent rapid global warmings (Steffen et al. 2011) resulted in mass extinctions (Barnosky et al. 2012). Human civilization arose in the Holocene, and its political and economic institutions have come to rely on, and simultaneously take for granted, the ecological stability of this era (Steffen et al. 2011). The Anthropocene challenges the institutions of the modern world not just because of its ecological instability, but because we are the drivers of that instability. To minimize the damage we cause, and survive the environmental and societal shocks to come, institutions must acknowledge the dynamic relationship between human activity and the planet's social-ecological systems, and strive to respect non-human interests (Norgaard 1988).

The impacts and imminent threats of climate change have brought new challenges to urban governance. Cities must prepare for the infrequent and unexpected, as well as for the routine and necessary; "the paradox of sustainability relates to the intrinsic need for stability and security while simultaneously accepting the existence of and the need forchange in all systems (Ahern 2010, p. 3)." Here sustainability refers to the relationship

between human and environmental systems that ensures long term future needs are met. When applied to cities this requires that inhabitants needs are met without imposing unsustainable demands on local and global resources (Alberti 1996). Now that change and disturbance are expected processes, urban resilience has also gained importance, i.e. the ability of a city to respond to change and disturbance without changing its state (Ahern 2010).

We are living in an increasingly urbanizing world. For this reason, cities are the frontline in our response to climate change. The United Nations (UN) estimates that the global population will hit 9.8 billion by 2050, and that 68% of people will be living in cities (United Nations 2017). New York City (NYC) has been prominent in its response to climate change and will be used as a case study throughout this thesis.

As a result of climate change, NYC is predicted to experience more heatwaves and increased flooding, both of which have already impacted the City and its residents. An effective strategy to adapt to these risks is the development of green spaces such as city parks, street trees, green roofs, as well as surrounding meadows, forests and wetlands. Green infrastructure provides numerous benefits to cities' inhabitants, including increased health, well-being and safety. Furthermore, by targeting neighbourhoods that have experienced a lack of investment, urban green-space initiatives have the potential to make cities more equitable. This thesis will focus on a subset of NYC's green spaces, specifically its parks and community gardens, hereafter referred to a NYC green spaces.

Democracies are complex entities and a continual challenge for researchers concerned with citizen engagement in decision making has been the problem of scale (Parkinson & Mansbridge 2012). As urban governments becomes more complex the need for citizen input increases to ensure that service delivery to citizens doesn't degrade (Fuchs 2012). While scaling citizen participation in an inclusive and representative manner is a challenge, it must be addressed to prevent negative outcomes for urban governance and democracy overall (Gilman 2016).

While citizen participation in the urban planning process has become increasingly common, institutionalized participatory practices have been scrutinized (Inch 2015) and criticized for lacking transparency (Bickerstaff & Walker 2005) and failing to allow citizens

substantial influence (Monno & Khakee 2012; Tahvilzadeh 2015). In addition, disadvantaged groups have continued to be hard to reach within participatory planning, while more powerful actors and business interests often having disproportionate influence (Inch 2015). This has led some scholars to question the efficacy of widespread citizen participation (Parvin 2018), while others have argued that if participatory planning is to be legitimate, citizens must have a real potential to influence its outcomes (Monno & Khakee 2012).

Since Arnstein's (1969) seminal work, attention to public involvement in spatial planning has increased through participatory (Smith 1973) and collaborative (Healey 1997) planning theory, and is now widely accepted as imperative among theorists and professionals (Tahvilzadeh 2015). In many cities, community participation in planning has dedicated municipal departments, such as NYC's Civic Engagement Commission, and is often positioned as a means to improve democracy through deliberative practices. However, participatory practices do not typically see decision-making power shared with citizens, instead remaining with politicians or other powerful actors (Vestbro 2012).

Adapting cities to the impacts of climate change will require accountable and fair governance structures that deliver effective public services (Fuchs 2012; UN Habitat 2002). While the NYC government does provide its residents with formal avenues to contribute their ideas and concerns for green spaces, i.e. public hearings, community board meetings and park scoping sessions, there is no requirement to address community contributions, resulting in limited accountability from, or impact on, decision makers.

This thesis is focused on community engagement in NYC's green space governance and has two goals. The first is to explore how face-to-face and online methods could be combined to provide citizens with the information, tools and environments they need to contribute to local green space planning. The second is to provide recommendations to improve NYC's existing formal mechanisms for community engagement in green space planning, so as to make them more inclusive and accountable.

 To provide background context, this chapter will discuss NYC's recent responses to climate change, the benefits of urban green infrastructure, and the challenges of engaging communities in NYC's green space governance. I will then introduce deliberative

democracy as a lens to examine and improve NYC's green-space governance, and public participation geographic information systems (PPGIS) as tools to support community engagement in this governance. The chapter will conclude with a summary of my research motivations and my thesis outline.

# 1.1. NYC's response to climate change

When examining the extreme climate-related events that have impacted New York City (NYC) over the past 140 years, heat waves have been the deadliest and hurricanes the costliest (Depietri & McPhearson 2018). Extreme flooding and heat wave events have regularly and systematically affected the City, and there is an increasing trend in the number of these events per decade. Climate change is projected to impact NYC's critical infrastructure and population through heat waves, urban heat islands, increased flooding events such as street and subway flooding, sea level rise, coastal flooding and storm surges, extreme wind events, urban heat islands and higher air pollutants (NYC Mayor's Office of Recovery and Resiliency 2019; Rosenzweig & Solecki 2010). By 2100, many neighbourhoods, including Coney Island, Jamaica Bay, the Rockaway Peninsula, the South Shore of Staten Island, Red Hook, and parts of Lower Manhattan, are expected to flood every day at high tide due to sea level rise (NYCPCC 2019). Extreme weather will increase in frequency and severity, and projections for the 2050s include (NYCPCC 2015):

- Mean annual temperature rise of 2.3-3.7°C / 4.1-6.7°F

- Frequency of heat waves to triple to 5-7 per year

- Mean annual precipitation to increase between 4-13%

- Sea level to rise by 28-53 centimetres

A recent example of a climate-related event that severely impacted NYC was Hurricane Sandy. This was the strongest storm to hit NYC in recorded history and caused an unprecedented amount of urban infrastructure damage and impact on New Yorkers' lives. Arriving on the evening of October 29, 2012, it coincided with a spring high tide, raising water levels to 3.4 metres/11.1 feet above the 2012 mean sea level. This set a new record, eclipsing Hurricane Donna's 2.3 metres/7.5 foot surge in 1960 (Brandon et al. 2014). Sandy resulted in132 square kilometres/51 square miles of flooding in NYC—17% of the City's total landmass—home to more than 443,000 New Yorkers (Shannon 2014). State wide, authorities estimated US$32 billion in storm damages (Runyeon 2017). In NYC 53

deaths were reported, with a total of 117 deaths reported in the United States (Control & Prevention 2013).

NYC's planning response to climate change acknowledged the important role of community participation in urban adaptation. In the aftermath of Hurricane Sandy, Mayor Michael Bloomberg announced a new planning effort to address NYC's long-term challenges. These challenges included population growing to 9.1 million residents by 2030, changing climate conditions, an evolving economy, and an aging infrastructure (NYC 2013). At this time, the Special Initiative for Rebuilding and Resiliency (SIRR) was launched, which sought the input of local stakeholders to understand what happened during Sandy, the risks the Brooklyn-Queens Waterfront faces from climate change and what approaches could be taken to address these risks. In 2015, under the leadership of NYC Mayor Bill de Blasio, a new framework for sustainability and urban resilience was launched, *OneNYC* (NYC 2015), which also called for collaboration with residents and communities across the City, and launched several programs that entailed new approaches to public engagement.

NYC is on track to meet its commitments for greenhouse gas (GHG) emission reduction. According to the *OneNYC* progress report, by the end of 2016 NYC had made a 15% reduction in its GHG emissions from 2005 levels, and is well on the way to its goal of an 80% reduction by 2050 (NYC 2018). However, while GHG mitigation is being achieved in NYC, the national and international response has not been adequate to meet the Paris Climate Agreement goal of keeping global temperatures below 2.0°C/3.6°F above pre-industrial levels (IPCC 2019). Because the world has not acted fast enough, the GHG that have already accumulated in the atmosphere will cause unavoidable changes in the global climate. For this reason, adaptation, i.e. preparing the built and social environment to be resilient to the unavoidable impacts of climate change, is becoming one of the most pressing issues nations and cities face. One approach to urban climate change adaptation that addresses multiple risks and impacts is the development of green infrastructure, which I will now discuss in the context of NYC.

## 1.2. The benefits of urban green spaces

Urban green spaces provide numerous benefits including helping cities to mitigate the negative impacts of increased floods and heatwaves brought by climate change, increasing health and well-being, and making cities more equitable. Urban green spaces include city parks, street trees, and green roofs, along with surrounding meadows, forests and wetlands. Green spaces helps to absorb stormwater and can reduce storm surges, mitigating the worst impacts of flooding (McPhearson 2017). In NYC, green spaces are being built to manage stormwater runoff through capture and controlled release, infiltration into the ground, vegetative uptake and evapotranspiration to help reduce the need for combined sewer overflow[1] storage and treatment systems (DEP 2019). This is important because heavy rainfall or snowmelt can cause the volume of wastewater to exceed the capacity of the City's sewer system, resulting in untreated wastewater being discharged into nearby streams, rivers and other water bodies (EPA 2019).

An example of strategic green space implemented in NYC is the Staten Island Bluebelt. Staten Island has a history of drainage problems and septic system failures due to low topographic relief, a high water table and soils with low permeability (Ahern 2011). Staten Island also has the largest, and last, concentration of freshwater wetlands in NYC, which motivated the City to develop a natural alternative to engineered stormwater sewers (Rosenzweig et al. 2007). Built by the NYC Department of Environmental Protection, the Staten Island Bluebelt conveys stormwater to detention areas that utilize wetlands, settling ponds, and sand filters. These are effective in reducing peak stormwater flows, increasing groundwater recharge, and removing contaminants from stormwater (Gumb et al. 2007).

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[1] Combined sewer systems are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe, which transports the combined wastewater to a sewage treatment plant, after which it is discharged to a water body.

Additionally, the Bluebelt provides recreation space, wildlife habitats and neighbourhood revitalization.

Green spaces also mitigate the effects of heat waves and urban heat islands through evapotranspiration[2], storing heat and providing shade (IPCC 2001; Kleerekoper, van Esch & Salcedo 2012). The urban heat island effect is caused by large amounts of concrete, asphalt and machinery (IPCC 2001; OECD 2010; Wilson et al. 2008) and can result in temperature differences of up to 7°C/12.6°F between large cities and their surrounding rural areas (Wilby 2003). The negative impacts from urban heat islands include: increased energy consumption (Akbari 2005), elevated emissions of air pollutants and greenhouse gases (EPA 2017), compromised human health (Center for Disease Control and Prevention 2006), and impaired water quality (James 2002). To address the increasing risk of heat events, NYC has implemented urban forestry initiatives such as MillionTreesNYC, a citywide initiative by the NYC Parks Department and the New York Restoration Project (NYRP) that successfully planted one million trees across the City's five boroughs (NYRP 2015; Perry 2015). The outcomes included 220,000 new street trees, with the remaining 780,000 trees planted in parks, urban forests, public and private property, increasing the City's urban canopy by 20% (Kinney 2015). NYRP has been working with communities and advocating to improve NYC's green spaces since 1995, which I'll discuss further in Section 1.6.

Urban green spaces have multiple benefits outside of climate adaptation. Green spaces increase the health and well-being of urban populations, and can make for more equitable cities. Multiple studies have been conducted to document the benefits of green spaces to urban residents, including a focus on space for activity (Lyytimäki & Sipilä 2009), improved mental health (European Environment Agency 2011), developing attachment to place (Gómez-Baggethun & Barton 2013), and thermal comfort (Pickett et al. 2001). Access to green spaces has also been found to contribute to a community's well-being (Dobbs,

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[2] Evapotranspiration is the movement and evaporation of water through plants, soil and tree canopies.

Escobedo & Zipperer 2011) by providing meeting places, opportunities for exchange and interaction and facilitating collective identity (Wendel, Zarger & Mihelcic 2012).

The impact of urban environments on health and well-being has gained attention in urban policy and planning discourse (Abrams et al. 2012; Badland et al. 2014; Gardsjord, Tveit & Nordh 2014; Tzoulas et al. 2007; Villanueva et al. 2015). A recent study of 541 vacant lots in Philadelphia (South et al. 2018) found that transforming blighted neighbourhood environments into green spaces could improve the trajectory of residents' mental health:

> Greening vacant land is a highly inexpensive and scalable way to improve cities and enhance people's health while encouraging them to remain in their home neighbourhoods…While mental health therapies will always be a vital aspect of treatment, revitalizing the places where people live, work, and play, may have broad, population-level impact on mental health outcomes (University of Pennsylvania School of Medicine 2018).

There is a growing body of research in the United States demonstrating the crime-reducing potential of urban green spaces. Researchers found that NYC neighbourhoods with higher investment in parks and gardens saw 213 fewer felonies on average each year (Casciano et al. 2018); rehabilitating blighted lots in Philadelphia decreased gun violence and made people feel safer (Branas et al. 2018); in Youngstown, Ohio, crime rates dropped when public lots were maintained (Kondo et al. 2016); and in Baltimore, a study found that crime decreased when private lawns were well-cared for (Troy, Nunery & Grove 2016). While not claiming causality, these studies add to the body of literature suggesting environmental design may reduce crime and make people feel safer in their communities.

Improving and increasing urban green spaces can also help to combat environmental injustice experienced by poorer populations living in neighbourhoods with a history of little public investment and large amounts of polluting infrastructure. The impacts of heat waves are not felt equally by New Yorkers (NYC Mayor's Office of Recovery and Resiliency 2019), some being more vulnerable as a result of socio-economic factors, including age, income, location, tree coverage and the percentage of dark surfaces in their neighbourhoods (The City of New York 2017). Areas of high vulnerability are concentrated in east Brooklyn, the South Bronx, northern Manhattan, and southeast Queens (OneNYC 2019).

Between 2000-2011, on average 447 New Yorkers were treated annually for heat illness in emergency departments, 152 were hospitalized, and 13 persons died from heat stroke (Wheeler et al. 2013). A study by researchers at Columbia University found there were on average 638 heat-related deaths in NYC between 2000 and 2006, and projected this would rise to 3,331 people per year by the 2080s (Petkova et al. 2016). This is not an outrageous claim, given that in 1995 a heat wave killed 514 people in Chicago (Whitman et al. 1997).

Negative impacts of heatwaves are an added environmental burden for low-income residents already living in areas with a long history of a lack of public investment (Calma 2018). Within an urban heat island there are hotspots—areas that heat up more than the overall city. Referred to in environmental activism literature as "fenceline communities" (e.g. Calvano 2008; Schlosberg & Collins 2014), these people live alongside heavy industry that have more heat-trapping surfaces and less green spaces to cool them. NYC fenceline communities who face the greatest threats of more frequent extreme heat events live in areas that have already been negatively impacted by high polluting infrastructure (Calma 2018).

During a heatwave, high night time temperatures in these built-up areas can be more hazardous than daytime ones. When people don't get a chance to cool down and recover at night, heat stress starts to build. High overnight temperatures also mean the maximum temperature is reached earlier the following day, exposing people to extreme temperatures for a longer period (Doyle 2018). Indoor temperatures in high-mass buildings without air conditioning are often higher at night than those outdoors (Givoni 1992). This increases the risk of heat-related ailments for vulnerable individuals who find it hard to get out of their home to find a place to cool down, e.g. the elderly and those with chronic medical conditions, mental health challenges, or developmental conditions (The City of New York 2017). In NYC, unemployment, low incomes and asthma hospitalization rates for under-14-year-olds all correlate with the absence of trees (Kinney 2015).

Moving forward, programs to increase canopy cover and cool the city will require the collaboration of numerous actors, including multiple City agencies, outside researchers, grassroots groups and local communities (NYC 2018). I will now discuss the importance, and the challenges, of engaging communities in NYC green-space planning.

# 1.3. Challenges for community engagement in NYC's green space planning

Environmental justice literature has identified the collaborative engagement of affected communities for urban adaptation as critical for NYC (NYC Environmental Justice Alliance 2018; NYCEJA 2016; Sandy Regional Assembly 2013). NYC communities have been included in many planning initiatives but have expressed they want a deeper engagement with the City through co-production planning approaches (Foster et al. 2019). Co-production of climate adaptation planning involves the collaboration of researchers, policy makers, and affected communities to identify risks, formulate adaptation options, and implement response strategies (Cornell et al. 2013; Rosenzweig et al. 2011). Co-production approaches are considered pivotal for identifying sustainable adaptation pathways (Eisenhauer 2016) and for developing equitable and sustainable cities (Foster & Iaione 2015; Rosenzweig et al. 2018).

Community engagement in green-space planning can lead to greater public support, increased community buy-in, and sustained long-term project success (Meerow 2020). As more cities turn to green space solutions the complexities, trade-offs, and politics of these spaces are increasing (Finewood, Matsler & Zivkovich 2019). Understanding the politics of green space performance is important research as there are still many gaps in our knowledge of these issues which will require in-depth studies of the social and ecological impacts of various types of green infrastructure in different urban geographies (Meerow 2020). To achieve this, residents and other stakeholders need meaningful opportunities to contribute to green infrastructure planning, requiring increased democratization of the design, management and governance of public urban spaces (Buijs et al. 2016; Lieberherr & Green 2018).

Meaningful community engagement is important to mitigate the exclusionary outcomes of green gentrification, and to ensure that marginalized and low-income residents have a say in the creation of equitable and sustainable urban green spaces (Anguelovski et al. 2020).

However, many green space initiatives still follow a top-down and expert-driven process of site selection and design (Finewood, Matsler & Zivkovich 2019; Gulsrud et al. 2018).

Up until recently, community influence on NYC green-space preservation and development has been a result of residents organizing themselves to negotiate with or fight against the city. This is exemplified by the history of contemporary NYC community gardens (Chitov 2006). NYC residents began building community gardens in the early 1970s amid the crumbling walls of urban blight that afflicted the City as a result of a lack of public and private investment. There are approximately 650 community gardens in NYC, which were established by residents on vacant lots of dismantled, abandoned buildings (Eizenberg 2012). NYC community gardens are now somewhat protected, though this was not always the case. When 114 of these gardens were announced for auction in 1998 it triggered a wave of protests and collective actions, which I will discuss in Chapter 4.

Larger green spaces have also been won after extensive community advocacy campaigns. Bushwick Inlet Park, which stretches along the East River between North 9th and North 12th streets in the Williamsburg neighbourhood of Brooklyn, is a result of a 20-year community campaign to turn a waste transfer station into a public green space. The High Line, now one of NYC's most popular attractions, was saved as a result of the Friends of the High Line group taking the City to court to challenge the demolition agreement reached in the last days of the Giuliani administration (see Chapter 7). Even NYC's most famous green space, Central Park, has experienced several periods of decline and revitalization over the years (Kinkead 1990), resulting in the formation of multiple supportive community organizations and eventually the Central Park Conservancy, which raises private money to supplement City funds (see Chapter 4). The Central Park Conservancy and Prospect Park Alliance are well-known conservancies, although there are numerous others at a variety of sizes, with NYRP being the only citywide conservancy[3].

In terms of government mechanisms designed for community participation in green space planning decisions, these face challenges of funding, representation and accountability.

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[3] A park conservancy is a type of private, non-profit organization in the United States, that can support the maintenance, capital development, and advocacy for parks or park systems.

While NYC does provide its residents with formal avenues to get their ideas and concerns for green spaces heard, they have limited accountability from, or impact on, decision makers. For example, while public hearings are a means for NYC residents to provide testimony in land use proposals, the public are unable to call or set the agenda for public hearings, nor is there a requirement for their testimony to be formally addressed; residents raising issues at community board meetings[4] have no guarantee these issues will be communicated to decision makers; and while the NYC Parks Department (NYC Parks) holds scoping sessions to gather ideas for city parks, NYC Parks are under no obligation to explain their final design decisions to the community. In 2018, NYC created a Civic Engagement Commission to run a participatory budgeting program in all city council districts. However, when Mayor de Blasio's office released his budget proposal for fiscal year 2021, no funding had been allocated to this program (Khurshid 2020), making it even harder to engage marginalised New Yorkers, and further straining the City Council's resources.

While these formal engagement mechanisms are open to the public, they are not necessarily demographically representative of local residents. For example, NYC Parks does not engage in practices to ensure that participants in scoping sessions are representative of an affected community, nor that the concerns of social and environmental activists are presented. This results in those with the time, interest, and resources being those who attend.

The NYC government openly acknowledges the need for authentic community engagement to address the challenges of the twenty-first century (NYC 2015), and has

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[4] NYC is comprised of 59 Community Boards, each having up to 50 members appointed by the Borough President, half of which are nominated by the City Council. Community Boards provide the Mayor  with budget priorities and recommendations for projects, programs and activities to meet their district needs. Community Boards monitor city service delivery in their district, such as policing, sanitation, and parks, and are the first to vote on Land Use Review Procedures (ULURP), with a goal to increase community participation in planning decisions (Kivelson 2001).

committed to providing safe access to a quality park or green space to all residents within a 10-minute walk of their home by 2050 (see 10minutewalk.org).

To reconcile the City's community engagement goals and present realities, deliberative democracy practices and initiatives could help.

# 1.4. Deliberative democracy as a lens to examine and improve NYC's green-space governance

Good urban governance is generally understood to be democratic (UN Habitat 2002), although democracy is a disputed term (Dalton, Sin & Jou 2007). Definitions of democracy are numerous and range from institutional decision making such as majority rule (Hardin 2003), to democracy as a societal way of life (Dewey & Rogers 2012). Two characteristics of democracy that are discussed in the literature are inclusiveness and egalitarianism (Chambers 2012; Dryzek 2000; Landemore 2013; Mansbridge et al. 2012a; Parkinson & Mansbridge 2012; Smith 2009; Urbinati 2006), referring to the idea that any member of the political community has the right to have their voice heard and their interests considered in the decision-making process.

There are multiple forms of democracy, including representative democracy, direct democracy and deliberative democracy. In direct democracies, the people vote on policies directly, rather than through a parliamentary body—Switzerland is a country that follows a direct democratic system of government (Kriesi & Trechsel 2008). In a representative democracy, also called an indirect democracy, the people elect a representative body of individuals who are tasked with making decisions and voting on policies on behalf of the people—the United States is a representative democracy in which all citizens over the age of 18 have the right to vote in both federal and state elections, though voting is not mandatory.

Representative democracy is the most widely implemented form of democracy (Kornberg & Clarke 1992; Loeper 2017). In representative democracies elections link and separate citizens from government, and are crucial for expressing the will of the people (Urbinati 2011). However, when elections are the only form of citizen participation in democratic decision-making, it is hard for the concerns of the public to impact decision-making on the many nuances of public policy (Landemore 2013; Thompson 2016).

Deliberative democracy has emerged over the last few decades as a promising democratic alternative. Compatible with both representative and direct democracy, deliberative democracy puts communication and informed deliberation at the centre of the democratic process, wherein the process of judgment and the formation of preferences are developed through respectful and competent dialogue (Chambers 2012; Dryzek 2000; Mansbridge et al. 2012a; Riedy & Kent 2015).

Deliberation is a type of communication that is ideally non-coercive, induces reflection, can connect claims to more general principles, and helps to explain perspectives and opinions to those who do not share them. Deliberative democracy considers the extent that this communication is authentic, inclusive, and consequential (Dryzek & Stevenson 2014). Authentic deliberation encourages reflection upon preferences, and helps communicate ideas to those who have different viewpoints (Dryzek 2012); Inclusive deliberation includes multiple voices, interests and concerns in decision making (Parkinson & Mansbridge 2012); and consequential deliberation makes a difference to the content of collective decisions (Dryzek & Stevenson 2014).

The goals of deliberative democracy are to achieve political equality and deliberation so as to represent the considered and informed views of the people (Fishkin 2009). Some of the empirical work in this area includes experiments with "minipublics", which are focused deliberative forums of 20–500 participants that run for a sufficient period so that participants can form considered opinions and judgements (Mackenzie & Warren 2012).

Minipublics are effective mechanisms for deliberative democracy for several reasons. They have fewer obstacles to authentic deliberation than forums composed of partisans with long histories (Niemeyer 2004), especially in terms of the capacity of participants being able to reflect and change their minds as a result of their deliberation (Hendriks, Dryzek & Hunold 2007). The demographic profile of minipublics are designed to match that of the broader public to make possible deliberation within a representative microcosm of the citizenry—this is what is referred to by 'representativeness' in this dissertation. Over time minipublics have demonstrated that given the opportunity ordinary citizens make good deliberators, regardless of issue complexity (Dryzek 2011; Hendriks, Dryzek & Hunold 2007).

In deliberative democratic theory, minipublics are ideally not isolated exercises conducted for the benefit of a governmental authority, having instead multifaceted relationships with public actors as well as government, contributing to deliberation in the public and political arena (Hendriks 2006). This can be facilitated by what Hendriks (2006) calls a "discursive sphere", wherein minipublics include and spark interaction between not just citizens, but also NGOs, activists, politicians and bureaucrats.

A few recent examples of impactful minipublics are: the Irish Citizens' Assemblies which brought about the national referendums for marriage equality and legalizing abortion; the Citizens' Initiative Review of Portland, Oregon, which evaluates state ballot measures and produces a Citizens' Statement that's mailed out with election ballots; and the Melbourne People's Panel which was convened in 2014 to help avoid a $900 million budget shortfall in the City's 10-year plan.

In-person deliberative democratic initiatives are valuable but are resource intensive partly because of the time it takes to plan, run and report on these initiatives (Fishkin 2012; Gilman 2016; Hanley 2001; Smith 2013). During my exploratory research, I spoke with community engagement practitioners with experience in green-space planning to get a sense of what their work entailed and what challenges they faced. Kate Henderson, a community engagement adviser for the City of Melbourne, highlighted that although community engagement is a slow process, it helped decision makers arrive at better outcomes:

> If you put it in its purest sense, we are public servants and our job is to represent and work for our community. Our role as community engagement practitioners is to help people working in urban forestry or urban designers or urban planners, and facilitate their connecting meaningfully to citizens... It might take them longer because timelines are spent preparing for an engagement piece, running an engagement piece and then writing it up, but none of them complain about it. They all do it again and again and again because they feel like they get better outcomes and decisions, and they've brought these citizens along for the collective decision-making piece (K. Henderson 2016, pers. comm., November 22)

In NYC, I spoke with Sam Holleran, a participatory design fellow at the Design Trust for Public Space. He acknowledged that community engagement can make design projects harder to run, but ultimately delivered better results:

> I think that it's harder, it takes longer, and it can feel more painful to involve community members in making these decisions, but when you take a consultative approach you're going to build more resilient projects. You're going to build projects that are more representative of what community members want to see, and I think you'll build projects that will last longer and are sturdier than the things that just come up out of the blue (S. Holleran 2016, pers. comm., August 1).

To make citizen participation in urban planning decisions less resource intensive, digital tools like public participation geographic information systems (PPGIS) have proven effective.

# 1.5. PPGIS to support community engagement in urban green-space planning

Public participation geographic information systems (PPGIS) typically combine interactive maps and surveys to communicate and capture geo-spatial information from the public for urban planning decisions. Web-based PPGIS tools allow planners to create, publish and analyse map-based questionnaires, and visualize the outcomes on interactive maps (Kahila, Kyttä & Geerzman 2018). PPGIS can help planners understand the values residents attribute to places (Jankowski et al. 2021) based on their everyday experiences (Rantanen & Kahila 2009). The reliable gathering of this type of place-based experiential information requires engaging with people directly and can shed light on public opinion of proposed land-use projects (Bamberg 2013). PPGIS becomes especially useful when it reaches different kinds of people who contribute different insights, experiences, values and ideas. By mapping diverse contributions, it becomes easier to identify areas of disagreement (Kahila-Tani et al. 2016), and by understanding where conflicting views exist, efforts can be made to increase deliberative initiatives to develop solutions. However, it should be noted that the use of digital tools like PPGIS doesn't necessarily foster deliberation.

The use of non-digital PPGIS in focus groups and public meetings for planning projects is not uncommon (Brown et al. 2014). These meetings typically involve land-use discussions and ask participants to draw on paper maps. PPGIS focus groups, while providing rich qualitative data, have their limitations (Jankowski et al. 2017), including: the requirement for participants' physical presence at a time and place, which reduces attendance for those with limited time and mobility (Halvorsen 2001; Kingston 2007); the dominance of experienced and loud individuals over the inexperienced and quiet ones (Kahila-Tani et al. 2016; Kingston 2007); intimidating environments for those uncomfortable with public speaking due to educational, social, personal or cultural reasons (Halvorsen 2001); limited scalability, both in numbers of attendees and their geographical range (Nyerges & Aguirre

2011), which constrains the diversity of opinion and representation (Halvorsen 2001); and the risk of acquiescence in participants' opinions, or ''groupthink'' (Brown 2015).

To scale community participation, both in terms of numbers and geographic reach, PPGIS web-surveys are an effective means of engaging large numbers of the public. However, PPGIS web surveys face their own challenges, chiefly those of engaging older adults and focusing the attention and contributions of participants on a specific problem at hand (Jankowski et al. 2017). For community engagement in NYC green space planning I am interested in exploring how PPGIS focus groups and PPGIS web surveys could be combined to create a more inclusive and accessible process than is achieved by using these approaches in isolation.

To test PPGIS for urban green space planning, and to gain an understanding of the challenges green space advocates face in NYC, I successfully approached the New York Restoration Project to be my research partner. I'll now briefly tell their origin story.

# 1.6. The New York Restoration Project

In 1994, actress and singer Bette Midler left southern California for NYC after a series of natural and man-made disasters. Midler stated in a *Variety Magazine* interview (Setoodeh 2019), "There were floods, wildfires, riots, the Northridge earthquake, and then O. J. I decided, I'm done." However, the city she returned to was in the depths of a financial crisis and "had so many problems you almost didn't know where to start. So, I started at the bottom of the barrel, picking up trash in the streets."

At the time, NYC was in the aftermath of a recession that was initially seeded on Black Monday—October 19, 1987, when the Dow Jones index, for reasons still unclear, fell 508 points, almost a quarter of its total value (Karlgaard 2010). Nationally, the recession lasted from July 1990 to March 1991, but in NYC, because of the overwhelming influence of Wall Street, the downturn began earlier, hit harder, and took longer to recover from. In the mid-1980s, the trend for mergers, acquisitions, and leveraged buyouts resulted in companies relentlessly shedding employees in the name of quarterly returns—Wall Street alone fired 16,000 people in the two years before the recession began (Idov 2008). In 1993, NYC's unemployment tally peaked at 385,000, and by October 1997 the City's unemployment rate reached 9% (McGeehan 2009).

When Midler began her clean-up efforts, there was much work to be done: "It was unbelievable. There were couches in the trees. There were burned-out cars by the road, and it just seemed as if the city had given up (Midler quoted in Trebay 2010)." In 1994 Midler adopted a section of the Bronx River Parkway. In 1995 Midler founded the New York Restoration Project (NYRP) with US$250,000 of her own money, and began to tackle neglected green spaces in New York's poorest communities: "At first, we cleaned Fort Tryon Park, which was desolate. It was a drug haven. They said we would not finish that for about 10 years, and we finished it in about three years. And it's glorious now (Midler quoted in Setoodeh 2019)!" Fort Tryon Park is a ridgetop landscape surrounding the Cloisters, where the Metropolitan Museum displays medieval treasures, such as the Unicorn Tapestries. That same year Midler put together the first board of NYRP, with the

Figure 1 Bette Midler photographed by Douglas Friedman (www.douglasfriedman.net)

aim of reclaiming neglected green spaces in NYC's five boroughs: "Trash seemed to me to be symptomatic of larger problems. I felt that if I could solve one small problem, perhaps others could be solved." In its early years NYRP also cleaned up High Bridge Park in Harlem (see Figure 2), as well as Fort Washington Park, and began work in Mott Haven, a particularly benighted section of the South Bronx, where a combination of intravenous drug use and HIV infection resulted in an average life expectancy below surrounding neighbourhoods (Trebay 2010).

In 1999, Midler began her contentious battle with then-Mayor Giuliani who was attempting to sell 114 city-owned community gardens for private development. When Midler ultimately purchased 52 of the sites with her own money, she set up a land trust to manage these properties. This process began with the NYC Mayor's Office, but also included the Department of Housing Preservation and Development (NYCHPD), which acted as the landholding body. More will be said in Chapter 4 on the evolution of NYC's community gardens and the government mechanisms available to City residents to shape local green spaces.

In 2007 NYRP began working closely with NYC Parks on MillionTreesNYC, a citywide initiative that became a catalyst for growth of NYRP as an institution. This initiative set out to plant and maintain one million trees in NYC over ten years. NYRP planted 250,000 of those trees on public housing developments, schoolyards, New York State land, health centres and campuses throughout the five boroughs (NYC Parks 2015)[5]. In 2015, as a

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[5] The MillionTreesNYC initiative was part of NYC's Cool Neighborhoods plan to mitigate the health risks of extreme heat (The City of New York 2017). Before launching the initiative, the NYC Parks Department identified neighbourhoods with the greatest need for trees by overlaying urban canopy maps with community health survey maps. Unemployment, low incomes, the rate of hospitalization for asthma for children for 14 or under all correlated with the absence of trees (Kinney 2015). From this data, NYC Parks Department targeted six neighbourhoods to receive canopy management and targeted planting: Hunts Point and Morrisania in the Bronx, East New York in Brooklyn, East Harlem in Manhattan, Stapleton in Staten Island and The Rockaways in Queens (NYC 2018b).

result of the efforts made by NYC Parks, NYRP, their partners and 50,000 volunteers, the millionth tree was planted two years ahead of schedule.

During this partnership, NYRP expanded their work citywide, delivering large planting projects on parcels of land managed by other NYC agencies such as the Housing Authority (NYCHA) and the Department of Transportation (NYCDOT). This allowed NYRP to think much more cross-jurisdictionally, and bolstered their ability to execute agreements with a diverse range of City partners.

Today, NYRP owns and operates more than 52 green spaces in NYC and 32 hectares/80 acres of land in north Manhattan (Marton & Peterson 2015), and sponsors events and programming throughout NYC's five boroughs (Huber 2013). The majority of NYRP green spaces are community gardens in the South Bronx, northern Manhattan, and central Brooklyn, which correlates closely to the NYC communities with the highest needs for open space, being the most densely populated and the least green (McPhearson, Kremer & Hamstead 2013). NYRP is NYC's only citywide conservancy and brings private resources to spaces that lack adequate municipal support. NYRP is committed to engaging NYC communities in all their green-space projects, and for this reason I approached them to be my research partner.
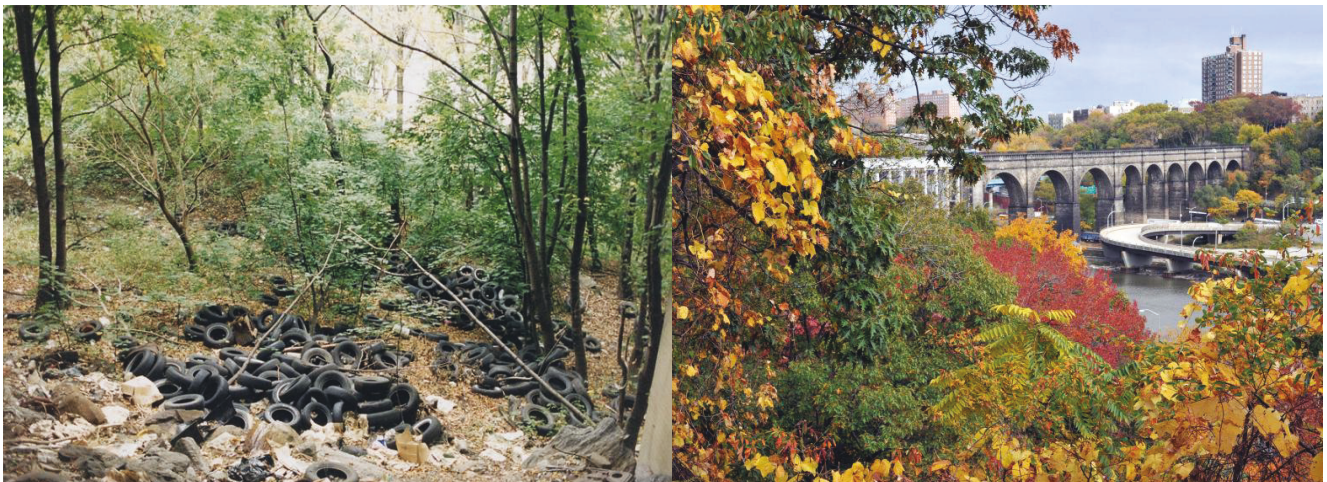


Figure 2 Highbridge Park before and after restoration, courtesy of NYRP and NYC Parks

# 1.7. Research motivation

Adaptation to climate change, as opposed to mitigation, is a primary motivation of this dissertation as it is increasingly apparent that we as a species have major threats to prepare for. Observed temperatures and sea levels are greater than what the climate models over the past decades predicted for our current time, and they are consistent with the non-linear changes in our environment that will cause uncontrollable impacts on human habitat and agriculture, and subsequently complex impacts on social, economic and political systems (Bendell 2018).

Through multiple planning initiatives NYC has committed to and made headway to reduce its GHG emissions and prepare for the impacts of climate change. As part of this preparation the City has acknowledged the need for community engagement in developing and executing adaptation strategies, which include increasing green spaces. Community engagement in green-space planning can lead to better project outcomes, including increased public support, use and maintenance (Ujang, Moulay & Zakariya 2015). Current formal mechanisms for community participation in NYC's green space planning decisions face challenges of funding, representation and accountability (see Chapter 8). PPGIS could help improve the city's community engagement practices as a deliberative democratic initiative.

My research goals are to identify how PPGIS and deliberative democratic initiatives can improve NYC's green-space governance for local communities. My primary motivations are to help 1) make cities more resilient to climate change, and 2) strengthen urban democracy, by 3) making community engagement processes more inclusive and accountable.

To narrow my focus, I partnered with the New York Restoration Project (NYRP) to design and test a PPGIS prototype to help make NYRP's community engagement processes easier to run, report and replicate. In July 2015, NYRP and a network of community partners published a master plan to renovate a network of open spaces in Mott Haven and

Port Morris in the South Bronx. The plan, called the Haven Project, proposed new capital investments and public realm improvements that would enable waterfront recreation in the South Bronx for the first time in decades. The project was significantly larger in scope than NYRP's community gardens and entailed a multi-phase development plan with a budget upwards of US$30 million, and had been awarded US$3 million by the City of New York (see Chapter 7). I began my research with NYRP during their third phase of community engagement with the Mott Haven and Port Morris community to develop the Haven Project master plan. After conducting semi-structured interviews with NYRP staff and reviewing their community engagement processes and documentation, I began a participatory design process to develop a PPGIS prototype to assist NYRP's future community engagement work for the implementation of this plan.

As described in detail in Section 5.1., NYRP's community engagement is very much an in-person process, and in the case of their community garden design projects their initial engagement takes place in the garden itself. The goal of the PPGIS prototype was not to replace NYRP's collaborative engagement approach, but to assist and augment it. As explained by Bethany Hogan, NYRP's director of government affairs, in our discussions on using PPGIS in their community meetings:

> One of the benefits of in-person meetings is that you get a quality of input that's guided by the fact that people are talking to their neighbours and people who have a shared interest with them, and they're guiding each other collaboratively through the process. So, if I'm filling out an open-questioned questionnaire or some sort of online interface there's still a lot to inspire me, but I probably won't have the same level of attention or thoughtfulness as I would if I was in a room with a bunch of people and we're all getting animated and talking about it. Questionnaires are great, but what I think is interesting about what you're proposing is that you're taking some of the collaborative energy that helps guide a really strong input process and trying to marry it up with the other parts that demonstrate scale, which in person gatherings can never deliver on their own (B. Hogan 2018, pers. comm., July 26).

During the PPGIS design and testing period, NYRP experienced a significant breakdown in government accountability that resulted in the Haven Project losing its City funding. This was especially distressing as the project was for the redevelopment of an industrial site on the waterfront in the South Bronx, to serve a community that lives in the poorest

congressional district in the United States—precisely the people who tend to be underrepresented in the land-use decision-making process.

For two years NYRP tried to retrieve these funds, both through official channels and a public advocacy campaign, to no avail. This breakdown in communication and accountability spurred the second focus area for my research, assessing NYC's green-space governance and making recommendations to improve its accountability and the deliberativeness of its community engagement mechanisms. As part of this focus area I wanted to understand how successful green-space advocacy campaigns could inform future strategies for organizations like NYRP. For this reason, I developed a comparative case study analysis of the Haven Project, the High Line and Bushwick Inlet Park (see Chapter 7).

To provide the roadmap to my dissertation and outline where and how I will address these research goals, I'll now walk through my thesis outline.

# 1.8. Thesis outline

In Chapter 2, my literature review explores the use of community engagement in green space planning to tackle gentrification, and increase public attachment to place; provides an overview of the evolution of deliberative democracy; discusses PPGIS as a boundary object and tool for democratic deliberation; and presents the benefits of a participatory design approach for the development and use of PPGIS.

In Chapter 3 I lay out my research design, which includes my research goals, questions, methodology and methods. My research takes two forms: 1) A PPGIS prototype developed with a participatory design approach, informed by the principles of deliberative democracy, and 2) A case study guided by a deliberative systems framework to assess NYC's green-space governance. To answer my research questions, I needed to gather evidence to determine how PPGIS could help NYRP's community engagement processes and to identify where the democratic decision-making processes of NYC's urban green-space governance were breaking down. The primary methods I used for this were semi-structured interviews, PPGIS prototyping, documents and desk research.

Chapter 4 reviews the influence of the public on the evolution, protection and maintenance of NYC green spaces, with a focus on Central Park and community gardens. Here I discuss the formal government mechanisms available to NYC residents to shape their local green spaces, and the limitations of these mechanisms. This provides the initial foundation for my analysis of NYC's green-space governance in terms of a deliberative system in Chapter 8.

Chapter 5 walks through the process of co-designing a PPGIS tool with NYRP. I begin with an overview of NYRP's existing community engagement process and how this aligns with deliberative democracy. I then walk through the process undertaken to co-design the PPGIS prototype's user interface, and the key steps for building the prototype at the Collective Intelligence for Democracy Workshop in Madrid. Finally, I present the feedback and feature requests from NYRP and community members who used the PPGIS prototype

during three garden redesign projects in NYC. In this chapter I answer my first research question: how can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?

Chapter 6 combines the findings from the NYRP prototype with further research into the effective survey design to identify how PPGIS could further scale NYRP's community engagement. My primary recommendation is to use PPGIS in deliberative discussion focus groups to establish the range of community concerns associated with a land-use project, and then use deliberative discussion focus groups to refine PPGIS web-surveys to improve their language and visual design, making them more accessible. In this chapter I answer my second research question: how can the participatory design of PPGIS help increase community engagement in green-space planning decisions?

In Chapter 7 I broaden my perspective to examine why NYRP's campaign to release City funds awarded for the Haven Project failed. For this analysis, I draw lessons from a comparative case study of the High Line and Bushwick Inlet Park. The aim of this chapter is to identify what went wrong in NYRP's campaign, establish recommendations to help future green-space advocates, and answer my third research question: What can be learned from successful advocacy campaigns for NYC parks and community gardens?

In Chapter 8 I use a deliberative system framework to discuss NYC's green-space governance in terms of public space, empowered space, transmission, accountability and inclusivity, and assess the deliberative systemic impacts do NYC's formal community engagement mechanism. I conclude with recommendations drawn from the successful strategies of international democratic innovations, and outline how PPGIS could be used to make NYC's greenspace governance more deliberative. In this chapter I answer my final two research questions: what deliberative systemic impacts do NYC's formal community engagement mechanism have?; what strategies from international democratic initiatives could make NYC's formal community engagement mechanisms more deliberative?

In Chapter 9 I conclude and reflect on how my NYC findings could be applied elsewhere, specifically the city of Sydney where I was born and now reside. Here my goal is to

repurpose the strategies identified for NYC to improve the democratic urban governance of my home town, and make recommendations for future researchers.

# 2. Literature Review

The following literature review examines how community engagement is already benefiting the design, development and preservation of urban greenspaces, and how PPGIS and deliberative democracy could be used to further support these efforts. The chapter begins by discussing some of the long-term benefits of community engagement in urban green space planning, including minimizing the negative impacts of gentrification that can result from green space investments—a concern of many community members living near NYRP projects (C. Reynoso, 2018, pers. comm., 23 March)—and the development of a public sense of ownership, which helps to maintain green spaces and ensure their ongoing use and benefit to the community.

This literature review also summarizes the evolution of deliberative democracy, and positions that deliberative systems are an effective lens to examine environmental governance issues, such as green space planning in NYC. I will introduce the components of a deliberative system, which will later be used to structure my analysis of NYC green-space governance (see Chapter 8). This chapter also provides an overview PPGIS, its ability to bring people of differing perspectives together, and how it can be used to support decision-making for NYC's parks and community gardens. Continuing from the principles of deliberative democracy, this chapter concludes with a discussion of participatory design as a guiding framework to co-design a PPGIS application for my research with NYRP.

## 2.1. The use of community engagement in green space planning to tackle gentrification, and increase public attachment to place

Community engagement in urban planning decisions can provide benefits to decision makers beyond appeasing voters and satisfying 'rubber-stamping' requirements. As introduced in Section 1.3, community engagement in green-space planning can lead to greater public support, increased community buy-in, and sustained long-term project success (Meerow 2020). Drawing from projects in the High Line Network, the following will demonstrate that community engagement in the design and ongoing programming of public parks is being used to help minimize the negative impacts of gentrification, which in NYC is affecting 12% of low-income neighbourhoods (UDP 2019). I will also demonstrate that once urban green spaces have been developed, community engagement can help to maintain these spaces and ensure their ongoing use and benefit to the community by fostering placemaking and stewardship (Dempsey & Burton 2012; Ujang, Moulay & Zakariya 2015), and creating a sense of public ownership (Arnberger & Eder 2012; Project for Public Spaces 2012). The support of NYC communities to help preserve green spaces is vital, given the City's budget for parks has been steadily declining since 1976 (CUF 2018), and the majority of requests from the community for repairs and capital work go unfunded (OMB 2018).

One of NYC's most successful community spearheaded green spaces is the High Line, a 2.3 kilometre/ 1.4 mile repurposed elevated railroad that winds through the west side of Manhattan. It has spurred a global movement of urban revitalization to transform disused industrial sites into dynamic public green spaces. Saved from demolition by community support (see Section 7.3), the High Line is now one of NYC's most popular tourist destinations. While many cities around the world are seeking to emulate its success, the park has become a symbol of NYC's widening socio-economic divide (Littke, Locke &

Haas 2016; Loughran 2014). Robert Hammond, co-founder of the not-for-profit conservancy "Friends of the High Line", says**:**

> When we opened, we realized the local [New York City Housing Authority] community wasn't coming to the park, and the three main reasons were: They felt it wasn't built for them, they didn't see people like them there, and they didn't like the programming (Budds 2017).

To help future infrastructure reuse projects bring social, environmental and economic benefits to long-time residents of neighbouring communities, Hammond co-founded the High Line Network; a public-facing platform for sharing information about infrastructural reuse. The Network represented 37 adaptive reuse projects across North America at the time of writing, 11 projects in NYC, including at one stage NYRP's Haven Project in the South Bronx (High Line Network 2019a). The following are examples of how projects in the High Line Network are using community engagement in the design and planning phases of urban green spaces to mitigate the negative effects of gentrification, encourage placemaking and develop community stewardship.

### 2.1.1. Addressing gentrification with an equitable development task force

Often within cities the distribution of green space disproportionately benefits affluent communities (Wolch, Byrne & Newell 2014). Because of this, access to green space is increasingly recognized as an environmental justice issue (Jennings, Johnson Gaither & Gragg 2012). While many U.S. cities have implemented strategies to increase the supply of urban green spaces through greening of available urban land and the reuse of transportation infrastructure, in the case of addressing park-scarcity in low-income communities, such initiatives can create an adverse gentrification effect.

Gentrification describes the influx of middle-class or affluent people into an economically distressed neighbourhood, often accompanied by urban renewal. Gentrification's positive attributes include boosting the local economy and diversifying the make-up of a neighbourhood. However, when the benefits of gentrification are inequitable, socio-economically vulnerable residents are pushed or priced out of their once-affordable homes

(Bogle, Diby & Cohen 2019): "No matter its physical form, gentrification is fundamentally about the reconstruction of the inner city to serve middle- and upper-class interests (Wyly & Hammel 2004, p. 3)."

The development of green spaces can make neighbourhoods more desirable. This causes housing costs to rise, often displacing the very residents the green spaces were meant to benefit. This outcome has negative public health implications, not only because of continued park scarcity for these residents, but also because displacement and unstable housing status bring their own health issues (Bentley, Baker & Mason 2012). To address these challenges decision makers need to focus on urban green-space strategies that explicitly protect social as well as ecological sustainability (Wolch, Byrne & Newell 2014). The not-for-profit, Building Bridges Across the River (BBAR), is doing just this.

BBAR is leading the 11th Street Bridge Park Project (BPP) in Washington DC that will see a 365-metre/1198-foot bridge connect the neighbourhoods of Capitol Hill and Anacostia, one known for growing wealth, the other for poverty (Nonko 2018). To ensure affordable housing remains available to existing residents, BBAR has worked with Washington DC City agencies and US$5 million in funds from JPMorgan to set up a community land trust (CLT) (Nonko 2018). A CLT is a not-for-profit organization governed by community residents and public representatives to provide community assets and long-term affordable housing. The CLT's affordable homeownership programs invest public funding into property to make home purchase affordable for low-income homeowners, who in return agree to sell the home at a restricted and affordable price to another low-income homebuyer in the future (BBAR 2018).

BBAR has also worked with the community to develop an Equitable Development Plan (EDP) to outline how investments in public space can ensure that long-time residents are not priced out from rising rents in their neighbourhoods. The EDP identified key strategies to achieve this, including: prioritizing the hiring of neighbourhood residents for construction and post-construction jobs on the BPP; supporting new and existing local small businesses; providing residents with information on housing rights and purchase opportunities to residents; working with city agencies and not-for-profits to preserve existing affordable housing; ensuring that programming on the BPP is affordable and accessible to existing residents; and providing a variety of spaces that support informal,

formal and temporary uses (BBAR 2018). The BPP and its partners have made solid progress toward their EDP goals of inclusive development, including purchasing 70 homes, creating 31 full-time construction jobs and issuing US$525,000 in small business loans.

Community engagement in the design of parks can help to create public spaces that are catalysts for economic development and community revitalization, as well as places that are lively, safe, and valued by the community (Cilliers et al. 2015). Placemaking is part of this process.

## 2.1.2. Placemaking through inclusive design

When people use and value green spaces they engage in the act of placemaking. Placemaking is the collaborative process of shaping the public realm for shared value, in particular the physical, cultural and social qualities that define a place (Brown, Rhodes & Dade 2018). Placemaking is an ordinary but fundamental activity where people construct and control the quality of their environments, and thereby sustain communities (Francis et al. 2012). Processes to inform creative placemaking for urban planners may include empirical analysis, questionnaires and inclusive decision making  to engage communities and individuals at the grassroots level (Brown, Rhodes & Dade 2018). By appreciating the nuances of placemaking, the gap between the abstract understanding of a city and the lived experience shrinks, and urban planners can better balance their expertise with local knowledge in the planning process (Francis et al. 2012). Many benefits of urban green spaces take time to develop, such as shade from increased tree canopy, or a growing sense of community as a result of space-focused events and activities (Dempsey & Burton 2012). For this reason, the monitoring of these spaces through community engagement is important to ensure they continue to bring desired social, environmental and economic benefits.

Placemaking is based on the premise that successful public spaces are lively, safe, distinctive places that facilitate social capital, economic development and community revitalization (Cilliers et al. 2015). The placemaking process transforms forsaken, under-

used areas into places that people enjoy spending time in, and focuses on public space as a whole rather than individual structural or green elements (Timmermans et al. 2013). For urban planners, placemaking is the production of meaningful space done with the input of surrounding residents and users of the space (Cilliers et al. 2012):

> The placemaking process, when it is conducted with transparency and good faith from the bottom up, results in a place where the community feels ownership and engagement, and where design serves function (Project for Public Spaces 2012, p. 4).

Place-making can lead to urban green-space stewardship, creating spaces that have a higher chance of being protected by the public.

The Detroit Riverfront Conservancy (DRC) prioritised the role of community engagement in the redesign of West Riverfront Park, a 9-hectare/22-acre site located on the Detroit riverfront, to ensure it was a place that created a sense of community belonging. The site was privately owned and closed to the public for nearly 100 years, and in 2014 the DRC purchased it and opened it as a park (DRC 2017). Since then, the park has become a popular destination for outdoor recreation and views of the city, and hosted several concerts. In March 2017, the City of Detroit, the Detroit Economic Growth Corporation and the DRC, in an effort to protect the site from property development, announced a design competition to transform the West Riverfront Park (Dovey 2017) and make it one of the longest stretches of redesigned riverfront in the United States.

To better understand the needs and wishes of the community, the DRC built a Community Advisory Team (CAT) made up of 21 Detroit residents. Reflecting the city's diversity, the CAT was made up of 62% women, 48% African-Americans, 29% Latino, 30% under the age 18 or over 60, and 20% participants with school-aged children (Wallace 2017). Along with the CAT's prevailing comments on inclusive programming, another dominant theme was "how to make the riverfront a place where everyone is welcome?" This may have been in response to the fact that, prior to revitalization, the Detroit riverside was considered a wasteland of abandoned warehouses and neglected roads (Daniels 2018).

Over three million people visit the Detroit riverfront each year, an indication of its importance to the city (Thorns 2018). By creating the mechanisms to facilitate and promote community influence on the redesign of the West Riverfront Park, the DRC are laying

fertile ground for future placemaking processes—a community that feels a sense of ownership over public space will be a community that utilizes and protects it (Arnberger & Eder 2012; Ramkissoon, Smith & Weiler 2013).

### 2.1.3. Place-keeping and urban green-space stewardship

When communities engage in the stewardship of green spaces they connect and gain an understanding of them (Andersson et al. 2014). Stewardship can be facilitated by institutional designs and social movements, and through new forms of property ownership (Colding & Barthel 2013), such as community land trusts. Institutional diversity in land management can also enhance an urban system's ability to adapt to change, i.e. its social–ecological resilience (Folke, Colding & Berkes 2003). Urban green spaces that garner support from diverse user groups appear to have higher chances of being protected, and create social environments that nurture stewardship and collective action (Ernstson, Sörlin & Elmqvist 2008; Walker 2007).

By facilitating community stewardship of urban green spaces, municipalities can help address the ongoing challenges of place-keeping (Dempsey & Burton 2012). Place-keeping is the resilient management of public spaces and is necessary for the long-term preservation of a location's social, environmental and economic value (Ujang, Moulay & Zakariya 2015). Place-keeping goes beyond the design and maintenance of the physical environment, encompassing the integral non-physical factors of public spaces, i.e. partnerships, governance, funding, policy and evaluation (Mahmoud 2011).

Place-keeping is vital to ensure that a space continues to meet the needs of its visitors, and effective planning processes need to incorporate the necessary maintenance to ensure this. Access to green spaces can contribute to a community's well-being (Dobbs, Escobedo & Zipperer 2011) by providing meeting places, opportunities for exchange and interaction, and facilitating collective identity (Wendel, Zarger & Mihelcic 2012). However, these benefits are only achieved if people use the spaces; to ensure this, visitors need to feel safe and comfortable (Wendel, Zarger & Mihelcic 2012).

Community participation in long term place-keeping can be challenging given its voluntary nature and the degree to which residents are capable of taking on maintenance responsibilities (Smith et al. 2014). Volunteers may become burnt out (Byron & Curtis 2001), participate sporadically (Rydin & Pennington 2000) or be part of initiatives suffering from insecure funding (Buijs et al. 2016). To address these problems, community stewardship initiatives need to be connected to other actors, such as municipalities, non-governmental organizations or the private sector and engage in inclusive planning and governance (Hajer et al. 2015). The work done by the Buffalo Bayou Partnership (BBP) with the community of Houston, Texas, in the aftermath of Hurricane Harvey demonstrates the power of such alliances.

Managed and operated by BBP in partnership with the City of Houston, Harris County, and Harris County Flood Control District, the Buffalo Bayou is Houston's most significant natural resource. With a focus on revitalizing a 16-kilometre/10-mile stretch of bayou over the past 30 years, the BBP has transformed sections of the site to create parks, trails and bridges (High Line Network 2019c).

The Buffalo Bayou was neglected for many years. In 1986, a group of concerned Houston citizens formed the BBP and developed the regional master plan known as "Buffalo Bayou and Beyond" to direct the ecological rehabilitation and protect the bayou from major development (Schmertz 2003). In 2012, Houston voters approved a referendum to provide US$100 million to transform the bayou from drainage ditches into linear parks and trails. This funding was matched with private donations, and more than 570 hectares/1400 acres of land along the bayou was opened for public recreation.

The revitalization of the bayou is making Houston a more liveable city, but also a more resilient one (Kinder & Kinder 2017). On August 27, 2017, Hurricane Harvey made landfall in Houston and flooded the city for eight days. This 1-in-500-year storm caused an estimated US$1.5 billion worth of damage and forced thousands to evacuate their homes. The Buffalo Bayou Park was not destroyed, although flooding in its lower region left 1.5 metres/5 feet of sediment. In response, 2,300 volunteers spent more than 7,000 hours removing the sediment, repairing trail lights and replanting native plants and trees (Vora 2018). Within a year the park's main trails and most of its destinations had reopened (Kinder & Kinder 2017).

The above examples demonstrate that community engagement in urban green-space planning can help to prevent the negative outcomes of gentrification on lower-income residents, ensure designs meet local needs, and increase the likelihood of their ongoing use and maintenance. Benefits such as these make community engagement an integral component to the success of urban green spaces, and in turn help cities adapt to climate change. My research will discuss residents' role in NYC community gardens, and examine the formal community engagement mechanisms in NYC's urban green-space governance, so as to make recommendations to strengthen public participation in decision making. To help me do this I will draw guidance from deliberative democracy and systemic deliberative democracy frameworks, which I will now discuss further.

## 2.2. Deliberative democracy and environmental governance

To guide my assessment of NYC's formal community engagement mechanism for green space planning in Chapter 8, this section will discuss deliberative democracy as an examination lens for environmental governance. As introduced in Section 1.4., deliberative democracy puts communication and informed deliberation at the centre of the democratic process with the goal to produce well-informed and considered opinions that are  consequential in political decision-making (Gutmann & Thompson 2009).

The following will provide an overview of the evolution of deliberative democracy and discuss how it can be useful in environmental governance.

### 2.2.1. The evolution of deliberative democracy

Deliberative democracy has been described as having "four generations" (Elstub, Ercan & Mendonça 2016). Although these generations have considerable overlap in their ideas and scholars, they each have important evolutionary trends that have led to the current focus on deliberative systems, which can be applied to the complexities of global climate governance in the Anthropocene (Dryzek 2016; Dryzek & Pickering 2017).

The first-generation of deliberative democracy, which included contributions from Habermas (1996), Cohen (1989) and Dryzek (1994), argued that legitimate democratic and collective decisions could only emerge through a discursive procedure that allowed all those affected to have a say. While these scholars called for deliberative democracy to occur on a system-wide level, they did not address the challenges of complexity that this would entail (Elstub, Ercan & Mendonça 2016). Some first-generation scholars had limited and rigid ideas of deliberation, for example seeing the exchange of reasons as the only applicable form of communication, with uniform preference change as the primary goal.

To address the complexity of contemporary democracies, the second-generation of deliberative democracy thinkers: expanded the definition of deliberation (Young 1996); found problems with the requirements of consensus (Deveaux 2003; Dryzek 2000); and connected deliberative democratic theory to other fields such as multiculturalism (Valadez 2018) and environmental politics (Smith 2003). This second generation sought new forms of communication and reason giving, and new interpretations of preference change, consensus and compromise (Elstub 2010). By raising issues of potential inequalities within the discursive processes of first-generation deliberative democracy, these scholars brought deliberative democracy closer to contemporary problems and conflicts (Neblo 2007). However, they did not generally engage in the specifics of institution design or empirical analysis of deliberative practices (Elstub, Ercan & Mendonça 2016).

The third generation of deliberative democracy addressed ideas of feasibility through the design of deliberative institutions and their empirical analysis. Of particular interest were the participatory practices of citizens' juries (Smith & Wales 2018), planning cells (Flynn 2009), consensus conferences (Andersen & Jæger 1999), and participatory budgeting (Fung & Wright 2001). This generation saw Fishkin (2009) use deliberative polls to gather public opinion, as well as numerous discussions and experiments with minipublics (Elstub 2014; Fung & Wright 2003; Gastil & Levine 2005). While seeking solutions for institution design and engagement with complex real-world challenges (Thompson 2008), the third generation typically enacted deliberative initiatives that were isolated from the broader contexts and discursive environments of the problems they were seeking to address (Chambers 2009; Dryzek 2012; Mansbridge et al. 2012a).

This is where the fourth generation of deliberative democracy comes into play, with a renewed attention to deliberative systems (Elstub, Ercan & Mendonça 2016). Systemic deliberative democracy studies deliberation beyond isolated deliberative practices, examining the connections between deliberative sites, as well as relationship between deliberative and non-deliberative practices in the system as a whole (Thompson 2008). A deliberative system sees deliberation as a communicative activity that occurs in multiple, diverse and partially overlapping spaces, and emphasizes the need for interconnection between these spaces. The deliberative systems approach differs from previous ideas of deliberative democracy by promoting deliberation on a large scale (Parkinson &

Mansbridge 2012), through a division of labour (Mansbridge et al. 2012b), and by acknowledging effects of the socio-political contexts for deliberation (Janssen & Kies 2005). In this approach institutions that may not function deliberatively or democratically in isolation are still able to contribute to deliberation at a system scale (Mansbridge et al. 2012a). The deliberative systems approach provides a new way of studying the practice of deliberation in contemporary democracies, and helps to conceptualize the connections and transmission across different sites of deliberation (Dryzek 2016).

Systemic deliberative democracy maintains the core principles of its predecessors, i.e. improving the quality of democracy through public reasoning and argumentation (Rawls 2005), but differentiates itself by promoting deliberation on a mass scale. Deliberative systems acknowledge the complexity of government decision making while considering the integral role of citizen participation in governance (Mansbridge et al. 2012a; Parkinson & Mansbridge 2012; Smith 2009). In a systemic deliberative approach, decision making does not become the responsibility of one forum or institution, but is distributed among different components on a case by case basis: "Political judgements are complex, and the system in which they are made should also be complex (Parkinson & Mansbridge 2012, p. 5)." A deliberative system engages an ecosystem of organizations, stakeholders and experts, and focuses on deliberation across distributed governance systems (Chambers 2012). In this approach, institutions that may not function deliberatively or democratically in isolation are still able to contribute to deliberation of a system at scale (Mansbridge et al. 2012a; Riedy & Kent 2015).

Deliberative systems are one of the few deliberative democracy frameworks that can handle the complexity of global governance challenges such as those brought by climate change. In a deliberative system discourse occurs in multiple, diverse, partially overlapping spaces—from "everyday talk" to formal legislatures (Mansbridge et al. 2012a)—and brings attention to the interconnection between these spaces (Elstub, Ercan & Mendonça 2016).

In their book *Democratizing Global Climate Governance*, Stevenson and Dryzek (2014) analyse the global governance of climate change in terms of a deliberative system and set out to find:

…a consequential process that features inclusion of all affected interests, the integration of multiple perspectives on complex issues, prioritization of public goods, positive sum discourses, the productive co-existence of consensus and contestation, and reflexivity (Dryzek & Stevenson 2014, p. 26).

To do this they establish the components of a deliberative system:

1. Private sphere: the realm of private and informal conversations, or "everyday talk" (Mansbridge 1999), that conditions what people do or say in more public situations.

2. Public space: more open and accessible than the private sphere, ideas and critiques are generated at informal or formal meeting places, such as cafes, bars and online forums, or more formal spaces such as public hearings, meetings, debates or news media activity.

3. Empowered space: where collective decisions get made by institutions, such as those of government, executive committees or courts.

4. Transmission: the means by which public space influences empowered space. This may take the form of arguments, providing information, sharing personal stories, rhetoric, or cultural changes that influence decision makers, such as environmental movements.

5. Accountability: how the empowered space justifies its decisions and actions to the public sphere. For example, when government and elected officials provide an account of their actions to their electorate or constituents.

6. Meta-deliberation: the capacity of a system to reflect upon and improve itself, which may take the form of debate and reflection on a governance system, with the goal to transform that system.

7. Decisiveness: the degree to which collective outcomes result from the above components acting together, especially in terms of meaningful impact.

By identifying these components Stevenson and Dryzek (2014) create a framework with which to describe, analyse and evaluate democratic deliberative systems. This is

especially useful when examining complex governance systems which involve many stakeholders, such as NYC's green space governance. Deliberative systems allow us to reconsider the interaction and influence between public spaces and decision makers (Dryzek 2012), and how democratic innovations that seek the input of the community can impact the broader political system (Ercan, Hendriks & Boswell 2017; Niemeyer 2014; Warren 2007). On their own, these spaces may not include all the ideal aspects of democratic deliberation, but when viewed as a system of deliberation they have the potential to be inclusive and reflective on matters of common concern (Dryzek 2009; Mansbridge et al. 2012a).

## 2.2.2. Deliberative democracy's obstacles of institutionalisation

In modern pluralist societies, there are persistent disagreements about the principles that justify mutually binding laws and decisions. For example, utilitarians will defend maximizing social welfare, although disagreeing amongst themselves on how it should be done, and libertarians will defend protecting individual freedoms from government interference, conflicting with a general principle of maximizing social welfare, but also an aim subject to interpretation among libertarians themselves (Gutmann & Thompson 2000). Deliberative democracy provides an approach to dealing with the problem of such moral disagreements.

The key claim of deliberative theories of democracy is that deliberative approaches to collective decisions under conditions of conflict produce better decisions than those resulting from alternative means of conducting politics such as coercion, traditional deference, or markets (Gutmann & Thompson 2000; Warren 2007). Here, better decisions are those that are more legitimate, reasonable, informed, effective, and politically viable (Cohen 2007; Gutmann & Thompson 1998; Habermas 1996).

Good deliberation does not happen by itself, and expertise and resources are needed to organise discursive processes, topic framing, participant recruitment, preparation of background materials, invitation of speakers, amongst other tasks (Hartz-Karp & Briand 2009). Deliberation does not inevitably generate consensus, especially in larger public

bodies, and outcomes may require other mechanisms, such as voting, to conclude deliberation in the short-term (Gastil & Levine 2005).

The results of deliberation are more pronounced and readily sustained when organizations and institutions adopt deliberative practices internally and invest in efforts to respond to publicly-deliberated outcomes, although this has seldom occurred (Hartz-Karp & Briand 2009). In order to achieve a level of political and social significance, public deliberation initiatives must scale to include an ever-increasing number of participants, even if only intermittently and indirectly (Gastil and Levine, 2005).

Normative theories of deliberative democracy have informed and inspired a range of institutional developments, including citizen juries, stakeholder meetings, deliberative polling, and deliberative forums (Chambers 2003; Gastil & Levine 2005; Parkinson 2006). However, the design of democratic innovations from a deliberative systems perspective requires an augmentation from a single forum towards the broader system, that emphasise a range of settings through which deliberative democratic norms are distributed (Mansbridge et al. 2012a; Owen & Smith 2015). Such designs inevitably encounter and must address the obstacles of institutionalisation (Dean, Boswell & Smith 2020). Dean et al. (2020) identify these challenges as three broad institutionalisation problems: the power of the commissioner, disconnection from everyday politics, and a lack of legitimation capacity.

The power of the commissioner refers to the criticism of the institutionalisation of deliberative initiatives that suggests rather than to offer tools for deeper democratisation, they are adopted as a means for authorities to legitimately rationalise and control public debate, leaving intact conventional institutional structures (Papadopoulos & Warin 2007; Pateman 2012). It is argued that when participatory processes are commissioned by public authorities, citizens rarely have control over who has the right to participate, the design of the participatory institution, or on the agenda (Chambers 2009; Dean 2017; Parkinson 2006), ultimately giving too much power to the commissioning organisation, and providing opportunities for special interest domination (Fuji-Johnson 2018).

The second broad challenge deliberative democratic innovations must address are the realpolitik limitations that disconnect them from effectively linking to civil society or

empowered governing practices (Papadopoulos 2012). The one-off nature of many democratic innovations means they aren't regular mechanisms of formal community engagement (Pateman 2012), and their disconnection from the everyday work of public authorities reduces their capacity to deliver insights to policymakers who are responding to complex agendas and an ever-shifting political landscape. If democratic innovations fail to deliver public input in a form that is sufficiently usable (Hendriks & Lees-Marshment 2019), it will be overshadowed by competing institutional imperatives (Martin 2011; Newman et al. 2004).

The third challenge of discrete democratic innovations is a lack of legitimation capacity, given the small numbers of participants that take part. Hence, the deliberative systems turn suggests that deliberative and democratic functions should be distributed through a range of differentiated but interconnected settings (Mansbridge et al., 2012), integrating a variety of institutional structures and wider democratic practices (Parkinson, 2006).

Drawing logic from deliberative systems thinking and its critiques on democratic innovation, Dean et al. (2020) identify two propositions to guide systems-oriented democratic innovation: 1) ensure *transmission* between different democratic spaces is given as much importance as the dynamics within a space (Dryzek 2012), embedding new democratic initiatives within existing networks to remedy a functional deficit, rather than displacing organic functional activity, and 2) do not expect a single intervention to realise the full array of necessary democratic functions (Mansbridge et al. 2012a; Parkinson 2006), which will likely have to be distributed across different arenas, to ensure the deliberative system as a whole is comprehensive.

Urban green space projects have numerous components that must be dealt with by a decision system, requiring more than a single actor to make these decisions. Systemic deliberative democracy is a means of understanding and optimizing this governance network by integrating the multiple perspectives and voices of green space governance, including those of community organizations, activists, the press, and political representatives (see Chapter 8).

As cities adapt to threats and impacts of climate change they will need to balance social, political and environmental matters of common concern. Governance strategies will need to evolve, and a reflexive governance approach can help cities do this.

### 2.2.3. Deliberation and reflexive governance

Reflexive governance calls into question the foundations of governance itself—the concepts, practices and institutions by which society is governed—and reimagines and reshapes those foundations (Voss, Bauknecht & Kemp 2006). Reflexivity in a social context refers to the ability of a structure, process or set of ideas to change itself in response to reflection on its performance (Beck, Giddens & Lash 1994).

Dryzek and Pickering (2017) explain that deliberation is central to reflexive governance because it can hold a series of governance polarities in productive tension, these being: participation and expertise, by joining expert and lay deliberation in a deliberative system; diversity and consensus, by validating multiple conflicting perspectives while enabling workable agreements across them; polycentricity and centralization, by enabling deliberative learning coordinated action across institutional sites; flexibility and stability, by requiring periodic deliberative scrutiny of any stable arrangements.

Dryzek (2016) identifies 'ecosystemic reflexivity' as the first virtue for political institutions in the Anthropocene:

> The ecosystemic dimension of reflexivity involves listening more effectively to an active Earth system, capacity to reconsider core values such as justice in this light, and ability to seek, receive and respond to early warnings about potential ecological state shifts (Dryzek 2016, p. 953).

In environmental governance, ecosystemic reflexivity is concerned with social-ecological systems rather than just human systems, requiring the ability to listen and interpret signals from the non-human world (Dryzek & Pickering 2017). Reflexivity requires governance to be something different, not just do something different (Dryzek 2016), and the major problem with dominant political and economic institutions is that they are not reflexive

(Dryzek & Pickering 2017). Deliberation, like reflexivity, requires processes of reflection and revision. Research on deliberative valuation of environmental services indicates that deliberation may help to transform preferences towards greater appreciation and more diverse range of environmental values (Lo 2013; Raymond et al. 2014; Spash 2007). Deliberation can improve reflexivity, as well as increase the valuation of intrinsic environmental systems.

Urban planning is one component of urban governance that can benefit from increased deliberation and democratic innovation. However, the many data sources needed to inform planning decisions can be overwhelming for non-experts. For this reason, community enragement processes for spatial planning must manage this complexity to enable informed discussions and produce sustainable results (McCoy & Scully 2002; Pruitt & Thomas 2007).

Given that democratically deliberative initiatives need to inform participants on pertinent information that informs discussions and ultimately recommendations to decision makers, collaborative tools that help communicate land-use planning data and then capture community ideas could be extremely helpful.

Introduced in Section 1.5, PPGIS technology was designed specifically to engage the public in land-use planning decisions in this manner. For this reason, PPGIS could help NYC's urban planners and policy makers engage and deliberate with communities for urban green-space planning.

# 2.3. PPGIS as a boundary object and tool for democratic deliberation

As we have seen, increasing community engagement in urban green-space planning can improve their design and encourage their ongoing use and maintenance. However, scaling participation in an informed, relevant and representative manner can be challenging. As discussed in Section 1.5, public participation geographic information systems (PPGIS) are designed to make planning processes more inclusive and more informed. As I will discuss below, through its design and use PPGIS can help foster communication that is authentic, consequential and inclusive, which are the characteristics of effective democratic deliberation. It can do this by acting as a boundary object, that is by providing people with a means to engage on an issue based on their personal experience, requiring no special expertise. For these reasons, PPGIS is an effective tool for providing multiple voices, positions and discourses with the opportunity to partake in the decision making that affects them. As PPGIS is an urban planning tool that is consistent with a deliberative democratic approach to community engagement, it could be used to improve the informed and inclusive dialogue of NYC's residents for improved urban green-space governance.

### 2.3.1. Origins of PPGIS

PPGIS arose in the mid-1990s as a result of the critical assessment of the social, political and epistemological implications of GIS (Curry 1995; Obermeyer & Pinto 1994; Obermeyer 1995; Rundstrom 1995). GIS technologies facilitate the collection, storage, manipulation, analysis and display of spatially distributed information for the purpose of inventory, decision making and problem solving (McCall 2003). While being a powerful mediator of spatial knowledge, social and political power (Jankowski 2009), GIS was criticized because of the financial and technical barriers that impeded the use of GIS and its associated data (Obermeyer & Pinto 1994; Obermeyer 1995; Sawicki & Craig 1996).

Critics established that although GIS provided an opportunity to increase participation in urban policies, "many obstacles lie between the simple availability of data and the reality of using information to influence decisions (Sawicki & Craig 1996, p. 512)."

Key drivers in the evolution of PPGIS were the need to provide effective forms of public participation and empowerment, to aid the assessment of proposed public projects, assist in the development of alternative solutions, and empower traditionally marginalized groups (Craig, Harris & Weiner 2002; Dunn 2007; Obermeyer 1998). This was in response to critiques of early GIS that observed its organizational, technical and theoretical conditions were "largely white males employed in academic and governmental institutions in North America and Europe" (Sawicki & Craig 1996, p. 512). By integrating the cultural information of local knowledge with "expert" data, the conventional visualizations of GIS were augmented to include new mappings of place and the concept of participants was widened to include the public and marginalized groups (Jankowski 2009). These developments have resulted in PPGIS being used to develop community awareness, strengthen community institutions and promote transparency in decision making (Craig, Harris & Weiner 2002; Dunn 2007). To demonstrate the use of PPGIS in urban settings I will now briefly discuss the web-based tool Maptionnaire and its role in the Helsinki 2050 master plan.

### 2.3.1.1. Maptionnaire, map-based web-surveys to get ideas and insights from residents

Maptionnaire evolved out of the PPGIS landscape as a web-based participation tool to inform the urban planning process (Kahila 2008). Maptionnaire was developed in cooperation with urban planners as a means for both quantitative and qualitative data analysis, presented in a user-friendly internet platform (Kahila & Kyttä 2009; Kyttä & Kahila 2011). Maptionnaire enables the mapping of environmental experiences, daily behavioural practices, and localized knowledge and ideas for spatial development. The web-based tool allows users to create, publish and analyze map-based questionnaires, and visualize the outcomes on interactive maps (Kahila, Kyttä & Geerzman 2018). Maptionnaire facilitates the research and analysis of residents' experiential knowledge by combining web-surveys, GIS and quantitative techniques. In this way local knowledge becomes "spatially referenced personal knowledge (Rantanen & Kahila 2009)" that forms its own geographic

information (GI) data set. An example of Maptionnaire being used in the master planning process can be seen in the City of Helsinki.

The City of Helsinki began the planning process for its 2050 master plan in 2013 with a focus on increased urban density. Concerned about residents' attitudes toward densification, Helsinki's City Planning Department used a variety of public participation methods in the early planning stages such as seminars, workshops, displays at the City Planning Fair, surveys and meetings (Kahila-Tani et al. 2016). The Maptionnaire web-survey, designed in close collaboration with city planners, allowed residents to point out locations where the city should or shouldn't develop, and highlight inadequate or missing transportation connections (Maptionnaire 2018). In one month, the questionnaire saw 4,700 respondents map 33,000+ ideas, with significant input received from conventionally hard-to-reach demographic groups such as parents and youth. This PPGIS web-survey provided planners and decision-makers with a more detailed sense of the areas where new construction is generally accepted, those areas where it's not, and areas of divided opinion. An interactive map allowed urban planners to review the specific locations marked by participants, which informed workshop discussions and exhibitions. By creating interfaces that did not require GIS expertise, local residents were able to produce and evaluate insights not normally available in GI databases (Kahila 2008). In this way PPGIS works as an effective tool for multi-position discourse and collaboration, giving it a boundary object nature, which I will now discuss in more detail.

## 2.3.2. PPGIS as a boundary object

Boundary objects are an effective method for solving heterogeneous problems (Star & Griesemer 1989), and a way to manage tensions between divergent viewpoints (Bowker & Star 2000). A boundary object sits in the middle of a group of stakeholders and allows them to cooperate, even when they have different approaches to data gathering and analysis, or different goals and audiences to serve (Star 1998). Boundary objects allow heterogeneous actors to develop trust and form working relationships (Kimble, Grenier & Goglio-Primard 2010), even in the absence of consensus (Leigh Star 2010).

Boundary objects can be physical objects or visual representations, discourses, concepts, processes or technologies (Star & Griesemer 1989); however their key characteristics are that they help break down barriers between people with different worldviews and expertise, provide a common language, and level power differentials. PPGIS serve as boundary objects by providing a broad range of people with opportunities to engage with a planning issue without specialized knowledge, vocabulary or expertise.

The PPGIS methodology is concerned with supporting the structures of democratic society through the flow of information between different actors (Healey 1997). The local knowledge database created by PPGIS initiatives act as a bridge between residents, researchers and urban planners (Kahila & Kyttä 2009). The co-production of knowledge and its corresponding map visualizations (Cutts, White & Kinzig 2011) become forms of political empowerment (Elwood 2006) and can reveal competing value systems and power relations (Dunn 2007; Kwaku Kyem 2001). For example, PPGIS tools have been developed to assist in the controversial process of identifying sites for windfarms, which must factor in environmental, economic, and social concerns from a range of stakeholders. To help solve this complex planning problem and build consensus with the public, a study in Lake Erie developed a PPGIS platform to evaluate three wind farm alternatives using various evaluation criteria, which included public and stakeholder opinion (Mekonnen & Gorsevski 2015).

The development of PPGIS tools and their role as boundary objects can be discussed in terms of its three project stages: 1) design and development, 2) use, and 3) ex-post-evaluation (Kahila-Tani 2015):

1. In the PPGIS design and development stage, the collaboration of experts and policy makers is necessary to ensure that scientific knowledge is linked to beneficial public action (Cutts, White & Kinzig 2011; Kinzig & Starrett 2003; Sarewitz 2004). Given that urban design requires the intersection of distinct but interdependent areas of expertise (Adger 2003), boundary processes such as multi-stakeholder engagement workshops, participatory model development, and data integration and visualization are valuable to the PPGIS design process (Cutts, White & Kinzig 2011; Harvey & Chrisman 1998; White et al. 2010). PPGIS surveys are often developed in close collaboration with urban planners, with the primary motivation to gather and analyse local knowledge (Kahila & Kyttä 2009; Kyttä

& Kahila 2011), and to help decision makers understand local needs and environmental issues (Fischer 2000; Laurini 2002; Rantanen & Kahila 2009). For example, in Hawaii natural resource managers and researchers used PPGIS to gather local knowledge on the location and intensity of coastal human activities to develop priority sites for coral reef management (Levine & Feinholz 2015).

2. When using PPGIS tools, web-surveys and interactive maps act as the boundary objects between the varied opinions of residents and the project decision makers. PPGIS aids community participation in land-use planning by providing the opportunity for citizens to create maps that represent their spatial knowledge (Craig, Harris & Weiner 2002; Dunn 2007). This engagement helps to build community cohesion, raise awareness about land-related issues, and empower local communities (IFAD 2009; Obermeyer 1998). This can be seen in the PPGIS study conducted in Perlis, Malaysia, wherein place values and land use preferences were solicited from the public. Following the PGIS mapping exercise participants reported an increase in their knowledge of places, land use planning and their competency with Google maps (Zolkafli, Brown & Liu 2017).

3. The process of ex-post-evaluation of PPGIS tools and the data they gather functions as a boundary object for practitioners looking to emulate or improve upon existing mechanisms (Kahila-Tani 2015). This can be seen in Kahila, Kyttä and Geerzman's (2018) analysis of 203 urban and regional planning projects across the globe that used PPGIS. They found that PPGIS methods were applied mainly in the initiation and in the evaluation phases of urban and regional planning projects; urban planners were typically the initiators of PPGIS methods; when PPGIS data is produced by self-selected volunteers, significant issues with representativeness occur; and PPGIS data is not more influential than knowledge produced in traditional public participation processes.

The design, use and outputs of PPGIS tools provide opportunities for transdisciplinary and multi-stakeholder knowledge to be created, shared and discussed, which makes them suitable tools for urban green space planning.

### 2.3.3. The benefits and limitations of PPGIS in urban green space planning

Urban green space planning requires spatially detailed social valuation methods, which PPGIS can help to supply. PPGIS can help identify areas where there are conflicting ideas for land use, areas that are less valued and suitable for redesign, as well as identify spaces for protection. PPGIS can also help planners connect green spaces, integrate green spaces with other infrastructure, and enable collaborative, socially inclusive planning processes (Rall, Hansen & Pauleit 2019).

PPGIS is capable of integrating public knowledge, experiences, values and preferences into GIS to support collaborative spatial decision-making, and is known as a social valuation method (Brown & Fagerholm 2015). PPGIS is considered to be useful for the scoping and evaluation phases of planning processes, while more deliberative methods are often used in plan development and scenario assessment stages (Brown & Kyttä 2014).

Numerous PPGIS urban studies have been conducted in recent years on issues including urban happiness (Kyttä et al. 2016), environmental justice (Raymond et al. 2016), urban densification (Kahila-Tani et al. 2016), values of formal and informal green spaces (Pietrzyk-Kaszyńska, Czepkiewicz & Kronenberg 2017), physical activity in urban parks (Brown, Schebella & Weber 2014), residents' values for green open space (Ives et al. 2017), and children's behavioural patterns and access to meaningful places (Broberg, Salminen & Kyttä 2013; Kyttä, Broberg & Kahila 2012).

In the case of green space planning, while PPGIS results generally can't claim to be representative (Brown & Kyttä 2014), they can be used to gain a better understanding of user needs and perceptions, and to test the congruence of expert's green space assessments and user values (De Vreese et al. 2016). When used to engage more vulnerable and less socially mobile residents such as low-income, immigrant and elderly populations, PPGIS can help to adjust priorities and resource allocations for a city's green spaces, helping to increase environmental justice (Raymond et al. 2016). PPGIS can also help to gather social data that can inform more balanced, integrated planning perspectives (Rall, Hansen & Pauleit 2019).

Regarding the representativeness and validity of PPGIS data, researchers have raised concerns about respondent sampling, data quality, and intended use and limited influence within plan development (Brown & Kyttä 2014). However, it should be noted that these concerns exist for surveys in general (Rall, Hansen & Pauleit 2019).

Traditional approaches to gather planning information can be helpful for certain socio-perceptual information, however all have their limitations. For example, satisfaction surveys are not site-specific; audits usually do not assess quality and may neglect views of different population groups; site-specific surveys are prohibitively expensive to conduct citywide; and traditional forums usually represent a narrow (i.e., older and more well-established) segment of the population (Kyttä et al. 2013; Rall, Hansen & Pauleit 2019).

While PPGIS in theory can be highly democratic, previous PPGIS studies have reported response bias towards better-educated, higher-income respondents (Brown & Kyttä 2014). To achieve broad representativeness, PPGIS requires sound design as well as commitment to empowerment, trust and equity in citizen participation (Reed 2008) For PPGIS to aid social inclusion, efforts must be made to gather a sufficient number of responses from a range of population groups, such as those with limited computer literacy (Gottwald, Laatikainen & Kyttä 2016).

Ultimately, PPGIS should be considered a complementary tool to other means of community engagement in green space planning, and as part of a comprehensive participation strategy (Rall, Hansen & Pauleit 2019). PPGIS cannot substitute deliberative methods for public participation, especially those where debate over planning alternatives is necessary (Kenter et al. 2016; Raymond et al. 2014).

### 2.3.4. PPGIS as a tool for deliberative democracy

As discussed in Section 2.3., democratic deliberative processes aim to be authentic, inclusive and consequential. This section assesses the contribution that PPGIS can make towards these aims.

### 2.3.4.1. Authenticity: engaging the community for the improvement of public spaces

To be authentic, deliberation should encourage reflection upon preferences in a non-coercive manner, and help communicate ideas to those who have different viewpoints (Dryzek 2012). Effective public participation requires more than innovative technology, and for advocates of bottom-up planning, the best outcomes from the use of PPGIS are when it is combined with discourse (Brown & Kyttä 2014). By providing opportunities for discourse and collaboration, rather than just data collection, PPGIS tools can provide the foundation for interpersonal engagement and discourse in the planning process.

As discussed above, PPGIS acts as a boundary object that helps people with different perspectives to engage, and in this way PPGIS helps authentic deliberation. By providing a means for participants to interact and contribute ideas to a project map, PPGIS activities can deliver insights which prompt reflection on preferences, further fostering authentic deliberation for urban planning decisions.

It should be noted that in any PPGIS initiative the conveners, and those who hold large amounts of power, are more likely to have their interests and solutions explored (Cutts, White & Kinzig 2011).  This runs the risk of participation outcomes not favouring marginalized and affected groups (Aitken & Michel 1995), and that recognition through mapping (McCall & Minang 2005) may result in these groups being easier to identify and control (Abbot et al. 1998). Given the challenges of engaging all interests and groups with any planning practice a variety of participation tools are needed (Staffans & Horelli 2014). Greater systematic and strategic thinking is also needed to avoid participation being dominated by those who are willing and able to engage, so as to produce more effective and fair planning process (Kahila, Kyttä & Geerzman 2018). While participatory processes can unwittingly exclude those that don't have the capacity to proactively engage, facilitated PPGIS can equalize the playing field, allowing for more authentic discussion across boundaries.

### 2.3.4.2. Consequential: community engagement that impacts urban planning

Consequentialness represents the largest gap in the PPGIS literature, as it is hard to prove how PPGIS impacts urban planning, given its numerous project phases and considerable timelines. Despite an increase in PPGIS studies, there is still little evidence

that PPGIS has influenced specific urban land use or planning decisions (Brown & Kyttä 2014). This is also a gap for deliberative democracy in general, so PPGIS is not alone in its struggle to be consequential.

A recent study examining the work of eight Finnish and Polish urban planners who used PPGIS to elicit public preferences on proposed land use changes found that PPGIS data influenced final planning documents by identifying areas important to residents for their function use and perceived value, and areas regarded as unpleasant or threatening (Jankowski et al. 2021). The study also highlighted that using PPGIS proved beneficial to the planners' process, as collecting data in a geo-spatial format eliminated the task of transferring written information onto maps, and also helped planners communicate with stakeholders. In some cases, collected PPGIS data was also used at public meetings to generate dialogue with participants. However, while PPGIS data can be useful to spark dialogue, the study found that PPGIS methods weren't particularly suitable for resolving conflicting issues in planning processes. Nevertheless, some planners pointed out that PPGIS data provides a wider and more balanced perspective on divergent interests and concerns, thus helping to identify the most controversial areas requiring further communication and interaction between planners and citizens. While contradictory views and preferences present in PPGIS data were found to be problematic, the ability to explicitly quantify the proportion of views for or against a proposed land use was seen as an asset, "otherwise, one could just say that there were voices in favour and against, and here it was more tangible (Jankowski et al. 2021, p. 10)"

In general, a lack of effective public participation in urban planning has resulted from inadequate resources (Kahila & Kyttä 2009), resistance from planners, inefficiency and an ignorance of its benefits to decision-making (Brown & Kyttä 2014). While PPGIS has been used to engage stakeholders, most public agencies and municipal governments still utilize top-down planning methods. For PPGIS to be effective, existing power structures need to embrace the idea that the public have valuable knowledge and experiences, beyond mass opinion, that can significantly contribute to the decision making process (Brown & Kyttä 2014). However, PPGIS has been demonstrated to impact decision making and planning for natural resource management. In work done by the International Fund for Agricultural Development (IFAD) participatory maps play an important role in helping marginalized

groups, such as the indigenous, pastoralist and forest dwellers, gain legal recognition of customary land rights (IFAD 2009).

### 2.3.4.3. Inclusive: giving a voice to the marginalized

PPGIS can help different kinds of people contribute different insights, experiences, values and ideas. One advantage of PPGIS web-surveys is the ability to provide multi-language translations, making it easier to reach immigrants and minority populations who are often underrepresented in traditional public participation processes. It should be noted that to create inclusive community engagement PPGIS web surveys must be complemented with other engagement strategies (Kahila, Kyttä & Geerzman 2018).

PPGIS supports inclusive communication by helping planners understand the breadth of landscape values and concerns of a given project. Inclusivity in PPGIS initiatives can be bolstered by recruiting participants through stratified random sampling to gather community input in a representative manner. This approach is often taken by PPGIS household surveys seeking input from a representative regional population (Brown et al. 2014), with the quality of PPGIS data determined by the design of population sampling and participation rates (Brown & Kyttä 2014). PPGIS household surveys have been used for forest planning (e.g. Brown, Kelly & Whitall 2014; Brown & Donovan 2013), park planning (e.g. Brown & Weber 2011), and regional planning for tourism, conservation, and development (e.g. Brown & Weber 2013; Pocewicz & Nielsen-Pincus 2013), although it should be noted that household surveys of all formats have experienced declining response rates (Curtin, Presser & Singer 2005; De Heer & De Leeuw 2002). For this reason, future research for increasing PPGIS participation is similar to the research needs to increase survey response in general (Brown & Kyttä 2014). There has, however, been an increased use of PPGIS in public meetings, workshops, and other in-person data collection processes (Brown et al. 2014). PPGIS maps have been used in planning workshops to communicate spatial information to stakeholders, assist in the analysis of spatial decision alternatives, as well serve as an input mechanism for community comments (Arciniegas & Janssen 2012). However, PPGIS is not the only form of digital participation available to democratic practitioners, so I will now briefly discuss why it was chosen as the platform of choice.

## 2.3.5. Digital participatory platforms and the benefits of PPGIS

PPGIS web-surveys are one form of digital participatory platform used to facilitate co-production between citizens and governments it the context of urban planning. Falco and Kleinhans (2019) identified 113 of these platforms which they classified into three levels of engagement, i.e. information sharing, interaction, self-organizing, and co-production based on increasing degrees of interaction, PPGIS being in the latter category.

'Information sharing' platforms facilitate one-way communication between governments and citizens, in which governments equip citizens with data needed to make informed decisions or gather information to design policies/services, e.g. online surveys, platforms for the submission of ideas and comments, and voting tools (Linders 2012). Platforms that aid 'interaction' are those in which two-way communication and dialogue between citizens and government representatives takes place (McMillan 2002). 'Self-organizing' platforms help citizens to create solutions independently, which are to be recognised, facilitated or adopted by governments, requiring some government action (Falco & Kleinhans 2019).

Platforms used for 'co-production' go beyond basic information exchange and encourage the public sector and citizens to make better use of each other's assets and resources, to achieve better outcomes and improve efficiency of service delivery or policy measures (Bovaird & Loeffler 2012). Co-production allows citizens to identify, discuss problems, and propose solutions, concepts and practices through methods such as PPGIS, collaborative mapping, volunteered geographic information (VGI), and crowdsourcing (Brown & Kyttä 2014; Goodchild 2007; Silva 2013).

For my research, and its participatory design framework, I wanted to use a co-production platform with a user-friendly interface that was readily available to not-for-profit organizations like NYRP. This was to reduce barriers to organizational uptake, and provide an accessible means for residents to partake in local green-space projects.

A fundamental feature of co-production platforms is the spatial map-based visualization of projects that allow citizens to comment upon, design and co-produce alternatives. The map-based and geo-visualization tools of PPGIS help participants to be better informed on the spatial and environmental factors of a planning project, which can facilitate the

discussion and solutions of problems. PPGIS tools are able to increase the understanding of the issues at stake, feasibility of solutions, and the spatial relationship between different elements (Marzouki et al. 2017). PPGIS also provides analytics capabilities (e.g. number of votes, ideas, or participants), which is the main feature that distinguishes co-production platforms for engagement purposes. Notable examples of platforms with a user-friendly map-based interface are Maptionnaire, Commonplace, Transformcity, and Bang the Table. However, these platforms require a subscription fee and do not share their code base for developers to customise or augment. To ensure that any of my work was freely available I wanted to utilize existing open source software whenever possible, and for this reason partnered with the open-sourced platform Mapseed.org (see section 5.3.2.2.). This follows in the footsteps of other open source community engagement platforms such as Crowdgauge*, Crowdmap*, Map Server, Shareabouts, which provide opportunities for citizen groups and governments to collaborate with reduced technology costs (Falco & Kleinhans 2019).

## 2.3.5.1. Why I co-designed a PPGIS prototype with NYRP

As discussed above, digital platforms already exist that can be used in deliberative democracy initiatives. What makes the NYRP PPGIS prototype different are a combination of features and the use of bespoke data sets. The Village Vanguard prototype allows NYRP to create, curate, layer and present geo-spatial datasets to participants to inform discussion; present geo-spatial data sets that highlight climate change risks and impacts, e.g. hurricane flood zones and heat wave temperatures in NYC; provides a public facing comments dashboard that allows non-participants to quickly review and understand prevailing community concerns, in real-time, to promote accountability and transparency; and is designed to be used in workshops as well as for mass web-surveys, e.g. to aid workshops submitted comments can be "pinned" to the top of category lists by facilitators with administrator access, to aid consensus building (see Chapter 5).

My work with NYRP had a primary focus on increasing the inclusivity of PPGIS web-surveys through participatory design practices, which I will now discuss.

# 2.4. Participatory design for the development and use of PPGIS

A primary focus of my research is to develop PPGIS tools that can be used to support decision-making in NYC's green space governance. A promising way to implement this was to work with a NYC organization that is part of this governance system to develop a user-friendly PPGIS prototype.  In keeping with the principles of deliberative democracy established in Section 2.3., and the participatory goals of PPGIS (Section 2.4.4.), it logically followed to adopt a participatory approach to the design of a PPGIS tool. As such, this section discusses participatory design as a guiding framework to co-design a PPGIS application.

### 2.4.1. What is participatory design?

Participatory design is a research methodology with a political-ethical focus to help users make their own design decisions, and to help employees shape their work processes. To achieve this participatory design emphasizes co-research and co-design, wherein researcher/designers iteratively develop ideas in partnership with users/employees, a process that allows incremental design assessment and changes (Spinuzzi 2005). User participation in design and the workplace has numerous benefits, including improving the knowledge on which systems are built, helping to develop realistic expectations, reducing resistance to change, and increasing workplace democracy by including employees in decisions that are likely to affect their work (Bjørn-Andersen & Hedberg 1977).

One goal of participatory design is to preserve tacit knowledge, the invisible and unspoken aspects of human activity (Gregory 2003; Reber 1989), so that technologies can fit into the existing web of workflows and tools rather than doing away with them (Leonard & Sensiper 1998). Tacit knowledge is not quantifiable and is often undervalued because the complexity and interconnectedness of its associated work is not recognized (Eraut 2000).

When looking at human environments, participatory design is based on the principle that these environments work better if local communities are actively involved in their creation and management, rather than being treated as passive consumers. The collaborative problem solving of participatory design can empower communities to effect social change by influencing the knowledge produced through their participation (Sanoff 2008; Whyte 1991).

### 2.4.1.1. Origins of participatory design

Participatory design evolved from action research, which sets out to generate knowledge that is both valid and vital to the well-being of individuals, communities, and for the promotion of larger-scale democratic social change, "…only through action is legitimate understanding possible; theory without practice is not theory but speculation (Bradbury-Huang 2010, p. 93)." Action research rejects the positivistic view that credible research must be objective and value-free, instead embracing an explicitly political, socially engaged, and democratic practice that views knowledge as socially constructed and embedded within a system of values (Brydon-Miller, Greenwood & Maguire 2003). Action research respects the knowledge and experiences people bring to the research process and believes democratic research processes can, and should, achieve positive social change (Brydon-Miller, Greenwood & Maguire 2003).

The work of Kurt Lewin, the founder of action research, demonstrated that democratic participation in work places and neighbourhood settings saw greater gains in productivity and law and order than autocratic coercion. Lewin and his associates demonstrated that through participatory discussion, decision, action, evaluation and revision work became meaningful and alienation was reduced (Marrow 1977). Lewin's observations and belief in democratic rather than autocratic workplaces can be seen in an experiment he and Alec Barvelas ran at the Harwood pyjama factory in Virginia in the 1930s (Adelman 1993). The newly opened factory was finding it difficult to recruit skilled workers. After 12 weeks of training, 300 new unskilled employees were producing half as much as similar factories, and morale was low. For their experiment, Lewin and Barvelas took part of this new workforce and divided it into two groups. The first received direct didactic training with little opportunity to raise questions. The second group was encouraged to discuss and decide on the division of tasks, and invited to comment on training. Over several months the

productivity of the second group was consistently higher than that of the first; they learnt tasks faster and their morale was high, whereas the first group's morale and productivity remained low.

In action research, ethnographic methods are linked to positive change for the research participants (Glesne 2015):

> Unlike conventional research, which is directed primarily at producing results of interest to those beyond the immediate research site, an essential goal of action research is to achieve practical or political improvements in the participants' lives (e.g., less routine work, greater autonomy, more effective tools). The researcher becomes directly involved in the ongoing work and feeds results back to the participants (Clement & Van den Besselaar 1993, p. 33).

My research uses participatory design to improve the workflows of NYRP's community enagement processes, through the co-design of a PPGIS prototype. Interestingly, co-design of software was one of the original focuses of participatory design.

## 2.4.1.2. Participatory design in early software development

Early Scandinavian work in participatory design formed partnerships with labour unions to allow workers to determine the shape and scope of new computing technologies introduced into the workplace. At this time, labour unions had little experience with computers and had been forced to accept systems developed by management that broke away from traditional ways of working and automated large amounts workflow (Ehn 1988; Zuboff 1988). Informed by action research, Scandinavian researchers developed an approach that allowed software developers and workers to collaboratively develop and refine new technologies (Ehn & Kyng 1992). From 1981-1986, the Swedish project known as UTOPIA—a Swedish acronym for Training, Technology, and Products from a Quality of Work Perspective—was known for its emphasis on quality of work, training, participation and skills as well as in technology design (Bjerknes et al. 1987; Ehn 1988; Schuler & Namioka 1993). For this project researchers joined with a workers' union to experiment with a range of research techniques, including mock-ups, low-fidelity prototypes, and future workshops (Gregory 2003), which later became the foundations of human-centred design and design thinking. The goal was to develop powerful skill enhancing tools for

graphic workers with emerging graphic workstation technology.

I will now explain how the frameworks, methodologies and methods discussed in this literature have been used for the design and strategy of my research.

# 3. Research Design

My research takes place in NYC, a major metropolis already negatively impacted by climate change (Depietri & McPhearson 2018) and already engaging in climate adaptation and mitigation strategies (NYC 2007, 2015). NYC is also facing an array of urban governance challenges. These include economic inequality (Berube 2018), homelessness (Culhane 2008), food insecurity (Beaulac, Kristjansson & Cummins 2009) and gentrification (Stabrowski 2015). These issues are further impacted by NYC's low voter turn-out. In 2017, only 12% of eligible voters participated in the mayoral primary, and only 57% participated in the 2016 national election (Morales-Doyle & Lee 2018). For this reason, strengthening community participation in NYC's decision-making processes is crucial to help improve urban governance and adapt to climate change.

However, community engagement processes can be time and resource consuming for decision makers, and many government agencies opt for "rubber stamping" mechanisms rather than meaningful engagement (Arnstein 1969; Bartholomew 2007; Corburn 2007; Depoe, Delicath & Elsenbeer 2004; Rosener 1982). My research sets out to understand the challenges NYC organizations face when engaging the community in the design of green spaces, and to understand what challenges green space advocates experience when dealing with NYC's formal community engagement mechanisms. I will now detail my research strategy to achieve this.

# 3.1. Research goals

My research has two primary goals: 1) explore how PPGIS can facilitate and increase community engagement in the design of NYC parks and community gardens, and 2) identify how NYC's formal community engagement mechanisms could be made more inclusive and accountable to green space advocates.

I will now walk through the research questions, theoretical perspectives, methodology, methods and analysis for these research goals (see Table 1).

Table 1 Research Design

| | | |
|---|---|---|
| **Research Goals** | Use PPGIS to make community engagement processes easier for urban green-space planners | Identify how NYC green space governance could be made more inclusive and accountable to green space advocates |
| **Research Areas** | PPGIS Research | NYC Green Space Governance Research |
| **Research Questions** | 1. How can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?<br><br>2. How can participatory design of PPGIS help increase community engagement in green-space planning decisions? | 3. What can be learned from successful advocacy campaigns for NYC parks and community gardens?<br><br>4. What deliberative systemic impacts do NYC's formal community engagement mechanism have?<br><br>5. What strategies from international democratic initiatives could make NYC's formal community engagement mechanisms more deliberative? |
| **Theoretical Perspective** | Deliberative democracy | Deliberative systems |
| **Methodology** | Participatory design | Case study |
| **Methods** | - Semi-structured interviews<br>- Document analysis<br>- PPGIS prototype | - Semi-structured interviews<br>- Document analysis<br>- Desk research |
| **Analysis** | PPGIS prototype feedback | Narrative analysis |

# 3.2. Research questions

As discussed in Section 1.3., meaningful community engagement is important to mitigate the exclusionary outcomes of green gentrification, and to ensure that marginalized and low-income residents have a say in the creation of equitable and sustainable urban green spaces. However, many green space initiatives still follow a top-down and expert-driven process of site selection and design, and up until recently, community influence on NYC green-space preservation and development has been a result of residents organizing themselves to negotiate with or fight against the city. In terms of government mechanisms designed for community participation in green space planning decisions, these face challenges of funding, representation and accountability. The discussion in Section 1.5. indicated that PPGIS has the potential to improve community engagement in decisions about urban planning. However, the specific value of PPGIS for community green-space advocates in the governance context of NYC remains unclear. This, combined with my work with NYRP has led me to ask:

1. How can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?

Section 1.5. also raised some of the challenges that PPGIS focus groups and PPGIS surveys face when creating scalable and accessible mechanisms for community engagement. To address some of these issues and make recommendations for green space stewards and advocates looking to use PPGIS I will answer the following question:

2. How can participatory design of PPGIS help increase community engagement in green-space planning decisions?

My third, fourth and fifth research questions relate to my second research goal, i.e. identifying how NYC's formal community engagement mechanisms could be made more inclusive and accountable to green space advocates. As discussed briefly in Section 1.6, NYRP's attempts to access the awarded funds for the Haven Project master plan were

unsuccessful (see details in Sections 7.4 and 9.2). To help future NYRP efforts and understand what strategies have proven successful for green-space advocates in NYC, my third research question is:

3. What can be learned from successful advocacy campaigns for NYC parks and community gardens?

Given NYC government's lack of transparency and accountability in regards to NYRP's awarded project funds, and as part of my overarching goal to improve urban governance with guidance from deliberative democracy principles, my fourth research question is:

4. What deliberative systemic impacts do NYC's formal community engagement mechanism have?

Finally, to make recommendations for NYC's green space governance from successful democratic initiatives, my fifth research question is:

5. What strategies from international democratic initiatives could make NYC's formal community engagement mechanisms more deliberative?

Both my research goals and my research questions draw on the theoretical perspective of deliberative democracy and the related theoretical perspective of deliberative systems, which I'll now explain in more detail.

# 3.3. Theoretical Perspective

I have chosen deliberative democracy as my primary theoretical perspective as it aligns with my research goals of improving community engagement in urban policy, and making green space governance more inclusive and accountable. Working with a NYC organization already collaborating with communities for green space planning projects, my research examines how their engagement processes could be assisted through PPGIS technology, guided by the goals of deliberative democracy. I am also using deliberative systems, referred to in Section 2.3.1. as the fourth generation of deliberative democracy, to assess NYC green space governance in terms of its formal community engagement mechanisms.

With a focus on NYRP's Haven Project, and contextualized by two other NYC green-space initiatives, I draw on a sub-set of Stevenson and Dryzek's (2014) deliberative system components for my analysis. I will examine NYRP's engagement in public and empowered space, and the transmissions between these spaces, as part of a deliberative system. The Haven Project, and the bureaucratic mishap impacting its funding, provides an opportunity to also examine the accountability of the empowered space in this potential deliberative system. Of particular interest are 1) The accountability of the NYC Mayor's Office and its agencies, and 2) The opportunities that NYRP, and the community it represents, have to weigh in and participate in decisions regarding their local green spaces.

The deliberative system components of the private sphere, meta-deliberation and decisiveness are outside the scope of my research, as I did not gain access to the private conversations of the actors that appear in my case study, and due to time constraints was not able to capture if the governance system assessed was able to improve itself or arrive at meaningful collective outcomes.

### 3.3.1. Acknowledging the difficulties of evaluating deliberative systems

Instead of striving to democratise every institution of decision, the deliberative systems approach focuses on trying to understand how different institutions interact, and which institutions and interactions have the most chance of increasing the deliberative capacity of the system as a whole (Burall 2015; Chambers 2012). The concept of deliberative systems brings with it potential problems and raises several questions (Elstub, Ercan & Mendonça 2016). Recent scholarly debates have focused on the relationship between the parts and the whole of the deliberative system (Owen & Smith 2015), institutionalization (Escobar 2017), and the difficulties related to its empirical analysis (Ercan, Hendriks & Boswell 2017).

> The new systemic account is proving harder to get to grips with empirically. Deliberative democratic qualities are not so readily identifiable nor reliably measured in a systemic sense. They are distributed across settings and over time, coming and going in ways that can be opaque and unpredictable, and that are not always clear in advance of in-depth research (Boswell & Corbett 2017, p. 801).

Deliberative systems are difficult to evaluate compared to single deliberative democracy events or projects because they don't have defined organizational or temporal boundaries (Boswell & Corbett 2017), and their contributing elements may not be deliberative at all (Chambers 2012; Mansbridge et al. 2012a).

The institutions evaluated in this thesis do not embody principles of deliberative democracy to a great extent, however, this does not preclude these mechanisms from contributing to a deliberative system. To be relevant to a deliberative system, NYC's formal community engagement mechanisms must be consequential in a deliberation-enhancing sense (Curato & Böker 2016). This is derived from the view that deliberative systems are first and foremost about democratic legitimacy (Niemeyer & Jennstål 2016), which from a deliberative perspective consists in political outcomes receiving "reflective assent through participation in authentic deliberation by all those subject to the decision in question (Dryzek 2011, p. 23)."

Through my research and analysis, I will make recommendations to help enhance the potential systemic deliberative impacts of NYC's community engagement mechanisms.

Given my focus on community engagement in green space planning decisions, and the scope of my research, these recommendations are limited to the formal community engagement mechanisms made available by NYC government.

# 3.4. Research methodology

To address my research goals, I have used the participatory design methodology to co-design a PPGIS prototype, and develop a comparative case study to explore how NYC formal community engagement mechanisms could be made more inclusive and accountable to green space advocates.

### 3.4.1. Core attributes of the participatory design methodology

The participatory design methodology requires researchers to work with practitioners to generate knowledge, effect desired change, and empower stakeholders (Bradbury-Huang 2010). The basic values which underlie the practices of participatory design are: a respect for people and the knowledge they contribute to the research process; a belief in the ability of democratic processes to achieve positive social change; and a commitment to action (Brydon-Miller, Greenwood & Maguire 2003; Kasl & Yorks 2002). Spinuzzi was one of the first academics to discuss participatory design as a research methodology, and characterised it as a way to understand 'knowledge by doing'. The three basic stages of participatory design research that Spinuzzi (2005) outlines are:

1. The initial exploration of work, when designers familiarize themselves with the ways in which the end users work
2. Discovery processes, which allow designers and end users to prioritize work flows and envision the future ones
3. Prototyping, that allows designers and end users to iteratively shape technological solutions, so as to move towards the envisioned future workflows

Participatory design is consistent with the goals of deliberative democracy and PPGIS research. As discussed in Section 2.3, deliberative democracy strives for dialogue that is authentic, inclusive and consequential, which aligns with the goals of participatory design. Participatory design seeks authentic dialogue, that which is truthful, respectful, and seeks

the greater good (Brydon-Miller, Greenwood & Maguire 2003; Kasl & Yorks 2002), to encourage the sharing of ideas, concerns and recommendations of end users to improve design solutions and work practices (Bradbury-Huang 2010). Participatory design is inclusive by nature, and like deliberative democracy sets out to include multiple voices, interests and concerns in decision making, especially of those who are directly affected by the outcomes of those decisions (Sanoff 2008). Finally, participatory design is consequential, requiring researchers to work with practitioners to generate knowledge, effect desired change and empower stakeholders (Bradbury-Huang 2010).

Participatory design can be used in PPGIS projects in several ways. In the design and development stages of a PPGIS mechanism, collaboration of experts and decision makers is necessary to ensure that scientific knowledge is linked to beneficial public action (Cutts, White & Kinzig 2011; Kinzig & Starrett 2003; Sarewitz 2004). PPGIS surveys are often developed in close collaboration with urban planners, whose primary motivation is to gather and analyse local knowledge (Kahila & Kyttä 2009; Kyttä & Kahila 2011), and to help decision makers understand local needs and environmental issues (Fischer 2000; Laurini 2002; Rantanen & Kahila 2009).

PPGIS can also be used as a tool in participatory design research to help inform and document discussions in geo-spatial terms (Lieske 2015), and help in exploring alternative viewpoints and solutions (Brown et al. 2014; Crossland, Wynne & Perkins 1995; Keenan 2006)—more on this in Chapter 5.

In regards to my research, effectively engaging with the participatory design methodology to develop PPGIS tools required a research partner. My goal was to co-design and develop a minimal viable product to assist community engagement in NYC urban green-space planning. A minimum viable product (MVP) is a product with the bare essential features to satisfy early users, and provides feedback to inform future development (Moogk 2012; Ries 2011). I asked NYRP to be my research partner to gain an understanding of the community engagement challenges green-space advocates face in NYC. I wanted to work with an organization with experience designing public green spaces, had an established relationship with NYC government and wanted to improve their community engagement processes. Together we designed, implemented and tested a PPGIS prototype to support their community garden design processes (see Chapter 5).

### 3.4.2. Developing a comparative case study

To gain an understanding of the challenges green space advocates face when dealing with city governments, and specifically to find out what went wrong for NYRP's Haven Project, I wanted to take a deep dive into NYC's green space governance through the lens of NYRP. By identifying what NYRP could have done differently, as well as identifying the limitations of NYC formal community engagement mechanisms, I have been able to make recommendations on the organizational level (see Chapter 7) and the City level (see Chapter 9).

To do this, I developed a case study (Yin 2013) with two analytical levels: 1) the organizational, focusing on NYRP's community engagement in the South Bronx for the Haven Project, and 2) the institutional, understanding the formal engagement mechanisms available to NYRP. Within the organizational level of analysis, I nested a comparative case study approach to synthesise the differences and patterns across two other cases that share a common focus, i.e. green space advocacy in NYC. These comparative cases are the successful community-driven campaigns for the High Line Park and Bushwick Inlet Park. Comparative analysis was used here to produce knowledge that made it is easier to generalize about why NYRP's Haven Project campaign failed, and to generalize what strategies could help future green space advocates.

I developed my analysis through a framework lens of deliberative democracy to understand how the work of NYRP strengthens deliberation within their community, and to examine how the ideas formed through this deliberation are transmitted to decision makers, and the accountability and transparency of these decision makers.

# 3.5. Methods

To answer my research questions, I needed to gather evidence to determine how a PPGIS tool could help NYRP's community engagement processes, and to identify where NYC's formal community engagement mechansisms were lacking inclusivity and accountability. The primary methods I used for this were semi-structured interviews, PPGIS prototyping, documents and desk research (see Figure 3 for sequence of methods used).



Figure 3 Sequence of methods used

My interviews took place over four research phases: scoping interviews, NYRP stakeholder interviews, PPGIS prototype feedback and case study interviews (see Appendix 1 for list of interviewees). My interviews took place either in person at the interviewees' workplace, or over video call. This, alongside the use of my recording devices, made for a formal but not uncomfortable setting. When interviews were done in person, I typically sat across from my interview subject at a table, which allowed me to take notes on a laptop. Interviews ranged from 30-60 minutes.

The core contribution to my research data comes from semi-structured interviews. My fieldwork has taken place over 5 years and more than 50 interviews, which were generally 30-60 minutes long (see Appendix 2 for sample questions of semi-structured interviews). From these I learned of the community engagement challenges facing a range of organizations, the history and workflows of NYRP, and the evolution of the Haven Project, Bushwick Inlet Park and the High Line. These interviews were also my primary vehicle to

gather feedback from NYRP on the PPGIS prototype, and discuss democratic innovations with government representatives to develop recommendations for NYC's green-space community engagement mechanisms.

To best answer my research questions, I targeted the following people for my sample:

- Urban design and community engagement experts for initial research and to inform the design of the PPGIS prototype
- NYRP staff from the community engagement, government affairs, design and capital teams to inform me on their organizational processes and pain points, as well as to find out about the history of the organization and dive deeper into the Haven Project
- Community members who had taken part in NYRP garden design processes, and who had used our PPGIS prototype, to learn how to improve these processes
- Representatives from other NYC community-driven green-space projects, to identify common themes and challenges when dealing with NYC government
- Representatives from NYC government, to gain their perspective on why NYRP's Haven Project failed and discuss the strengths and weaknesses of community engagement in NYC

For each of the above criteria I had different sample sizes, ranging from eight to 19, as a result of time and access constraints—see Appendix 1 for a detailed list of interviews undertaken. While for certain categories my sample size was small, themes could still be developed and data overload was avoided, which allowed individuals within the sample to have defined identities rather than becoming an anonymous contributor to a large data set (Robinson & Smith 2010). My interview data does exhibit some geographical homogeneity because many of the interviewees resided in NYC, although for my scoping interviews and PPGIS prototype feedback I spoke to several people in Melbourne, Paris and Sydney.

To ensure that sampling for my research was done ethically and sensitively, all potential interviewees were provided with an information sheet and consent form that outlined the aims of my research, what participation entailed, its voluntary nature, and that anonymity could optionally be protected, so they could arrive at an informed consensual decision to participate. I acknowledge that self-selection bias is an aspect of voluntary participation,

and that individuals who consent to be involved in interviews may be different to those who don't (Costigan & Cox 2001). However, it was possible to corroborate the information I captured from my interviews through other data sources, and this did not negatively impact the analysis approach I took to my interview data.

My data consists of recorded and transcribed semi-structured interviews, documents (a mix of private and public), photographs and audio recordings from public panels. To analyse my data, I am taking a narrative analysis style to describe the comparative cases through a sequence of events, although my interview questions were not structured to solely elicit narratives (Labov 1972; Wiles, Rosenberg & Kearns 2005).

# 3.6. Analysis

My analysis includes reporting fieldwork procedures, comparing my case with known cases to identify patterns, evaluate information and contextualize it within a broader analytic framework, and make recommendations as a result.

My NYRP semi-structured stakeholder interviews culminated in a PPGIS prototyping phase. Prototyping involves designers and users iteratively shaping technological artefacts to fit into the envisioned solutions arrived at through interviews and design reviews. Prototyping can be conducted on site or in a lab, involves one or more users and can be conducted on-the-job if using a working prototype. This stage is often iterated several times to provide for co-exploration by designers and users. Methods include mock ups, paper prototyping and cooperative prototyping. For design workshops with NYRP, mock ups of the PPGIS prototype were reviewed several times, each time with feedback integrated, to arrive at an approved approach.

The prototype co-designed with NYRP—named Village Vanguard—was selected as one of 10 projects to be developed with teams of seven collaborators over a two-week period at the MediaLab-Prado, Madrid, in November 2017. The details of this workshop are documented in Chapter 5, and the outcome was that the team successfully created a minimal viable product of the prototype which was used by NYRP for three community garden redesign projects in NYC.

To assess the PPGIS prototype I conducted semi-structured post-mortem interviews with NYRP community engagement staff as well as community members that used the prototype in community meetings for garden redesign projects. This feedback was incorporated in the second design iteration of the prototype, to be collaboratively built in the future. This was done to adhere to the evaluation criteria of the participatory design framework, i.e. improving the life of users, enabling collaborative development and developing an iterative project process (Spinuzzi 2005).

To analyse and present the semi-structured interview data for my case study I used narrative analysis, which helps researchers understand how people evaluate places, experiences and situations. It is generally agreed among researchers that narratives present information in sequences of connected events that are linked by some sort of thematic or temporal qualities (Labov 1972; Wiles, Rosenberg & Kearns 2005). Narratives are also seen to contribute to how people learn about, explain and organize experiences (Bruner 1990; Cortazzi 2014).

In narrative analysis stories are used to describe human action. However, in my case the protagonist is an organization, not an individual (Polkinghorne 1995). Narrative analysis helps to inform the conduct, interpretation and presentation of interview research. It also helps researchers to incorporate research participants' own evaluations, and helps to connect the details of participants' experiences to broader social, political and spatial relations (Wiles, Rosenberg & Kearns 2005). Narrative analysis addresses the challenge of interpreting layers of meaning in interview data and reveals connections among them (Schwandt 1997). Semi-structured interviews lend themselves well to narrative analysis, as they allow people to tell their stories more fluidly, and thus for interviews to travel to unexpected places (Creswell 2013).

Polkinghorne (1995) describes two primary forms of narrative analysis: the paradigmatic-type, which uses stories to identify common elements, producing taxonomies and categories; and the narrative-type, which uses events and happenings to produce an overarching explanatory story. I used both of these narrative-analysis approaches in my research to unearth interview themes and to stitch together a timeline and overarching story.

Narrative analysis aligns with my research methodologies of participatory design and deliberative democracy as it requires critical reflection and self-reflection by researchers and research participants (Paschen & Ison 2014) and generates authentic communication, i.e. communication "in which one is free to speak for oneself, not in the name of absent others, not under pressure to say things one does not believe in, and not having to hide something for fear of being reprimanded or excluded from further conversation (Krippendorff 2010, p. 141)."

In terms of urban climate-change adaptation and governance, narrative research offers a holistic approach to understanding socio-ecological systems, and can assist in the participatory design of local adaptation policies (Paschen & Ison 2014), as it helps to inform public engagement, deliberation and learning strategies (Frank, Eakin & López-Carr 2011; Henwood et al. 2011; Norris et al. 2008).

I used narrative research to thread together the story of the Haven Project and the challenges NYRP faced during their advocacy campaign through multiple interviews with NYRP staff members, complemented by desk and document research. As a NYC non-native, to gain an understanding of the social and political landscape surrounding the Haven project my interviews were semi-structured, as I didn't know what I didn't know. As part of my interviewing coding process, I used narrative research to piece together a timeline, as well as to identify themes revealed in the interviews.

To inform and complement the information and themes that arose through transcribing and analysing my interview data I used document research. These documents included memorandums created by NYRP for the NYC Mayor's Office, the Haven Project master plan, newspaper and magazine articles. These documents helped to develop a timeline of events, identify different actors and perspectives, and get a sense of the level of public awareness of various green space advocacy campaigns in NYC.

I compared the Haven Project case study against the successful green space advocacy campaigns of the High Line and Bushwick Inlet Park, and identified patterns across all three campaigns. From this analysis, I was able to make recommendations for future green space advocates looking to gain the support of city government (see Section 7.5).

Guided by the frameworks of deliberative democracy and deliberative systems I was able to evaluate information on NYC formal community engagement mechanisms (see Section 8.1), and make policy recommendations as a result of this analysis (see Section 8.2).

I'll now begin the presentation of my research findings by demonstrating the influence the public has had on the evolution, protection and maintenance of NYC community gardens and parks. I'll use this account of recent history to introduce the role NYRP has played in NYC's green spaces, further demonstrating why they were a suitable research partner.

# 4. The influence of the public on the evolution, protection and maintenance of NYC green spaces

Community advocacy, volunteerism and financial support has been integral to the development and preservation of NYC's parks and community gardens. This action has taken many forms, including colourful marches, wildflower-seed bombs in vacant lots, lobbying state governments and fundraiser parties. Battles were won though many still rage, and in a city where the wealthiest Americans dwell alongside some of the poorest, marginalized voices remain strained.

To answer my first research question, "how can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?", I wanted to understand the historical impact these actors had on NYC's parks and community gardens, as well as the challenges they had faced.

NYC has more than 1,700 green spaces including parks, playgrounds and community gardens (NYC Parks 2020). While it is beyond the scope of this dissertation to understand the role NYC residents played in all these spaces, researching their historical influence on smaller community gardens as well as a major park helped me to identify prominent community organizations still active today, and their relationship with city agencies. For this reason, this chapter begins a history of the community activism that protected NYC's community gardens, as well as their ongoing role in that protection. This is followed by an account of how residents and grassroots organizations contributed to the evolution and preservation of NYC's most famous green space, Central Park. To lay the foundations to answer my fourth research question, "what deliberative systemic impacts do NYC's formal community engagement mechanism have?", I will then introduce the formal mechanisms available to NYC residents to shape their local green spaces.

# 4.1. The community gardens of NYC

NYC has more than 1,700 parks, playgrounds and recreation facilities, with a combined area of 11,331 hectares/28,000 acres (NYC Parks 2020). Community gardens account for more than 40 hectares/100 acres of this public open space, and are supported by over 20,000 garden members. While community gardens are a small fraction of NYC's green space, they are potent examples of how residents can shape their environments and the City's green-space policy.

For over a century community gardens have played a role in building the social capital and resilience of NYC low-income neighbourhoods. During the late nineteenth century, municipal leaders responded to food demand brought about by urban migration and economic depression by offering residents City-owned vacant lots to grow food (Hanna & Oh 2000). The First and Second World Wars and the Great Depression saw the establishment of liberty gardens, relief gardens and "Gardens for Victory" to also relieve the demand for food (Saldivar-Tanaka & Krasny 2004). During the Great Depression, impoverished New Yorkers grew their own food in nearly 5000 gardens on City land through a Work Projects Administration (WPA) program (Hanna & Oh 2000).

In the late 1960s and early 1970s many community gardens were created by local residents out of derelict vacant lots often occupied by drug dealers, making neighbourhoods more attractive and creating opportunities for community development (Francis, Cashdan & Paxson 1984). After Hurricane Sandy, community gardens provided opportunities for residents to rebuild their environment and sense of place. Garden groups acted as community support networks that looked out for the wellbeing of local residents, disseminated information in the community and helped those stranded without electricity, food or water (Chan, DuBois & Tidball 2015).

Today there are approximately 650 community gardens in NYC, established by residents on the lots of dismantled, abandoned buildings (Eizenberg 2012). The gardens are more prevalent in neighbourhoods with concentrated ethnic minority populations and in the

lower-income communities of Manhattan, Brooklyn and the Bronx (Butterfield 2020). Gardens are usually used for horticulture, small-scale food production, cultural and social gatherings and art events. Research has demonstrated that community gardens contribute to health, food access and environmental sustainability (Alaimo et al. 2016; Draper & Freedman 2010; Teig et al. 2009).

Although NYC community gardens are now somewhat protected, this was not always the case. I will now turn to the battlefield that shaped the current security of these much-loved urban green spaces.

## 4.1.2. Grassroots mobilization to protect NYC's community gardens and parks

The history of contemporary NYC community gardens is a history of resistance (Chitov 2006). NYC residents began building community gardens amid the urban blight that afflicted the City as a result of public and private underinvestment. Community gardens were often unauthorized operations where gardeners would occupy vacant lots without permission. For example, a group called the "Green Guerillas" brought life to vacant lots on the Lower East Side by throwing "seed Green-Aids" (water balloons and Christmas-tree ornaments filled with wildflower seeds, peat moss and fertilizer) over the fences of vacant lots and then petitioned the City to open those spaces as gardens (Ferguson 1999; Smith & Kurtz 2003). Numerous activist groups engaged in tactics of civil disobedience, organized protest, and other community mobilization methods, and were successful in raising public awareness. This contributed to the introduction of a national subsidies program of $3 million in 1976 to support gardens in 15 cities (Chitov 2006).

After investing significant time and energy as illegal squatters into the creation of community gardens, advocates lobbied the City for legal recognition. The City responded by creating Operation GreenThumb in 1978, which offered short leases for community gardens. To this day GreenThumb acts as a liaison between gardeners and the City and provides horticultural expertise, resources for garden construction and maintenance and leadership skills training (NYC Parks 2019; Smith & Kurtz 2003).

Initially GreenThumb community gardens were legally seen as temporary land use until more economically productive uses were identified. Leases included a provision that gardens could be removed at any time, with 30-days notice. By 1998, there were over 1900 community gardens in NYC, and over 14,000 community gardeners (Gordon 2003).

### 4.1.2.1. Fight of the bumblebee

Mayor Giuliani, who had campaigned on a platform of reducing crime and homelessness, soon after re-election transferred 741 gardens from GreenThumb to the Department of Housing Preservations and Development, which listed them as vacant lots for needed affordable housing. In January 1999, 114 of these were announced for auction. The Mayor positioned this as a move to address the interests of lower-income New Yorkers and not the interests of developers, despite there being 11,000 vacant lots across NYC which could have served as sites for housing construction (Chitov 2006; Staeheli, Mitchell & Gibson 2002). While gardeners recognized the City's need for more affordable housing, claims for housing rights and the improvement of neighbourhoods appeared to be more strategic than sincere. For example, when the Giuliani administration sold a block of 113 gardens, no restrictions were placed on the buyers for how they used the land, allowing the property rights of the new owners to trump housing needs (Staeheli, Mitchell & Gibson 2002).

The announcement of the auction triggered a wave of protests and collective actions geared toward raising public awareness. The gardening community took to the streets—as butterflies, frogs, flowers and fairies, along with neighbourhood residents, artists, and activists—and gained favourable publicity. Collective actions included protests in Central Park, Bryant Park and other public spaces, sit-ins inside City Hall, email campaigns, and a two-day conference called "Standing Our Ground," sponsored by the New York City Community Garden Coalition, the New York City Environmental Justice Alliance and the City chapter of the Sierra Club. In an interview with *The New York Times* (Raver 1999), Leslie Lowe, the executive director of the New York City Environmental Justice Alliance, said:

> This is our way of letting New York know—and we hope the Mayor is listening—that we need community gardens…When people say it's houses versus gardens, that's a lie. There are more than 11,000 vacant lots in the City… Low-income children have no place to play,

except on asphalt. These gardens are where children learn about nature, and we have to fight to save every piece of green space.

Garden advocates made a successful legal case against the City to stop the auction with the support of the State Attorney General. Community garden advocates had reached out to state representatives at the 1999 Earth Day Lobby Day, an annual event where environmental groups gather at the New York capital in Albany to lobby their political representatives. When New York State Attorney General Eliot Spitzer addressed the attendees, a garden advocate dressed as a sunflower asked him to intervene in the NYC community garden crisis. Spitzer replied that this was not a state issue but a City issue, to which the man responded, "No, it's not. People come from all over the world to see these gardens (Smith & Kurtz 2003, p. 208)."

The Attorney General filed a suit against the city, alleging failure to perform land-use and environmental reviews as required by the city's Uniform Land Use Review Procedure (ULURP) and the State Environmental Quality Review Act (SEQRA) (Barry 1999). State law requires municipalities to perform an environmental review and seek public input before they can sell publicly held properties. Later, when Spitzer gave the keynote address at the Green Guerrillas annual fundraiser, he was asked why he filed the suit, he replied: "A sunflower asked me to (Smith & Kurtz 2003, p. 208)." As a result, although some gardens were lost, an agreement in September 2002 between New York State and NYC saw the transfer of 200 community gardens from the Department of Housing Preservation and Development back to the jurisdiction of the NYC Parks (Chitov 2006). This settlement resulted in 400 community gardens being preserved by the City, with an additional 69 gardens purchased by the Trust for Public Land (TPL), and 52 by Bette Midler's NYRP (see Figure 4 for an amusing portrayal of this sale by *The New York Times*). A further 100 were transferred to the Department of Housing Preservation and Development for housing, and a small number of gardens became privately owned, state owned, or listed under various departments of the municipality (Lawson 2005). I will discuss the current governance of these gardens in Section 4.2.3.

Figure 4 Ward Sutton, "Bette and Rudy: The Duet," *The New York Times*, 15 May,1999

**4.1.2.2. Coalition of gardeners**

As part of the struggle to preserve and protect NYC's community gardens, community garden groups aligned to form neighbourhood coalitions, e.g. Harlem United Gardens, Bronx United Gardens, East New York Garden Association, and Greenpoint-Williamsburg Gardens Coalition in Brooklyn, among others. These coalitions brought together anywhere between 5 and 60 gardens and had board of directors, coordinators, and committees. As gardens were being threatened in every neighbourhood, coalitions raised public awareness by working on the local level with elected officials and community boards, as well as on the City level to gain the support of the City Council (Eizenberg 2016). As one gardener from the Bronx retold:

> So, I'm in community board 6, there were about four to five gardens that were on the auction list. But the thing that was so unique about our community board is that our community board is pro open space, pro gardens. So, it was very important at the time to first of all galvanize those gardeners that were on that list, but also to galvanize those gardeners that were not on the list. Because you can't lie on your back and say, "I'm safe now." No, because just like they felt they were safe, the same thing can happen to you the next day. So it is important to show unity and strength and that all the gardens in the area start sending out pamphlets: let's meet together, let's form a coalition, let's fight this because we can't fight it alone, let's fight it as a group. And that is what happened. Green Guerillas was very instrumental in helping us in terms of organizing it; not organizing it but helping us in terms of strategizing. First of all we got our meeting place, and then we talked about what we are going to do, and then we came with a name, how we are going to call ourselves, and then we came with a mission statement, and then we had weekly meetings finding out what is going on. And then as a group, as a La Familia Verde group, we went to the community board and said this is who we are; this is what we have done to the people in the community; this is how we contributed to the progress of things; this is what we have done to help our community. What can you do to help us? (Eizenberg 2016, p. 98)

To represent gardeners citywide, in 1996 the New York City Community Gardens Coalition (NYCCGC) formed and has continued to operate ever since. NYCCGC represents community gardeners when the City makes land use and funding decisions that may affect their gardens, and their mission is to promote the preservation, creation, and empowerment of community gardens through education, advocacy, and grassroots

organizing. NYCCGC also holds monthly public meetings, and membership is open to individual gardeners, garden groups, and garden allies (NYCCGC 2020).

## 4.1.3. The governance of NYC's community gardens today

Community-led initiatives and advocacy have been pivotal for establishing and preserving NYC's community gardens, and the organizations that formed as a result of this advocacy have continued to maintain these urban green spaces and ensure their ongoing community benefits. Broadly speaking, there are three organizations that govern NYC's community gardens: The Trust for Public Land (TPL), NYRP, and NYC Parks' GreenThumb program. These organizations provide varying degrees of autonomy to residents to shape their gardens. Given my research focus on NYRP's community engagement practices, I will now briefly describe the community garden governance approaches of TPL and GreenThumb, followed by a deeper dive into NYRP's green-space governance.

### 4.1.3.1. GreenThumb Gardens

The majority of NYC community gardens are under the jurisdiction of NYC Parks and provide gardeners with the autonomy to design and manage these spaces to meet their personal and communal needs, as long as they adhere to GreenThumb's guidelines. To remain in good standing and be eligible for garden relicensing, all GreenThumb garden groups must (NYC Parks 2019):

- Post a sign with information about the GreenThumb program and contact information, as well as garden open times
- Be open to the public at least 20 hours per week in the gardening season (April 1 - October 31), 10 of which must be consistent from week-to-week, and 5 at least on weekends
- Have an active and inclusive membership, and have a process for accepting new members
- Maintain a safe and attractive garden space
- Host at least two public events per year

- Have primary and secondary garden contacts sign the License Agreement

Typically, each garden has a manager who is responsible for the allocation of resources, organizing activities, and paper work. Often those who were instrumental in starting the garden remain in these leadership positions. Gardeners and garden members hold meetings to elect the garden manager and to discuss and make decisions about garden organization, maintenance, and preservation. Generally all gardeners help with maintenance under the direction of the garden manager (Saldivar-Tanaka & Krasny 2004).

### 4.1.3.2. Trust for Public Land

The Trust for Public Land (TPL) was established in 1972 as a national not-for-profit to conserve land for public parks, community gardens, historic sites, and other natural spaces. For its urban land program, TPL lots are managed by local groups as community gardens or mini-parks (Brewer 2003). Between 1978 and 1999, TPL purchased 10 NYC community gardens, and in 1999 purchased 64 gardens that had been earmarked for auction by the Giuliani administration.

TPL's management approach provides autonomy to gardeners by making them the owners and sole decision makers for their spaces. To do this, in 2004 TPL created three Borough-wide land trusts to transfer ownership of their NYC gardens; one for Manhattan, Brooklyn-Queens, and the Bronx. The Borough land trusts are run by a Board of Directors, the majority of whom are gardeners. Each land trust garden has one representative and one alternative representative, who share the responsibility of voting for the Board of Directors at the spring annual meeting. The land trusts are funded by individual donations, non-governmental grants, and city- and state-level funding. Land trust gardens cannot be sold or developed, and must stay gardens in perpetuity. Gardeners are entitled to collective ownership as long as they maintain and use their spaces as gardens that serve the community (TPL 2018). To assist this, TPL invests in leadership training and community building, facilitating meetings among its gardeners within each Borough and across the City (Eizenberg 2012). The member-run community gardens are open to the public (although their gates are not open 24/7), hold monthly public meetings, and are open to new members.

### 4.1.3.3. Community gardens of NYRP

Originally, NYRP took a top-down approach to revitalizing and redesigning its community gardens, much to the dismay of resident gardeners who had spent considerable time deliberating what they wanted to develop:

> The redesign process of Pleasant Park . . . for me, personally, was very difficult and really made me realize how attached I felt to this piece of land even though it wasn't mine . . . I was disappointed for not being included more in the design process. And I feel like we as a garden group have spent three years discussing and arguing amongst ourselves what we want to build in the garden before this thing happened. And we have come out with a design that took a lot of work for us. And that design was not even looked at, and they hired a landscape designer who was outside of the city to come up and do the design (Harlem resident quoted in Eizenberg 2012).

This was partly due to NYRP adhering to the wishes of their sponsors, who at the time included the Tiffany and Co. Foundation, the Brownstone Family Foundation and Goldman Sachs, among others. When NYRP first started in 1995, there was no community engagement in their garden design process:

> Designers would go into spaces and put in place designs of their own making, it wasn't grass roots in any shape or form, which became problematic for a number of reasons (B. Hogan 2017, pers. comm., 27 July).

In 2010, NYRP began to change their community engagement process as they discovered that garden projects without community buy-in resulted in the depleting use of the gardens, which ultimately defeated the point of a community garden in the first place (B. Hogan 2017, pers. comm., 27 July). While NYRP's process today adjusts in response to different spaces and locations, in general it provides three opportunities for community members to contribute and discuss their ideas: 1) an informal "open house" at the garden or project site, 2) a formal meeting to review and provide feedback on two designs, and 3) a design sign-off and project timeline review (for more details on this process see Section 5.1).

NYRP requires its garden groups to meet monthly and have an organized structure for leadership and membership with established laws and rules for joining the group, e.g. "to join this garden you need to volunteer for three hours and attend two meetings, and once

you do then you're part of the group" (C. Reynoso 2017, pers. comm., 6 October). Some gardens have very territorial members who have been gardening there for many years and are not open to new members. In such situations NYRP mediates garden membership, at times setting up and attending meetings for new members to meet exiting gardeners (C. Reynoso 2017, pers. comm., 6 October).

Like other NYC community gardens, NYRP spaces are open to public visitors, however planting beds are limited and there are often long waitlists to become a member with gardening privileges (M. Lawson 2018, pers. comm., 4 December). For those who do become gardening members, there is limited autonomy to add or change garden features, such as adding new beds, picnic tables or BBQs as NYRP retains authority over such decisions and is responsible for funding them. Monti Lawson, a Brooklyn resident who is the community lead of NYRP's William Street garden, says this can result in the community feeling a lack of ownership, as well as frustration. Monti demonstrated this with an example of the local community trying to get a picnic table for the William Street garden:

> So, the idea was to have a couple of different picnic tables, a grill and stuff like that, so that way people can kind of use [the garden] as a third space... And so, then this year, when [NYRP] were doing the [garden] refresh, [NYRP] did invest a lot in terms of adding plants and cutting back this walnut tree, etc., etc. but for the other part of the picnic tables and the grill, they kept saying that they were going to get around to it. And so, because people see me as almost an extension of NYRP, it's kind of like they were blaming me for letting them down. And it's just a really hard balancing act, you know, it's not really my fault… We don't control it. We can't buy our own picnic table and put it in, they have to, and if that's the thing that everybody was onboard for and then it doesn't happen, it's kind of hard… I think that [the residents] don't separate NYRP as being its own private organization, it still feels just like everything else in the city, politicians get your hopes up and then never follow through. It seems like that's the battle that we're fighting here (M. Lawson 2018, pers. comm., 4 December).

NYRP does eventually respond to the requests of their community gardeners, but given they have limited staff and resources, on top of their own bureaucratic constraints, these requests can take considerable time to satisfy. Monti demonstrated this further with the picnic table example:

I don't want to nag basically, sometimes it just feels like I'm having to nag. Even with the picnic table, if we could do it on our own and could build it ourselves, I think that [the community] would pay more attention and have more ownership, if we could build it ourselves. So even with the picnic table, the reason why we couldn't get it at the time was because [NYRP] needed to wait to the end of the year. So, the picnic table that we were going to get was going to be determined by how much money was left in the budget. So basically, we're gonna have to wait till the end of the year for them, and we don't have a picnic table (M. Lawson 2018, pers. comm., 4 December).

When I asked NYRP for a response to Monti's dilemma, they acknowledged the organization needed to improve its communication around garden governance and setting community expectations. Annel Cabrera-Marus, NYRP director of community engagement, said:

My goal has always been to push NYRP to provide more autonomy… but this past year, my opinion has become more nuanced. The maintenance support we provide is unlike what the city could ever. Monti's response is so honest, but what it does is show me that we can do a better job explaining how a land trust works… but also how our own staff can better communicate and set more realistic expectations (A. Cabrera-Marus 2020, pers. comm., 24 November).

NYC community gardens have come a long way in terms of protection, funding and the autonomy provided to residents for their design and maintenance. While NYRP can improve communications, and the empowerment of gardeners, community gardens as a whole are public spaces where motivated residents can have an effect on their local environment and can build social capital by working together to achieve a common purpose.

### 4.1.3.4. Placemaking and place-keeping in community gardens

As discussed in section 2.1.2., community participation in the design and maintenance of community gardens helps to ensure their ongoing use and benefit to the community through placemaking and stewardship which creates a sense of public ownership. The collaborative processes of gardeners to shape these public spaces for shared value help to define the physical, cultural and social qualities of the gardens, and contribute to the sustaining of communities. By creating public spaces that are lively, safe, and distinctive

the community gardens of NYC facilitate social capital, economic development and community revitalisation.

Through their connection to TPL, NYRP, and NYC Parks the volunteers maintaining community gardens receive organizational and financial support, reducing the risk of burnt out (TPL), encouraging them to participate regularly, and run initiatives with secure funding. In this way place-keeping (see section 2.1.3.) in community gardens goes beyond their design and maintenance, and encompasses the integral non-physical factors of public spaces, i.e. partnerships, governance, funding, policy and evaluation.

In deliberative systems terms, NYC's community gardens are where the private sphere of informal conversations and "everyday talk" enter public space. Here ideas and critiques are generated at informal or formal meeting places, and gardeners and community members discuss and debate the designs, features and management of their gardens. NYC's community gardens continue to this day to be a public space where New Yorkers directly shape their local green spaces. However New Yorkers have also brought about larger green spaces through their advocacy and activism. I will now zoom out and provide an account of how residents and grassroots organizations contributed to the evolution and preservation of NYC's iconic green space, Central Park.

# 4.2. Parks for the people

The majority of City parks are maintained with public funds by the NYC Parks Department (NYC Parks), whose adopted expense budget for FY 2018 was US$532 million, or 0.6% of the City's US$87-billion total budget for that year—a share that has steadily declined from 1.32% in 1976 (CUF 2018). As a result of these limited budgets many parks rely on private funds and volunteers for maintenance and programming. These entities are primarily: park conservancies, that gather donations from individuals and organizations; Partnerships for Parks, a public-private partnership between NYC Parks and the non-profit City Parks Foundation; and volunteer groups, often called "friends of parks" groups, which vary in size and mission (NY4P 2020b).

To help answer my first and fourth research questions, I wanted to understand the influence of community advocates on NYC's green space development, and the ongoing role of park conservancies. A pertinent example of this influence can be seen in the evolution of Central Park.

### 4.2.1. Park conservancies and the evolution of Central Park

Bowling Green Park was NYC's first official park, established and named by a resolution of the Common Council on March 12, 1733. It was leased at an annual rent of one peppercorn to John Chambers, Peter Bayard, and Peter Jay, who were responsible for improving the park "for the beauty and ornament of the said street as well as for the recreation and delight of the inhabitants of this City (NYC Parks 2020)." Over the next 80 years other City parks were established, including Battery Park, Duane Street Park, City Hall Park, and Washington Square Park. However, the famous grid plan for Manhattan, published in 1811, designated little open space (Heckscher 2008). Between 1821 and 1855, NYC's population nearly quadrupled, and by the 1840s members of the City's elite were calling for the construction of a large new park in Manhattan (Rosenzweig &

Blackmar 1992). At this time, inadequate green spaces threatened to make the City uninhabitable. To address this dire predicament, the New York State Legislature passed the Central Park Act in 1853, authorizing the purchase of land for present-day Central Park (Heckscher 2008).

### 4.2.1.1. The people's park

In 1858, the park commissioners selected Frederick Law Olmsted and Calvert Vaux's "Greensward Plan" as the winning design for Central Park, which unlike other proposals introduced clear separations between the park and the surrounding City (Rosenzweig & Blackmar 1992). Construction began in 1857, and although it was not officially completed until 1876, by 1866 Central Park had already been visited nearly eight million times (Taylor 2009).

Central Park has been described as the 'park of the people' (Rosenzweig & Blackmar 1992), and this is reflected in the naming of its gates. Intended to honour the professions and civic groups of NYC the four entrances along 59th Street are Scholars' Gate, Artists' Gate, Artisans' Gate, and Merchants' Gate. Other gates are called Pioneers, Farmers, Hunters, Miners, Woodsmen, Mariners, Engineers, Inventors, and Warriors (Kang 2018).

NYC's Central Park is located in upper Manhattan, and measures 4.0 km/2.5 miles from north to south and 0.8 km/0.5 miles from east to west (Britannica 2020). It is the most popular urban park in the United States with an estimated 40 million visitors annually (Lock 2020), and is one of the most cinematically filmed locations in the world (Pereira 2017). Central Park is owned by the NYC Parks, and has been managed by the Central Park Conservancy since 1998 in a public–private partnership. The Conservancy, a not-for-profit organization, is responsible for the management, restoration, and enhancement of Central Park and raises the US$74 million operating budget annually. Since the Conservancy's inception in 1980 it has procured more than US$1 billion of investment (Conservancy 2019). Driven by concern for the preservation of the park, the Central Park Conservancy was the result of long-time public advocacy.

Over the years Central Park has experienced several periods of decline and revitalization (Kinkead 1990), which triggered the formation of supportive community organizations. In the early 1900s, the citywide Parks and Playground Association, and a consortium of

Central Park civic groups operating under the Parks Conservation Association, joined forces to preserve Central Park's character and advocate against further constructional changes, e.g. opposing proposals for the construction of a sports stadium (NY Times 1919) and a 1.8 hectare/4.5 acre cultural centre (NY Times 1923). In 1926, in front of a 30,000 person crowd that had gathered at the park, the Central Park Association announced it would raise $1.5 million for the restoration, beautification and maintenance of Central Park if the City would make a matching contribution—which the Mayor at the time did (NY Times 1926). In 1928, the Park Association of New York City formed from the merger of the Parks and Playgrounds Association, the Central Park Association, and the Battery Park Association. Nathan Straus, the president of the newly formed group, said to *The New York Times*:

> The Park Association of New York City is made up of citizens who believe that parks are a fundamental need of city life, essential to the mental, moral and physical well-being of city dwellers. The consolidation was effected in order to concentrate in one citywide organization all activities of citizens relative to park defence and betterment. It was felt that much more could be accomplished by one strong untied park body than by several individual park associations. In the future, the united strength of the entire organization can be brought to bear to prevent attempted encroachments in any city parks. The pressure of commercial interests, as well as the aggressive actions of other city departments, make constant vigilance necessary if our parks are to be preserved. Growing populations in outlying districts, especially Queens and Richmond make it imperative that adequate funds be appropriated to provide for parks to be used in the future (NY Times 1928).

These issues and concerns have maintained their relevance, and the Park Association of New York City is still active today, now known as New Yorkers for Parks (NY4P). NY4P regularly conducts research initiatives, such as the *Report Card on Parks* series, the *Open Space Index* and the *City Council District Profiles*, and act as a watchdog on NYC's green and open spaces (Lee 2007; NY4P 2020a).

As a result of mismanagement, by the mid-1970s Central Park was again in decline. A 1974 Columbia University study found that the US$10-million the City spent annually to operate Central Park would be sufficient if the money were used more productively (Gerston 1974), with a later study recommending that a park administrator and citizens' "board of guardians" be appointed to combat the park's problems of disrepair and

vandalism (Maitland 1978). In 1979, the park's commissioner established the Office of Central Park Administrator and in 1980 the Central Park Conservancy was founded.

Park conservancies raise private money from donations to supplement what a park receives from the City. This money funds maintenance and capital projects such as play equipment or landscaping. Unless a park has a conservancy, it is funded entirely by the City (NY4P 2020b). The Central Park Conservancy and Prospect Park Alliance are well-known conservancies, although there are numerous others at a variety of scales, with NYRP being the only citywide conservancy.

NYRP has worked with NYC Parks to restore four major City parks: Fort Washington Park, Fort Tryon Park, Sherman Creek Park and Highbridge Park. But the lion's share of the organization's operations is focused on the restoration, re-design, maintenance and programming of its 52 community gardens throughout NYC.

I'll now turn to the formal government mechanisms available to NYC residents who wish to communicate their green-space needs to decision makers, and introduce some of the limitations of these mechanisms.

# 4.3. The formal mechanisms available to New Yorkers to shape their green spaces

NYC government openly acknowledges the need for authentic community engagement to address the challenges of the 21st Century (NYC 2015), and has also committed to providing safe access to a quality park or green space to all residents within a 10-minute walk of their home by 2050 (see 10minutewalk.org).

In this section I will introduce three formal participation mechanisms provided by NYC to residents who would like to contribute to the planning of their green spaces: public hearings, participatory budgeting, and scoping sessions. These mechanisms will contribute to the deliberative system analysis of Chapters 7 and 8, and help to answer my fourth research question, "what deliberative systemic impacts do NYC's formal community engagement mechanism have?"

In the following I will discuss changes in the NYC Charter that helped to bring about these participation mechanisms. The NYC Charter is the governing document of the city, created in 1898 as part of the consolidation of the existing City of New York with Brooklyn, western Queens County, and Staten Island into the City of Greater New York. Since 1898 there have been several amendments to the City Charter. The 1975 and 1989 revisions both had the goals of reducing Mayoral power and increasing public accountability, and the 2018 revisions had increased civic engagement as a focal point.

### 4.3.1. Community boards and public hearings

Community boards were established in their present form in the 1975 revision of the City Charter, which divided the City into 59 districts, each with its own community board and budgets to support an office and a full-time District Manager (Fuchs 2010). Each community board consists of 50 members, half appointed by the Borough President and

the other half chosen from names submitted by the City Council member (Berg 2007). These appointments are seen as a way of building constituencies, and establishing good will with individuals outside the borough president's and city council member's political organizations, "...if the community boards in New York have any impact, it is because of their political, not their legal, power (Marcuse 1987, p. 279)."

Community board meetings are open to the public and occur once a month. During these meetings members address items of concern to the community and hear from attendees. Community boards may also conduct additional public hearings to give community members the opportunity to express their opinions and concerns on topics such as the City's budget and land use matters.

The 1975 charter revision required that administrative City agency service areas be redrawn to make them coterminous with the new community boards, e.g. police districts, fire districts, and sanitation districts were to have the same geographical boundaries as community boards. Community service cabinets were also introduced at this time, entailing the regular meeting of city agency representatives and community district managers. It is important to note that community boards and community district managers have no direct authority over city agency representatives, and community service cabinet meetings essentially help to coordinate the delivery of services to a community (Berg 2007).

The 1975 charter gave community boards a purely advisory role in City land use and budgetary decisions. Under the Uniform Land Use Review Procedure (ULURP), decisions ranging from zoning changes to the sale of City-owned property are submitted to community boards for a 60-day review (see Appendix 9). During this time community boards must hold public hearings and forward their outcomes to the City Planning Commission (NYC Planning 2021). While the pace of these proceedings will have some impact on a project proposal, once a community board has submitted their vote on a project a simple majority vote by the NYC Planning Commission can reverse or modify a community board's decision. Similarly, community boards must be consulted on specific budgetary matters, and provide community comment through a set of hearings and meetings, but again this participation is purely advisory, and at times perfunctory.

A public hearing is an official proceeding of a governmental body during which the public is accorded the right to be heard (New York Department of State 2012). It is a legal requirement that notifications for public hearings be published in the local paper, posted on agencies or government department bulletin boards, and the news media notified. On the day of the hearing, the clerk records the names of those persons wishing to testify, and participants are invited to sign in as they enter the hearing room. Typically, expert witnesses and public officials testify first, then persons representing organizations, followed by individuals. At the closing of the hearing, the chair thanks the public and witnesses for attending, and explains the steps the board will take to use the information gathered to make a decision.

### 4.3.2. The NYC Council and participatory budgeting

Two major decisions made in the 1989 charter revision were to eliminate NYC's Board of Estimate, and to empower and expand the NYC Council. Up until 1989, The NYC Board of Estimate was responsible for municipal policy and decisions, including the city budget, land-use, contracts, franchises, and water rates. The Board of Estimate was composed of the Mayor, Comptroller, the City Council President (each of whom had three votes), the borough presidents of Manhattan and Brooklyn (each having two votes), and the borough presidents of the Bronx, Queens, Staten Island, (each having one vote). In 1989, the Supreme Court ruled the Board of Estimate was in violation of the one person, one vote provision of the US Constitution, which lead to its dissolution by the city in 1989.

The 1989 charter revision increased the City Council from 35 to 51 members with a goal to increase minority representation. It was believed the council could become the most representative of the city's elected bodies by creating smaller districts that were more likely to reflect their constituents. It was further believed that a council with an increased number of members would greatly increase the opportunity of minorities to be elected:

> …data, and general experience, showed that "for a minority to have a reasonably effective chance of being elected, you need a quite high percentage" of minorities in a district— 70% or above…The data also showed that with an increase to fifty districts, the

percentage of "high percentage" minority districts could go up to 35% or 40% from the current 26% (Schwarz Jr & Lane 1988).

The 1989 charter revision, approved by referendum, was largely a product of interest group politics, in that the charter commission included something for all groups or individuals they considered important political players (see 10minutewalk.org). For example, although the commission decided to eliminate the Board of Estimate, it did not eliminate the borough presidents or the City Council president but instead created minor executive functions for these public officials.

The Board of Estimate's functions were given primarily to the NYC Council, who now had the sole authority to approve or modify the mayor's proposed budget and could override mayoral budget vetoes with a two-thirds majority. Borough presidents were stripped of most of their powers over budgets and land use decisions, and now play an advisory role to the Mayor on issues relating to their boroughs. The borough presidents budget recommendations now constitute 5% of the city's capital budget and 5% of the non-mandated increases in the expense budget.

In 2018, a charter amendment to create a Civic Engagement Commission (CEC) was approved by New York voters. The CEC's responsibility is to enhance civic participation and strengthen democracy in NYC. As Andy Toledo of the CEC explains:

> It really makes us particularly unique as an agency in that it wasn't created by the Mayor, it wasn't created by the City Council. It was new. The voters in New York City wanted an agency that would really take a hard look at strengthening democracy and increasing civic participation in the City of New York (A. Toledo 2021, pers. comm., January 23).

The 15-member commission includes eight members appointed by the mayor, two members appointed by the speaker of the City Council, and one member appointed by each borough president (Ballotpedia 2018). CEC's key tasks are to partner with community-based organizations to increase awareness of city services, assist New York city agencies in developing civic engagement initiatives, provide assistance to community boards, and run a citywide participatory budgeting program, which the City Council initiated in 2011.

**4.3.2.1. Participatory budgeting in NYC**

Participatory budgeting is a democratic process in which community members directly decide how to spend part of a public budget. Participatory budgeting originated in 1989, in Porto Alegre, Brazil, as a reaction to 20 years of a military rule, with a goal to increase public participation in government and redirect government resources towards the poor. These goals have been partially realized, as seen in a 2003 World Bank study (Bhatnagar et al. 2003) that found that participatory budgeting had improved Porto Alegre public facilities in less than a decade, with an increase in sewer and water connections from 75% of households in 1988 to 98% in 1997, and a quadrupling of the number of public schools. Since its emergence in Porto Alegre, participatory budgeting has spread to hundreds of Latin American cities, and numerous cities in Europe, Asia, Africa, and North America.

Participatory budgeting launched in NYC (PBNYC) in 2011 with four participating Council Districts. In 2019, 118,000 New Yorkers from theirty-two council districts voted on $39 million for capital projects. In PBNYC, participating council members allocate $1million+ out of their discretionary funds to spend on community designed projects that costs at least $50,000, but no more than $1million, have a lifespan of at least five years, and involve construction, reconstruction, or installation (NYC Council 2019a). Many winning projects allocate funds to tree planting and upgrades to parks, playgrounds and community gardens.

The PBNYC process involves a series of meetings, and can be outlined in five phases that feed into the city's annual budget cycle, starting from August and continuing into June the following year (Gilman 2016; NYC Council 2019b):

1. **Neighbourhood assemblies**: Residents articulate local budgetary needs and brainstorm ideas. Ideas are also collected online and informally at public events and spaces. During this stage, some residents sign up to be budget delegates, who directly interact with government officials and draft budget proposals for viable projects.
2. **Budget delegate committees:** Delegates work with City agencies for several months to create viable projects for residents to vote on.

3. **Second round of neighbourhood assemblies**: Delegates present projects for community feedback. Outreach plans are developed and each district holds at least one Project Expo, and project proposals are posted online.

4. **Voting:** Residents vote on which projects to fund. Each district provides at least six voting locations, weekday voting at their Council Member's District Office, and may also have "pop-up" voting booths at busy subway stations. Absentee ballots are offered to individuals with disabilities, limited mobility, out of town residents and active service members. All voting events must be compliant with the Americans with Disabilities Act, and all ballots and surveys are translated into the four languages most represented in the Council District.

5. **Evaluation and planning:** Winning projects are included in the city's upcoming fiscal year budget, and their implementation is monitored by district committees and the City Council

### 4.3.3. The NYC Parks scoping sessions

In 1934 Mayor Guardia discontinued the five independent borough parks departments, and appointed Robert Moses as the commissioner of the unified New York City Parks Department (NYC Parks), a position he held until 1960. Today, NYC Parks operates over 800 athletic fields, 1,000 playgrounds, 1,800 basketball courts, 550 tennis courts, 65 public pools, 51 recreational facilities, 15 nature centres, 14 golf courses, 22.5 kilometres/14 miles of beaches, and over 12,000 hectares/30,000 acres of park land (Parks 2021).

To facilitate public participation in park planning processes, such as the development of environmental impact statements and the design of green spaces, NYC Parks conducts scoping sessions. As outlined in the Protocol for Public Scoping Meetings (NYC Parks 2013) and in accordance with Section 5.07 of the Rules of Procedure for City Environmental Quality Review, the public participation of these meetings typically proceeds as follows:

- Meeting attendees are asked to sign in upon arrival, providing name, address, and affiliation

- Attendees are asked if they wish to comment during the proceedings—if so, they are asked to fill out a speaker registration card

- A representative from the lead government agency calls the meeting to order, explains the purpose of the meeting, presents guidelines for meeting participation and speaker time limits, and introduces those who will be presenting

- Following all presentations, the lead government agency receives comments from the representatives of the involved and interested agencies, public officials and community boards

- After the conclusion of the discussions with the interested/involved agencies, public officials and community boards, speaking time is provided for members of the public

- The names of the "Request for Speaking Time" sheet are called in order of appearance, and each individual is allotted three minutes to state his/her concerns to the lead agency and other stakeholders

- All requests for additional information are subject to review and approval by the lead agency

- The lead agency accepts written comments after the scoping meeting for at least ten days

- Within 30 days of the scoping meeting, the lead agency will issue a final scoping document

## 4.3.4. Limitations of the formal mechanisms provided by NYC for public engagement

While NYC does provide its residents with formal avenues to get their ideas and concerns for green space heard, they have limited accountability from, or impact on, decision makers. For example, while public hearings are a means for NYC residents to provide testimony in land use proposals, the public are unable call or set the agenda for public hearings, nor is there a requirement for their testimony to be formally addressed; residents raising issues at community board meetings have no guarantee these issues will be communicated to decision makers; and while NYC Parks' scoping sessions are a venue to

gather and generate ideas, NYC Parks are under no obligation to explain their final design decisions in terms of community contributions.

Further, resident representation and urban green space discourses are not prioritized in these formal participatory mechanisms. NYC Parks does not engage in practices to ensure that participants in scoping sessions are representative of an affected community, nor that the discourses of social and environmental activists are present. This results in those with the time, interest and resources being those who attend.

In the case of PBNYC, the deliberative quality of its processes can be considered to be fair, given there are multiple meetings with a manageable group of participants. Some criteria for a 'good' deliberative quality include the inclusiveness of the process, the mutual exchange of arguments and the existence of clear rules (Sintomer, Herzberg & Röcke 2008). However, while participatory budgeting includes deliberative processes, most would agree that they are not as robust as programs that primarily focus on deliberative processes, and may reflects more general discussion, debate, and advocacy. Nonetheless, many advocates identify the importance of deliberation within participatory budgeting as a means to improve democratic legitimacy (Gilman 2016).

With this background, we are well placed to explore possible improvements to NYC's formal community engagement mechanisms. To do this, we will start in Chapter 5 by describing a participatory design project to develop a PPGIS prototype for engaging the public in green space decision-making, developed with NYRP. In Chapter 6, we will reflect on what was learned from this project and identify further improvements that could be made to scale community engagement practices using PPGIS. In Chapter 7, we will broaden our perspective by looking at what went wrong with NYRP's Haven Project, and establish successful green space advocacy strategies from successful cases. Finally, in Chapter 8 we will zoom out to examine NYC's formal community engagement mechanisms and draw on deliberative systems thinking and examples of international democratic initiatives to identify improvements in terms of inclusivity and accountability.

# 5. Co-designing a PPGIS tool for community engagement in NYC's green-space planning

To answer my first research question, "how can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?", the following chapter will outline the co-design and testing of a PPGIS prototype, informed by the key stages of participatory design research: 1) understanding NYRP's community engagement process, 2) imagining future community engagement workflows, and 3) prototyping (Ballotpedia 2018). I also highlight how NYRP's community engagement practices demonstrate (or lack), the inclusive, authentic and consequential deliberation characteristics of deliberative democracy, and how these qualities could be enhanced through the use of a PPGIS engagement tool.

I asked NYRP to be my research partner because I wanted to work with an organization that was designing public green spaces, had an established relationship with NYC governement, and wanted to improve their community engagement processes. NYRP's participatory approach is also consistent with the normative goals of deliberative

democracy—providing those affected by a collective decision the opportunity and capacity to participate (or be represented) in consequential deliberation about that decision (Dryzek & Stevenson 2014)—which also made them an attractive research partner to help answer my fourth research question, concerned with the deliberative systemic impacts of NYC's formal community engagement mechanism.

To understand NYRP's current community engagement process I conducted a series of semi-structured interviews with NYRP staff, specifically:

- Bethany Hogan, director of government affairs
- Annel Cabrera-Marus, director of community engagement
- Monica Hernandez-Truitt, director of design
- Charlie Reynoso, regional engagement manager
- Filomena Riganti, senior project manager of the capital team

I went on site visits to community gardens and events where NYRP had information tables set up to meet with local residents and reviewed several documents generated through community engagement around NYRP's Haven Project. These documents included the scanned comments written by the community, the tabulation and categorization of these comments and the map indicating which neighbourhoods community participants lived in (see Figures 11-15).

# 5.1. Understanding NYRP's community engagement process

When NYRP first started in 1995, there was no community engagement in their garden design process (see section 4.2.3.3.). Over the years, NYRP found that garden projects without community buy-in from the beginning would result in the diminishing use of the gardens. NYRP also discovered that community engagement in the design of an open space was an important opportunity to build a coalition around that space, with NYRP's most successful gardens being the ones where they play a supporting, rather than a leading, role.

In 2010, informed by the *charrette* model (NYC Council 2019a), NYRP standardized their community engagement process using four guiding principles: 1) involve all stakeholders from the start, 2) all project disciplines should work together with the stakeholders to generate designs under the guidance of a facilitator, 3) the feedback loops between brainstorming sessions and design decisions should be as fast as possible to ensure more than one design iteration is possible, and 4) the more detail in the process, the better. While NYRP's approach may change depending on the project space and neighbourhood, in general when redesigning a garden, they provide three opportunities for community members to contribute and discuss their ideas: 1) an informal "open house" at the garden or project site, 2) a formal meeting to review and provide feedback on two designs, and 3) a design sign off and project timeline review.

### 5.1.1. First meeting at project site, the "open house"

The "open house" stage of NYRP's community engagement entails staff spending a day at the project site. NYRP will invite community members and passers-by to come into the garden for a discussion about what features they would like to see in the space, whether they want to grow food, and events or activities they would like accommodated in the design:

> We like to know: how do they envision the space, what would make them come back and stay in the space…what are the things that will make it integral to the community. If it is an under-utilized space we like to understand what has kept people away, and then we can work on what will drive them back (A. Cabrera-Marus 2017, pers. comm., 13 October).

Community ideas are written down on Post-It Notes and stuck to an ideas board. Later, these ideas are entered into a spreadsheet and reviewed by NYRP capital and design teams to understand which are the most popular and which can be achieved given project constraints:

> It is at this point where you see how the space needs to be catered to the community. Maybe in Brooklyn, in Bushwick, you have some sort of artist community, and they have different needs, for example "this would be a cool place to do an exhibition, or an art show, or a performance." In other parts of the City you get a lot of "I just want a garden here to grow vegetables, I want to see flowers, I want to sit here and have my lunch." So, you start to get definition of the space and its programming just in these basic comments (M. Hernandez-Truitt 2017, pers. comm., 13 October).

From this spreadsheet of community ideas, and sometimes with the additional advice of a consultant, NYRP designers begin to sketch two proposals to show the community in their second, and more formal, community engagement meeting

### 5.1.1.1. Design considerations

Along with the collated community ideas, the ideas developed for the garden design are informed by budget constraints, programming opportunities, maintenance considerations and foot traffic. Garden redesign projects have limited budgets and are primarily funded through grants, fundraising events and donors (NYRP 2019). NYRP also receives expense

and initiative funding from government agencies for programming and garden maintenance. It also receives capital funding from the City's annual fiscal capital budget (B. Hogan 2017, pers. comm., 17 October). When a garden has a donor to pay for its renovation, NYRP has to manage their influence on the project. Speaking with Filomena Riganti from NYRP capital team:

> Some donors are very altruistic, they want whatever the community wants. Some donors you have to hold their hand and gently, or sometimes not so gently, say, "You may want this, but that's not what the community wants, and this is a community garden" (F. Riganti 2017, pers. comm., 13 October).

Riganti is very aware of the fact that given the majority of NYRP gardens are in poorer neighbourhoods, "Most donors will see the garden on the day it opens, and then never go back."

For considerations of programming and maintenance, NYRP will reach out to potential or established community partners. These may include community groups, schools, community boards, police, senior citizen homes, government officials and public housing authorities. NYRP want to ensure that their gardens can be used for community events such as performances, as well as education workshops and individual gardening activities:

> We have a garden now that is in front of a school, so we really focused the design process to involve a lot of the teachers and what they need because they're going to be our prime user, but it didn't exclude the woman who walked down the street and gave us her opinion (M. Hernandez-Truitt 2017, pers. comm., 13 October).

NYRP's operations staff will need to sign off on any designs as it is their responsibility to maintain the space and keep the garden alive. The level of foot and road traffic will also impact garden design, programming and safety considerations:

> If we have a garden that's right on a busy street we may turn that into a really high-use programming space, if it's a little more isolated maybe it's strictly community gardening (F. Riganti 2017, pers. comm., 13 October).

Foot traffic around the garden will be impacted by the presence of subways and bus stops, and whether the zoning of the area is residential, commercial or industrial.

### 5.1.1.2. Challenges of inclusion, representation and participation

Inclusion is what makes deliberation democratic, and refers to the inclusion of multiple voices, interests and concerns in decision making (Parkinson & Mansbridge 2012)—essentially the idea that all those affected by a decision should have the opportunity to partake in the making of that decision (Manin 1987). NYRP do not claim to be deliberative democracy practitioners, however it is worth noting that while their community engagement participants are not necessarily representative of a neighbourhood, they do make efforts to include a wide range of stakeholders.

NYRP uses the open house stage of their community engagement process to cast a wide net for participation in garden redesign projects. During these first processes a project subscriber list is built, working closely with the networks of community partners, to let people know that an open house is coming up. Posters and flyers will be made and distributed around a neighbourhood as email is not as effective as other forms of communication in the areas they work. NYRP will also set up tables at community events, attend community board meetings, and generally make use of existing social infrastructure.

However, these efforts do not necessarily result in a representative group of community participants. Unlike many deliberative minipublic processes, NYRP does not use stratified random sampling[6], or any other methods of participant curation in their engagement processes. This can pose challenges to the design process when trying to ensure the needs of a community are met:

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[6] Stratified random sampling is often used when numbers are small to help ensure a group of participants reflect the composition of the wider community. This process matches the characteristics of the small sample to the demographics of the larger population in terms of socio-demographic relevance, e.g. sex, age, occupation, geography, education, etc. When larger numbers of participants are involved, random selection alone can provide a statistically representative sample of a community (Carson & Hart 2005).

Engagement is tricky because participation is so tricky, and we can't take for granted that sometimes there might be less participation than we would like. That doesn't dictate how engaged we are, it just forces us to be more creative, because we understand people are working, they're not necessarily available. So, we try to be as flexible as possible (A. Cabrera-Marus 2017, pers. comm., 13 October).

For Charlie Reynoso, NYRP's regional engagement manager, a key challenge of community participation is making people aware that NYRP gardens are community spaces and that all are welcome in their design and use:

Once they realize it's a community space they're a little more invested. I think presenting them the idea that "this is yours to design, let us know what you want to see here," I think that gets people on board (2017, pers. comm., 06 October).

While all community members are welcome to participate in garden redesigns, NYRP do give weight to those who have a history with the space, e.g. established gardeners or long-time neighbours, as these are the people who will more likely become part of the group that will take care of the garden.

## 5.1.2. The second community meeting, design review and feedback

The second phase of the engagement process is a more formal design review meeting with community members and project partners. Here, ideas gathered in the open house are shared, as well as two garden designs that have been developed from them. The goal of this meeting is to decide which of the designs the community likes the most, or if there are certain elements they like in one more than the other. To keep people informed about the design process, NYRP collects contact information from everyone who participated in the open house, as well as those who attended other garden events or were previously involved with the garden. NYRP also reaches out to community partners such as schools, churches, libraries and community boards to invite them to the design discussion.

In this second meeting designs are presented in the form of drawings and 3D computer models. The two designs are intentionally very different, so as to stimulate feedback:

> We ask them what they think about these two designs, and which one they like the most. They're very different from each other on purpose, because you want to have some provocation. What do these ideas provoke? And sometimes there is a clear winner of what they like, sometimes it's a mix of both designs. At this point you start to know where the design is going (M. Hernandez-Truitt 2017, pers. comm., 13 October).

Feedback on the two designs is gathered, followed by participants breaking out into facilitated groups to discuss and generate ideas for the programming and amenities of the garden.

### 5.1.2.1 A note on authentic deliberation

As previously discussed, authentic deliberation is indicated by the presence of truthfulness, respect, positions that seek the greater good, non-coercion and an effort to address the all sides' concerns (Dryzek 2012; Mansbridge et al. 2010; Steiner et al. 2004). To be authentic, deliberation induces reflection upon preferences, creating an openness for participants to change their mind (Dryzek 2012). Deliberative democracy is also concerned with the processes of judgment and preference formation within informed, respectful and competent dialogue (Dryzek 2012). To avoid gathering uninformed opinions instead of meaningful deliberation, deliberative democratic processes seek to build the capacity and knowledge of participants by providing briefing materials, presentations and access to experts.

NYRP does make efforts to invite numerous community members and organizations to their garden design process, encourages participants to speak freely without coercion and in the case of the open house, does not have pre-determined discussion outcomes:

> We don't want to gear the conversation, so we try to keep it as generic as possible. This way people are literally throwing everything at us, and from there we can figure out what we can actually work with as opposed to restricting what people actually tell us (C. Reynoso 2017, pers. comm., 06 October).

Here discussion refers to talk that has a purpose, often to make a decision. Discussion allows people to brainstorm ideas and explore possibilities, and may become more structured as people choose sides or favor ideas.

Facilitation is becoming a bigger part of NYRP's community engagement meetings. This encourages the quieter participants to share viewpoints (A. Cabrera-Marus 2017, pers. comm., 13 October). In the second community meeting, breakout sessions encourage group conversation and the opportunity for participants to think about the needs of the community, as opposed to just their own preferences, often resulting in animated discussions:

> One of the benefits of in-person meetings is that you get a quality of input that's guided by the fact that people are talking to their neighbors and people who have a shared interest with them, and they're guiding each other collaboratively through the process. So, if I'm filling out an open-questioned questionnaire or some sort of online interface there's still a lot to inspire me, but I probably won't have the same level of attention or thoughtfulness as I would if I was in a room with a bunch of people and we're all getting animated and talking about it (B. Hogan 2018, pers. comm., 26 July).

Nevertheless, NYRP's community engagement approach has not been designed to facilitate authentic deliberation in the terms understood by deliberative democracy practitioners. Participants are not taught additional skills or educated to increase their openness to diverse views. Limited attention is given to supporting the shifts in perspective that characterize authentic deliberation. While NYRP does provide an open space for community idea sharing, the design review process is driven by idea gathering as opposed to negotiating the preferences of participants. While the two designs presented do reflect the collected ideas of the community from the open house, there is limited information presented on other factors that have informed this design, such as economic or environmental constraints. However, in the final meeting there are discussions to set expectations on timing and garden features, e.g. on what plants will be suitable for the garden.

### 5.1.3. The third and final meeting, design sign-off and setting expectations

For the final meeting, everyone is invited back to share their thoughts on the revised design that point of a community garden the NYRP capital team has created. NYRP hopes that by this point the community like the garden plan, minor changes notwithstanding, and the project can move forward. The secondary goal of this final meeting is to set expectations—on timelines and on the need for the community to be open to potential design adjustments:

> I try to say "we're going to go into a phase, it's going to be very long, we're not going to talk to you much, and you're going to think what's happening? But you need to know, this is the longest phase of the process, we're trying to make this something we can build, and that takes time." We also warn them that they need to be a bit flexible, even though we've said these are the ideas we'd like to do, when we get through the process of looking at them in more detail, we may realize that some things are going to have to change or just go away completely, "we're going to try and stay true to what you guys want, but you have to be a little flexible with us" (F. Riganti 2017, pers. comm., 13 October).

From here on, NYRP's communications with the community are primarily concerned with keeping them up to date on project developments, e.g. sharing the final/adjusted designs, construction dates, when the garden will be open, when they'll be invited back to begin building the garden coalition, and helping the community come together to function as a group for ongoing activities, programs and maintenance.

#### 5.1.3.1. Setting expectations for garden growth

Once the community is made aware of construction timelines and potential design revisions, the expectation setting focuses on what's possible to grow in the garden:

> We've developed a lot of knowledge on what works in an urban setting, what are the natural plants and vegetables that can grow in terms of the light source—we'll do a light study—and where's the optimal place to grow. There are neighbourhoods that are very excited about having more space to grow, but we need to manage expectations on what that means, how many [plant] beds, etc. (A. Cabrera-Marus 2017, pers. comm., 13 October).

Discussions around what fruit and vegetables are possible to grow in the space are also vital to NYRP's education programs in the gardens:

> Letting them know if you spend two hours a week growing vegetables, that might cut down on what you need to buy in a supermarket, or improve your health because you and your kids aren't eating McDonalds, you're growing stuff here that's healthy and beneficial to you and your family. I think a lot of immigrant families in the neighbourhoods we work with really appreciate that; for example, in Brooklyn we have a big Bengali population that really take advantage of every inch, they put up structures and grow up and sideways. You walk into a garden and it's like a maze of plants and food (C. Reynoso 2017, pers. comm., 06 October).

### 5.1.3.2. Consequential deliberation from NYRP engagement

Consequential deliberation describes discursive reasoning that impacts power and decision making (Chambers 2012; Cohen 2007). NYRP's community engagement team works closely with their capital team, the latter ultimately deciding on the implementation of the garden design, to ensure that the community comments have impact:

> I think of my role more as getting the people there and getting them to talk, and then making sure the capital team looks at what they're saying. Once we've gathered that information it's the capital team that decides what they think is relevant to the space (C. Reynoso 2017, pers. comm., 06 October).

When revisions need to be made to the garden design NYRP ensures community needs are still being addressed, as described by Riganti, senior project manager of the capital team:

> If we have to alter things I'm always conscious of what was the input from the community, what was really important to them. For whatever reason, usually for budget reasons, or sometimes for permit reasons, we'll need to alter something in a significant way that the community wanted; that might require going back to the community and informing key stakeholders in the community that we're making a significant change. Generally, though, we try to avoid that, and try to keep changes minor (F. Riganti 2017, pers. comm., 13 October).

NYRP makes considerable efforts to engage local residents in the design process, ongoing use and maintenance of their community gardens, working with local partners, attending community events and spending time on location at garden project sites. NYRP provides three rounds of garden redesign feedback and participants are subsequently presented with designs that incorporate this feedback.

To summarize NYRP's community engagement in deliberative democratic terms, NYRP does not ensure that participation is representative, and those that attend are those who have the time or the interest to do so. In terms of authentic deliberation, while NYRP does provide a space for facilitated and respectful discussion, participants are not informed on project constraints, and these discussions are for idea sharing rather than shifts in perspective. Finally, NYRP does make community engagement consequential, designing and developing green spaces in direct response to community ideas.

## 5.1.4. Opportunities to make NYRP's community engagement practices more deliberative

Community engagement implies meaningful connections among community members and their issues, institutions, and their political system. Community engagement implies voice and agency, a feeling of power and effectiveness, with real opportunities to participate, have a say, and make a difference. When conducted in face-to-face settings, all participants should have a voice and means to use that voice in inclusive, diverse, problem-solving conversations that connect directly to action (McCoy & Scully 2002).

NYRP's community engagement sessions could use both dialogue and deliberation to arrive at more inclusive decision making. *Dialogue* is an orientation toward constructive communication that involves relaying ideas honestly, dispelling stereotypes, and intentionally listening to and understanding others (Yankelovich 2001). *Deliberation* is a related form of communication that uses critical thinking and reasoned arguments to make decisions on public policy. Deliberation and dialogue when combined can be used to create mutual understanding, connect personal and public concerns, build relationships, solve public problems, and address policy issues (Makau & Marty 2013).

Critical thinking and reasoned argument are also important factors in the creation of sound public policy. Dialogue helps people identify the connections between personal and public concerns, create mutual understanding, and build relationships based on trust, which is necessary for solving complex public problems. However, deliberation is also needed for judicious argument, critical listening, critical thinking and earnest decision making (Gastil 2000):

> Deliberations aren't just discussions to promote better understanding. They are the way we make the decisions that allow us to act together. People are challenged to face the unpleasant costs and consequences of various options and to 'work through' the often volatile emotions that are a part of making public decisions (Mathews 2002, p. 4).

Deliberation and critical thinking can be encouraged by providing participants with technical information and other relevant facts, with the intent to provide some understanding around how different pieces of information fit together while not overwhelming participants with all available information (Harwood 1993).

Before asking people to make decisions on solutions to public challenges, deliberative dialogue should help them explore a range of views about the nature of the issue. This can be done by providing participants with discussion materials that help them explore different points of view, including those that may be unpopular with some people. This allows participants to sort through public issues which can help them develop a sense of ownership of those issues (Harwood, Scully & Dennis 1996). This ability to "reformulate" or "reframe" an issue is essential for people who want to set the public agenda (Gastil 1993), and can be encouraged by asking participants "how is this issue affecting our community?", "what is the nature of the problem?", and "what are the root causes of the problem (McCoy & Scully 2002)?"

NYRP could encourage multiple forms of speech and communication to ensure that all kinds of people have a real voice. This means the process should make it possible for everyone to participate on an equal basis, which can be achieved through the use of ground rules, encouraging reflection on personal experiences, storytelling, brainstorming, and emphasising the importance of listening (Young 1996).

By promoting listening as well as speaking NYRP could reduce pressure on people who may be reluctant to share their feelings or ideas with strangers. Listening increases the chance of mutual understanding and empathy, and thus the chances of finding common ground for solutions to the public issues being addressed (Barber 2003; Yankelovich 2001). This can be done through the use of ground rules and trained facilitators that encourage people to ask follow-up questions of their fellow participants to make sure they understand one another. Also, by having multiple meetings with small groups, participants feel less pressure to speak before they are ready to do so (McCoy & Scully 2002).

Another effective way to overcome people's hesitancy to discuss public issues is to ask them to share their experiences and talk about how the issue at hand affects their daily lives. Connecting personal experience with public issues makes it easier for people who are not accustomed to talking about politics in public to participate, and sends the message that everyone's perspective is equally important (Eliasoph 1998). This is valuable in situations where some participants may have greater knowledge or professional experience than others. In the context of building strong neighbourhoods this can be done by asking participants to tell a story about the neighbourhood they grew up in, and then asking people to talk about an experience that made them feel connected to their neighbourhood (Leighninger, Flavin-McDonald & Ghandour 1998).

NYRP can also use their community engagement processes to help people to see themselves as actors. This can be done through processes that bring "us" and "them" together, so that the conversation is about "all of us" making a difference in the community, rather than "this is what we hope *they* will do." This can be achieved by community engagement that brings together people from various neighbourhoods, institutions, and agencies to work through problems, consider solutions, and share resources to solve them (McCoy & Scully 2002). It can also help people see the value of their participation by keeping the results of the deliberative process in the public eye, and connecting the outcomes to policymakers. This can be done by involving policymakers in community engagement initiatives, as participants on an equal basis in the dialogue. This type of process makes it more likely that the input will be meaningful to officials, and thus acted on (Barber 1998; Fung & Wright 2001).

The above recommendations could be incorporated into NYRP's community engagement processes through the use of 'deliberative discussion focus groups', which I will discuss in detail in Chapter 6. Theses differ from typical focus groups by providing 1) an educational presentation prior to the group discussion and 2) the addition of an expert co-moderator.

To understand how NYRP does community engagement for projects larger than community gardens I will now examine their participatory practices for Haven Project master plan.

# 5.2. NYRP's community engagement process for the Haven Project master plan

The idea for the Haven Project was initially formed at *Gothamitis*, a conference run regularly by NYRP to bring together health thought-leaders to discuss evidence-based impacts of open-space access on community well-being. NYRP was interested in demonstrating this connection in quantitative terms, seeking to get funding bodies' attention. The Haven Project set out to answer these questions:

> What would happen if we concentrated our efforts on improving open spaces in one specific neighbourhood? What outcomes could we influence by using scientific evidence and community input to design a network of open spaces geared towards improving community health and well-being (Marton & Peterson 2015)?

NYRP quickly identified the Mott Haven and Port Morris community in the South Bronx as a suitable site to test these ideas as there was already a particularly active NYRP garden in Mott Haven—the Willis Avenue Community Garden—and the South Bronx was facing a range of social and environmental challenges that could be positively impacted by improved access to open and green spaces.

The original intention for my research with NYRP was to develop a PPGIS tool for use in the implementation of the Haven Project master plan, but when this project stalled the prototype was used for the community engagement for three NYRP garden redesign projects. Nonetheless, NYRP's participatory processes to develop the master plan informed the design of the PPGIS prototype, so I will share them below.

### 5.2.1. Community partners

As a result of working in the South Bronx for over 15 years, NYRP had established connections with local residents, community organizations and City agencies. To create

collaborative leadership around the Haven Project, NYRP partnered with South Bronx Unite (a coalition of residents and organizations working to secure the social, environmental and economic future of the area) and the POINT CDC (a not-for-profit dedicated to youth development and the revitalization of Hunts Point). NYRP also partnered with local officials, including District 8 Council Speaker Melissa Mark-Viverito and District 17 Council Member Maria Arroyo, as well as private sector companies including Barretto Bay Strategies, a consulting firm that has worked on several South Bronx infrastructure projects. NYRP developed numerous partnerships for this project, which totalled 100+ residents, 31 community-based organizations, 16 local businesses, 6 elected officials and 14 state and city agencies. By utilizing their project partners' active member networks, NYRP was able to reach and invite many of the South Bronx community to visioning events that informed the Haven Project master plan.

To gather community ideas for the master plan NYRP held a series of facilitated public meetings and visits to the South Bronx waterfront from October 2014 to March 2015. These engagements provided the Haven Project team with local knowledge, and the community with an opportunity to have their needs heard. The Haven Project community engagement started with walking tours around the Mott Haven and Port Morris neighbourhoods. During these tours, NYRP would ask participants what they liked and didn't like, and where they thought new open space should be and why. NYRP also held several visioning sessions which involved "post-its galore" and writing on maps (B. Hogan 2017, pers. comm., 27 July), a basic form of participatory mapping which lent itself to future PPGIS applications.

These discussions helped NYRP identify the community's open-space needs on the day-to-day level. NYRP then worked with experts from Columbia University Mailman School of Public Health, Montefiore Medical Center and design firm HealthxDesign to decipher how to address these needs in parallel to those of long-term health-based outcomes (Marton & Peterson 2015).

While the community shared its priorities around health, local investment, street connectivity, existing social assets and physical barriers, the most resounding concern was access to the waterfront. There are no public waterfront access points within Mott Haven and Port Morris, two neighbourhoods framed by rivers. Instead, residents are left to

use derelict waterfront sites for fishing and recreation. NYRP's primary design goal focussed on addressing this basic need:

> If you're surrounded by water you have the right to access that water, and NYRP believes that every person has the right to high quality open space (B. Hogan 2017, pers. comm., 27 July).

After gathering and generating ideas with the South Bronx community, NYRP worked with urban design consultancy Civitas to develop high-level concepts around infrastructure, route mapping and connectivity, which were included in the master plan (see Figure 5). This multi-phased development plan was informed by South Bronx Unite's Mott Haven-Port Morris Waterfront Plan, which called for transforming several waterfronts sites into open spaces and creating a connected greenway.

In 2016, NYRP was awarded US$2.75 million for the Haven Project—US$2 million from NYC Council Speaker Melissa Mark-Viverito and Council Member Rafael Salamanca, and US$750,000 from Bronx Borough President Ruben Diaz. With the assurance of this funding, NYRP began to engage the community for the design of the Haven Project's first phase, the East 132nd Street Pier.
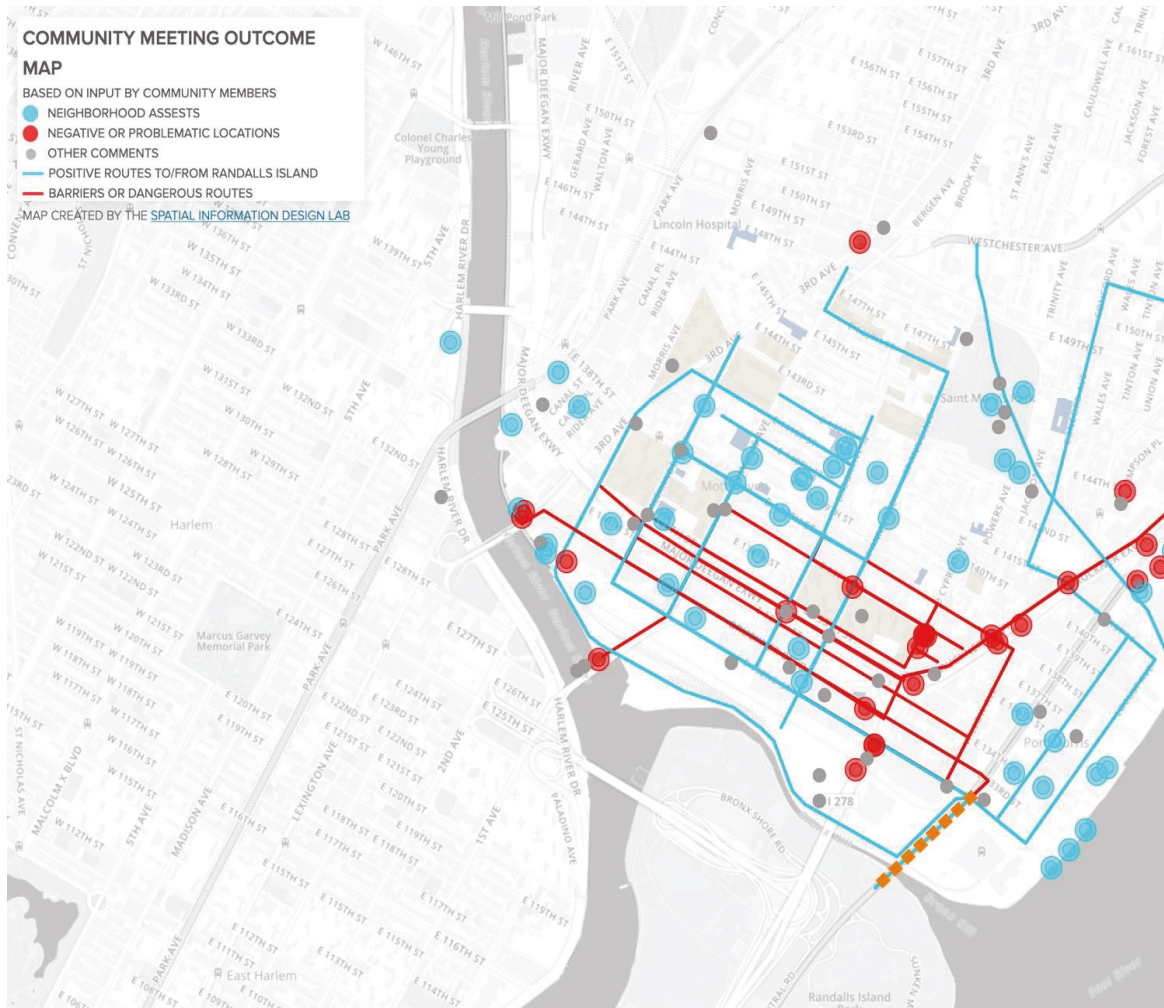
Figure 5 This map of consolidated community feedback helped identify problem areas and opportunities in the Mott Haven/Port Morris neighbourhoods (Care of Columbia University Spatial Information Design Lab)

**HAVEN MASTER PLAN**

St. Mary's Park

Major Deegan Expy.

Bruckner Expy.

RFK Bridge

Randall's Island Connector

Randall's Island

E. 134th St. Gantries

E. 132nd St. Pier



**HAVEN PROJECT PHASE 1**

136th

135th

134th

133rd

132nd

138th

136th

135th

134th

133rd

132nd

Willow Ave

Walnut Ave

Locust Ave

RFK Bridge

Bronx Kill

Randall's Island Connector

Randall's Island

E. 134th St. Gantries

E. 132nd St. Pier

## 5.2.2. Haven Project Phase 1, repair and rebuild the 132<sup>nd</sup> Street Pier

The first phase of the Haven Project focused on enhancing connectivity to the southeast corner of Port Morris, strengthening connections into Mott Haven and establishing waterfront parks at 132nd and 134th Streets. The project site is located where East 132nd Street meets the East River, on NYC Department of Transportation (NYCDOT) land.  In 1902 a pier was constructed there, however in 1989 an explosion at the ConEdison power plant destroyed the pier (Freitag 1989) and it was never replaced (see Figure 6). This waterfront site is located in a flood zone which was impacted by Hurricane Sandy (see Figure 7) and capital investments here could help mitigate future flooding. The plan for the site built off the momentum of the Randall's Island Connector, the first at-grade connection from the Bronx to Randall's Island.

Figure 6 The street end pier on East 132nd Street in Port Morris has not been repaired after an explosion in 1989

Figure 7 Areas of the South Bronx flooded by Hurricane Sandy (The City of New York 2020)

### 5.2.3. Randall's Island Connector

The Randall Island Connector is a 400-metre/1312-foot pedestrian and bicycle path linking 132nd Street in Port Morris with Manhattan's Randall's Island, and its 134 hectare/330-acre park (see Figure 8). The Island's amenities include 60 sports fields, a golf centre, batting cages, boardwalks, picnic areas, and natural parklands (Ashaboglu 2016). An example of effective repurposing of industrial infrastructure, this path lies underneath a railroad trestle that carries high-speed passenger trains, and uses a track-triggered gate mechanism to close the path during freight rail deliveries (MNLA 2015).

Previously, accessing Randall's Island from the Bronx was arduous and indirect, and required traversing ramps and stairwells along the Robert F. Kennedy Triborough Bridge. Led by the NYC Economic Development Corporation (NYCEDC), the Randall's Island Connector project was executed in partnership with NYC Parks, the NYCDOT, and designed by Mathews Nielsen Landscape Architects (Ashaboglu 2016).

Figure 8 Figure 6 Randall's Island Connector (MNLA 2015)

Figure 9 Youth Ministries for Peace and Justice helping to restore the Bronx River (NYC Parks 2016)

The Connector is part of the Bronx River Greenway, a master plan developed in the 1980s by concerned citizens acting as the Bronx River Restoration Project (Moulta-Ali 2016). The plan outlined the revival of 37 kilometres/23 miles of the Bronx River with a continuous waterfront park. In the 1990s and early 2000s, 60 community organizations, public agencies and businesses formed what is today known as the Bronx River Alliance and began to restore the and improve access to the Bronx River (NYC Parks 2016). Once a dumping ground for abandoned cars (see Figure 9), today the Bronx River attracts 5,000 water-sports enthusiasts annually and is used to educate students and the public and train citizen-science volunteers to monitor its conditions (Moulta-Ali 2016). By bringing more people within walking distance of Randall's Island, the Connector acts as a health resource for the South Bronx. However, the entrance to the Connector's East 132nd Street entrance is hidden under a rail trestle and surrounded by industrial roads and buildings, with no signage (see Figure 10). For this reason, creating safe and visual connections to the Connector in the South Bronx became a priority for the first phase of the Haven Project (Marton & Peterson 2015).

Figure 10 The South Bronx access point to the Randalls Island Connector as yet has no obvious signage to direct pedestrians or bicyclists (Walsh 2016)

### 5.2.4. Engaging the community for the design of the 132nd Street Pier

My first interview with Bethany Hogan, NYRP's director of government affairs, was soon after the first visioning session for the 132nd Street Pier revitalization:

> We're in a really interesting stage where we've written the master plan, we finally got funding to start working on the first phase of a really expensive ambition, we're really excited we get to bring everyone back together to say "Hey you wrote this mission, now what should the first thing look like, what sort of programming needs do you have?" (B. Hogan 2017, pers. comm., 27 July)

NYRP brought everyone back together who contributed to the Haven Project master plan to discuss the design of phase 1. Designers presented a site review and raised issues around feature feasibility. To stimulate ideas for the breakout sessions, NYRP presented potential programming themes of science education, increasing community presence and outdoor art spaces:

> A good point was made by someone on the design team—if you're from a community that hasn't had a tremendous amount of access to open space it can be hard to envision what your ideal space would be, so we presented three programming themes, for example: what kind of design interventions could we do that incorporate getting people to the waterfront so they can look at what's in the water, or what kind of low cost structures can we build to support science education? For increasing community presence, we asked what kinds of features and furniture can we build at the site to support picnics and outdoor cooking? And the third one was around an outdoor art space, so what kinds of examples do we see elsewhere where you can dance along the water, or have a different array of arts events and activities? (B. Hogan 2017, pers. comm., 27 July)

NYRP found this approach effective as it struck a balance between being inspiring and being prescriptive. NYRP made sure not to say "this is the most effective use of the space", appreciating that South Bronx residents were better informed to answer that question. During the breakout sessions, facilitators asked groups three questions (PennDesign/OLIN 2017):

1. Tell us what you thought about the three themes. What appealed to you the most? Did anything worry you?
2. What would make this park a destination for you, friends, and family? What would help people find their way?
3. What are your hopes for this first project of the Haven Plan? What are your biggest concerns?

A lot of written feedback was generated on paper by participants (see Figure 11), which NYRP collated in spreadsheets and distilled into categories (see Figure 12) to identify what the predominant themes were, e.g. personal safety or wanting to fish. This process entailed digitizing written notes and using tabulation to generate themes, then creating category charts (see Figures 13 and 14). Participants were also asked what
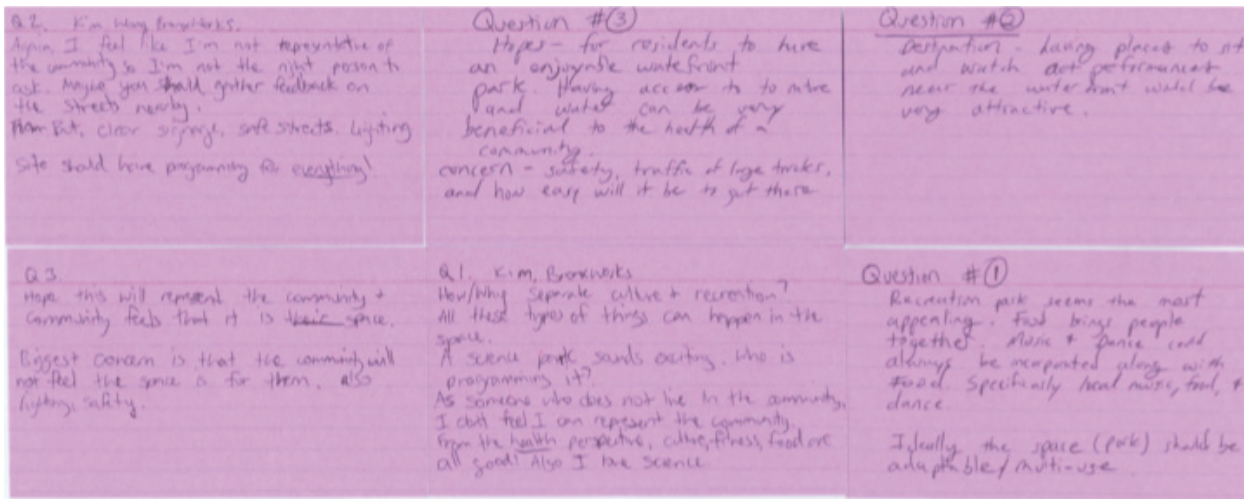
Figure 11 Haven Project Phase 1, Community Meeting 1: Sample of hand-written community comments
(PennDesign/OLIN 2017)



Figure 12 Haven Project Phase 1, Community Meeting 1: Tabulation and categorization of comments
(PennDesign/OLIN 2017)
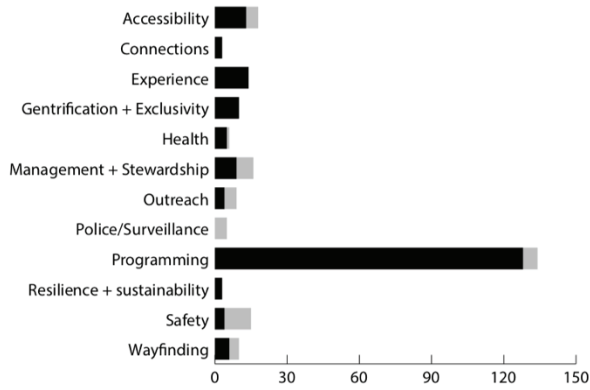
Figure 13 Haven Project Phase 1, Community Meeting 1: Comment Categories (PennDesign/OLIN 2017)
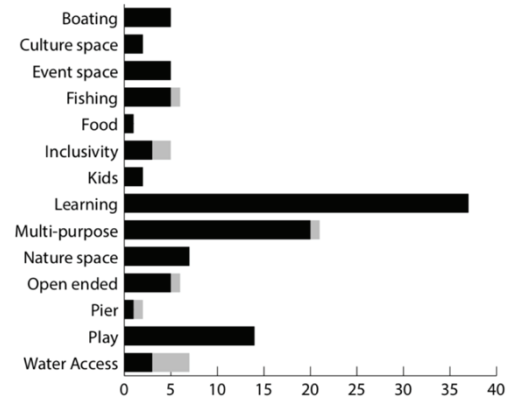


Figure 14 Haven Project Phase 1, Community Meeting 1: Programming Categories (PennDesign/OLIN 2017)

Figure 15 Haven Project Phase 1, Community Meeting 1: Geography of 38 Attendees
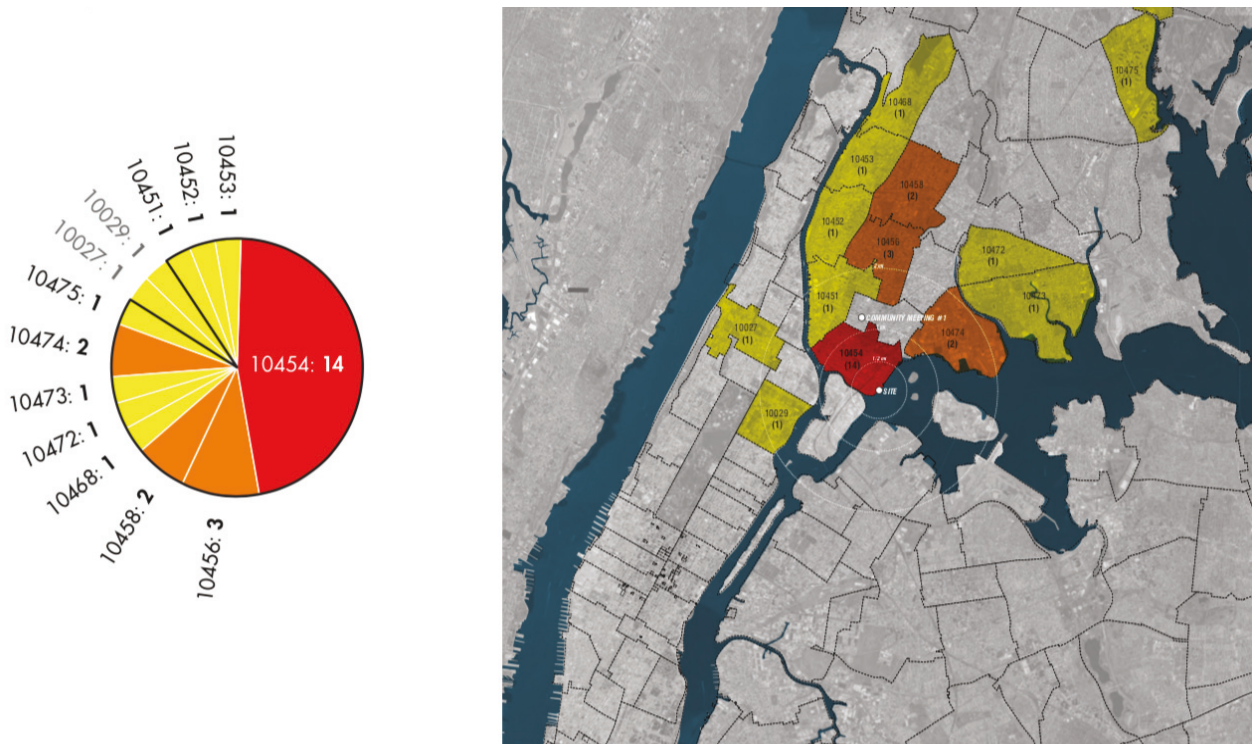
neighbourhoods they lived in and this information was visualized on a map (see Figure 15). Figure 11 demonstrates the kind of material NYRP needed to process at the end of community meetings. This hand-written information can be hard to decipher and requires digitizing for analysis by NYRP's design teams, a process in participatory mapping exercises prone to error (Brown et al. 2012). Figure 12 provides insight into the number of comments per engagement session for the pier design, while Figure 13-15 shed light on NYRP's process for assessing community needs by identifying and charting comment categories. This process of community idea analysis, as well as the map-based visualization of where participants live, lent themselves to a digital and interactive engagement tool, and informed the design of the PPGIS prototype (see Section 5.3.1).

In the second community meeting the design team presented what they understood to be primary community needs in the form of a heat map and presented two design concepts suggesting how these needs could be addressed. At this meeting NYRP gathered feedback on the designs to inform the final schematic for the space, presented in the third and final design meeting.

## 5.2.5. Reflecting on the deliberative qualities of NYRP's Haven Project engagement

NYRP's community engagement for the Haven Project continues to reflect the deliberative strengths and weaknesses previously seen in their smaller garden projects. In terms of representation, no specific efforts were made to ensure participants were representative of the South Bronx community. NYRP did, however, provide a space for South Bronx community members to contribute to designing a part of their neighbourhood that would otherwise be very hard to find, and a space that was free from partisan political actors. Discussions were not open as NYRP lead conversation through question prompts. However, as previously explained, it is worth noting that this was done to benefit the community. Although NYRP did include a presentation on project feasibility and a site review, there was limited education and upskilling for community participants. Once again, discussion in facilitated breakout sessions was focused on idea sharing and generation, and less on respectful debate or transformation of judgments and preferences. Assessing

whether the consultation has been consequential turned out to be a bigger question, and is the focus of Chapter 7.

In the following section I will discuss the participatory design of a PPGIS prototype with NYRP to assist their community engagement processes, and answer my first research question: how can PPGIS help facilitate community engagement processes for NYC green-space stewards like NYRP?

# 5.3. Imagining future community engagement workflows

As the previous sections discussed, NYRP's community engagement process uses handwritten comments and physical maps, which can make subsequent processing of feedback slow and resource-intensive. There was an opportunity to design a PPGIS prototype to digitise NYRP's participatory process, speed up analysis, reduce errors, and potentially scale community engagement.

The review of NYRP's engagement artefacts for the design of phase 1 of the Haven Project along with semi-structured interviews with NYRP staff established the goals for the PPGIS prototype, these included:

1. Tackle the standard "Post-It Notes galore" approach to community workshops, developing a workflow to manage community ideas more easily
2. Create a repository of community comments accessible to all NYRP teams
3. Collect ideas where people are already gathered, e.g. schools, parks and community events
4. Present information to stimulate but not dominate/direct community idea generation
5. Make it easy to spread the word on NYRP projects, both for NYRP and for its partners and community networks

A key challenge for the NYRP prototype was to combine face-to-face deliberation with digital tools to assist in the planning, running and reporting of their community engagement initiatives. Face-to-face problem solving and collaboration provides human connection opportunities not possible in an online format and promotes turn-taking and parallel collaboration (Shaer et al. 2010), role assignment (Tang et al. 2010), mutual awareness (Conversy et al., 2011), and collaborative learning in the form of suggestions, negotiations, joint attentions and awareness maintenance (Fleck et al. 2009). The intent of the online

tool was not to replace valuable face-to-face discussions but to simplify and streamline the process for participants and NYRP staff.

I also had goals for the PPGIS prototype, given this project was part of my research into deliberative democracy and climate change adaptation strategies. I wanted to develop a prototype that helped to inform community discussion and assist in participants' formation, or potential transformation, of judgements and preferences. My research on NYC has indicated that heatwaves and storm flooding were going to increase in frequency due to climate change (Depietri & McPhearson 2018), and that climate adaptation would be a necessary consideration in NYC's future planning decisions (Johnson 2020). For this reason, it was important for me to include environmental data to communicate these threats to community participants. From a deliberative systems perspective, I wanted to increase the transparency of NYRP's engagement processes in such a way that made them accessible to those that did not partake in them, and to increase their accountability by making it easier to understand what communities were asking for. Informed by the goals of participatory design, I also wanted the prototype to assist NYRP's community engagement workflows, ideally making them easier. For these reasons, I added the following PPGIS prototype goals:

6. Provide interested parties with the information they need to understand the project goals and challenges, and help them to assess project proposals
7. Help communities understand the impacts of climate change through geo-spatial data
8. Make it easier to share captured ideas with the public and other stakeholders
9. Make community engagement processes more enjoyable and easier for NYRP to run, report and replicate

The second phase of the participatory design process with NYRP was to co-design an engaging and easy-to-use PPGIS application to educate community members on a local green-space project while capturing their ideas and day-to-day needs to inform its design. I'll now walk through the user experience design process I undertook with NYRP.

### 5.3.1. User experience design

My professional background is one of information architecture and user experience design for the development of web applications. To ensure the interface design of NYRP prototype was informed by established best practices I was influenced by human–computer interaction (HCI), specifically for user experience design and data visualization. HCI is the study of the effect computer technology has on human work and activities (Dix 2009). User experience design is a HCI design discipline concerned with "usability", often defined in terms of efficiency, effectiveness and satisfaction (Sharp, Rogers & Preece 2007; Shneiderman 2010). To ensure that any of my work was freely available I wanted to utilize existing open source software whenever possible. This follows in the footsteps of other open source community engagement platforms such as *Crowdgauge, Crowdmap, Map Server, Shareabouts*, which provide opportunities for citizen groups and governments to collaborate with reduced technology costs (Falco & Kleinhans 2019).

To address goal#4 for the prototype of presenting ideas to stimulate but not dominate community ideas, I wanted to take advantage of PPGIS' ability to layer different geo-spatial data sets, which would be chosen by NYRP. This layering would need to be done in an informative, intuitive and bespoke manner; for guidance on how best to execute this I looked to the analysis of data visualization by Edward Tufte;

> Excellence in statistical graphics consists of complex ideas communicated with clarity, precision, and efficiency...Graphics reveal data (Tufte 1983, p. 23).

Goals and best practices of data visualization discussed by Tufte include making large data sets coherent; revealing the data at several levels of detail; and avoiding distortion of what the data has to say (Tufte 2006). As PPGIS would allow the prototype to layer and correlate qualitative and quantitative data, clarity in visual communication of these data sets was key to usability.

Working closely with NYRP's Bethany Hogan, director of government affairs, and Charlie Reynoso, community engagement manager, opportunities to optimize NYRP's community engagement workflows processes were discussed. These discussions were distilled into the first round of user experience design documents, i.e. a site map, web-application and

mobile templates. Mobile templates were emphasized in this first round to highlight that the prototype would need to be accessible by phone and by computers to provide users with maximum flexibility (see Figures 16-18).
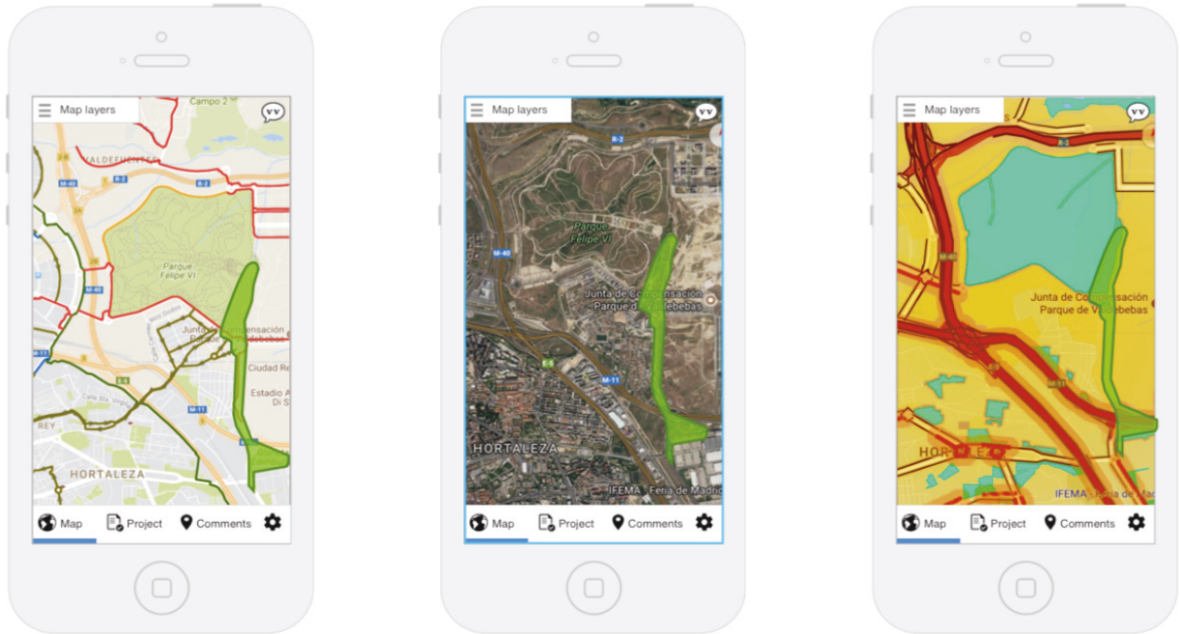


Figure 16 Example of mobile view of different geo-spatial data layers (from left to right): bike lanes, satellite, urban heat island
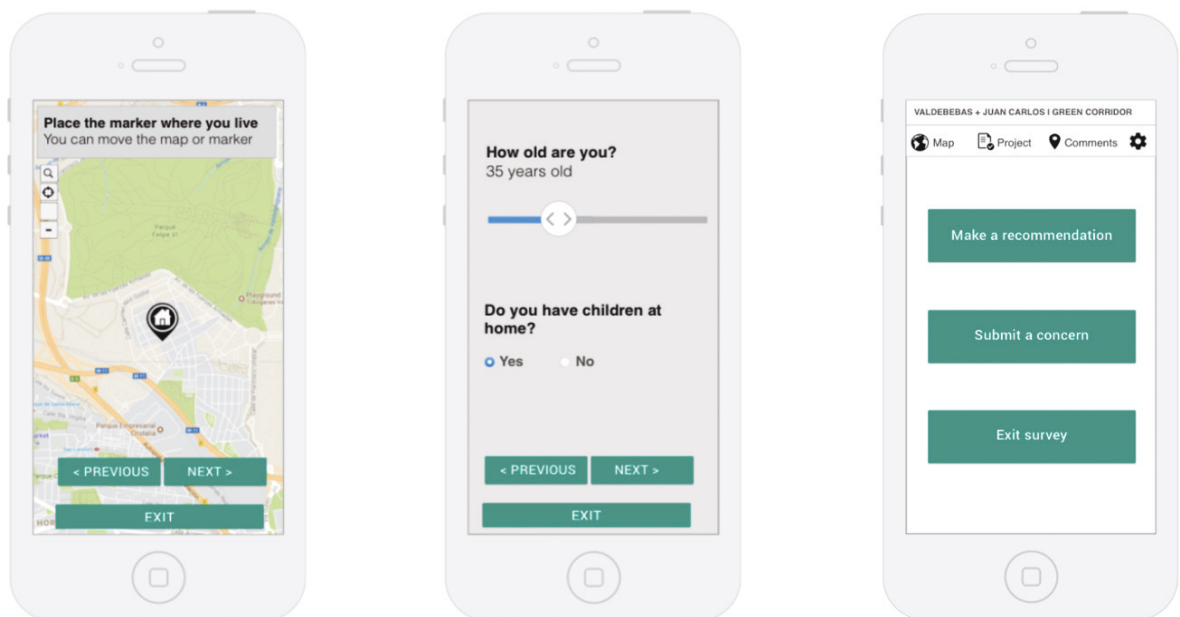


Figure 17 Community survey, round one of user experience design
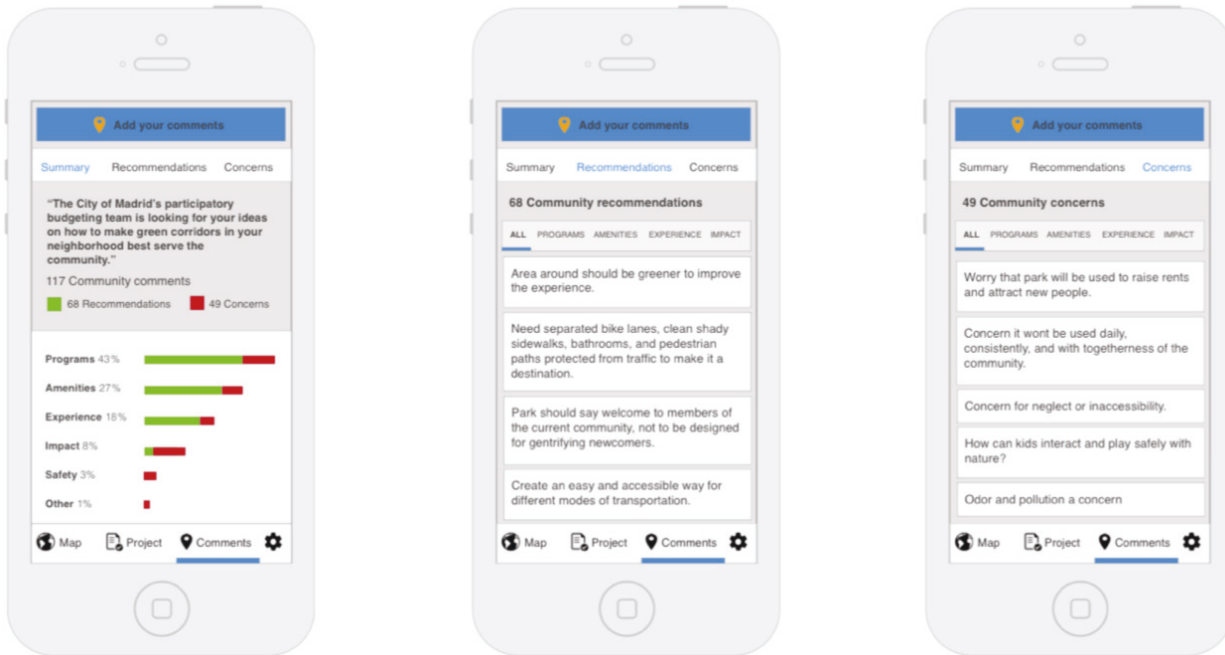
Figure 18 Community survey comments, round 1 of user experience design

Feedback was gathered from Bethany Hogan (2017, pers. comm., 27 July), on the first round of user experience design. This included:

- Add a date stamp to comments to know on which planning phase a comment was submitted (see Figure 19)
- In the survey ask whether the participant is a regular user of the park, what their preferred language is, and the option to submit an email address (see Figure 20)
- Provide a toggle for the comment category, i.e. "recommendation" or "concern" on the survey form, in case the participant changes their mind about the nature of their comment after they type it (see Figure 20 and 21)
- Add a "community" map layer to highlight the locations of local and potential project partners such as schools and police stations, as well as any nearby NYRP projects (see Figure 23)
- Add map layers for flood plains (see Figure 24) and public housing

The second round of these documents were presented to NYRP team leads that had participated in previous interviews. A. Cabrera-Marus (2017, pers. comm., 25 October) believed the prototype could help the NYRP community engagement team take ownership of the participatory process in a "more seamless and less overwhelming" approach, which would save time, create a repository for project data, and reduce reliance on the NYRP capital team. Key feedback points from this second presentation were:

- Make comments publicly available as soon as they're added (see Figure 19)
- Make the project information page editable so that with project progression timelines and design files can be added, and it can act as a bulletin board
- Keep the survey available throughout the project so that participants who join the process in later stages can see what questions were asked of the community previously
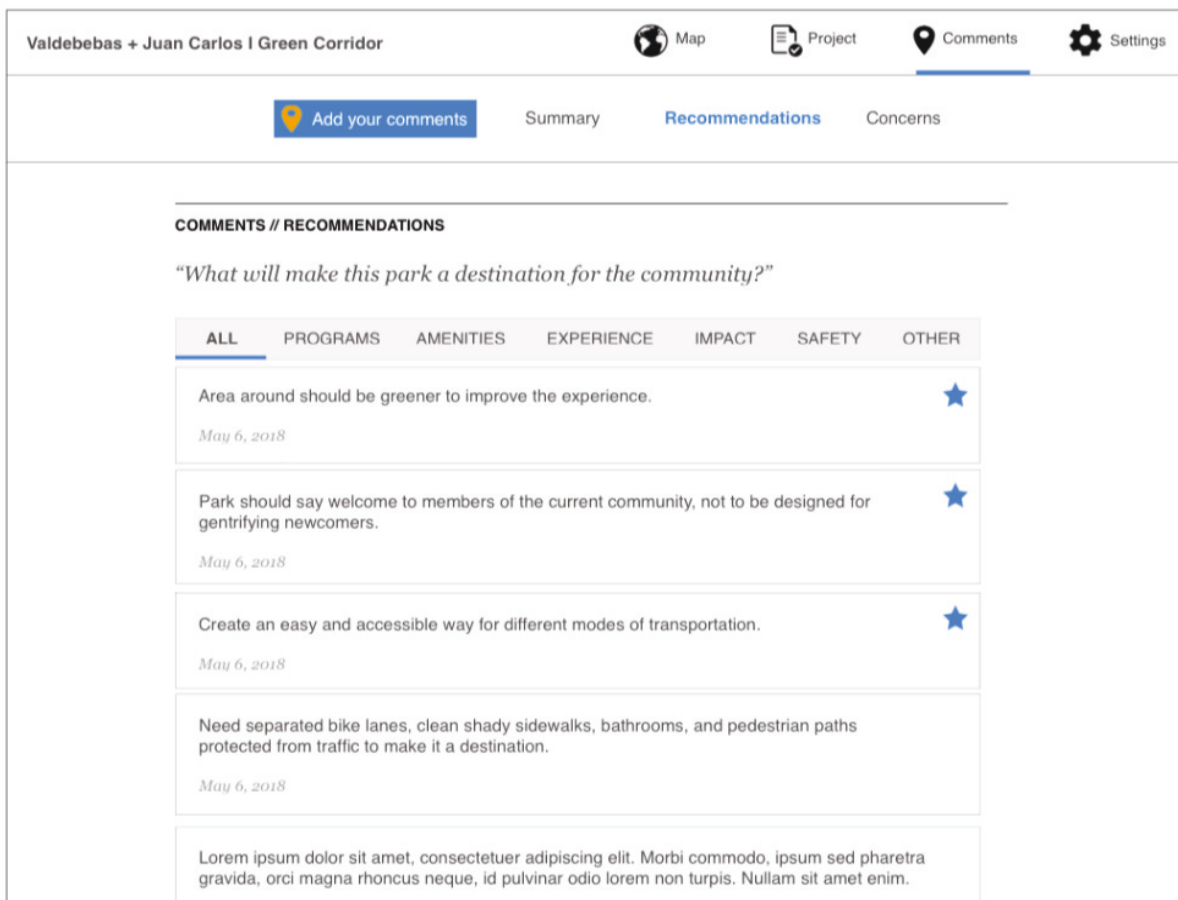


Figure 19 A date-stamp was added to comments to help NYRP track what stage of the design process they were contributed. Facilitators can also "star" comments to make them stick to the top of the list.

It should be noted that unlike typical PPGIS surveys seen in applications like Maptionnaire, the only geo-tagged question in the NYRP prototype connected the participant to their home address, "Move the map to where you live" (see first prompt in mobile survey in Figure 20 and PC browser survey in Figure 21). This reflected the data collected at NYRP's previous engagement workshops for the Haven Project (see pie chart and map of participants neighbourhoods in Figure 15). Further, given that this survey was designed to gather ideas for the amenities and programming of specific, small gardens, and was not gathering ideas/comments for the neighbourhood the gardens were in, further geo-tagging of responses was not needed in this instance. However, for future Haven Project community engagement initiatives it was anticipated survey questions would include more geo-tagged inputs, such as highlighting areas of concern and areas of opportunity for walkways and bike lanes.

Once all feedback had been integrated into the designs and approved by NYRP, the PPGIS web-application prototyping could begin.

### 5.3.1.2. Evaluating in participatory design terms the prototype's user experience design process

Participatory design emphasizes co-research and co-design wherein researchers/designers iteratively develop ideas in partnership with users. To maintain integrity, participatory design projects should involve close interaction and agreement between researchers and users, wherein researchers do not take total

Figure 20 Questions used in NYRP PPGIS community garden survey. Only the first response is 'Move the mark where you live' is geo-tagged.
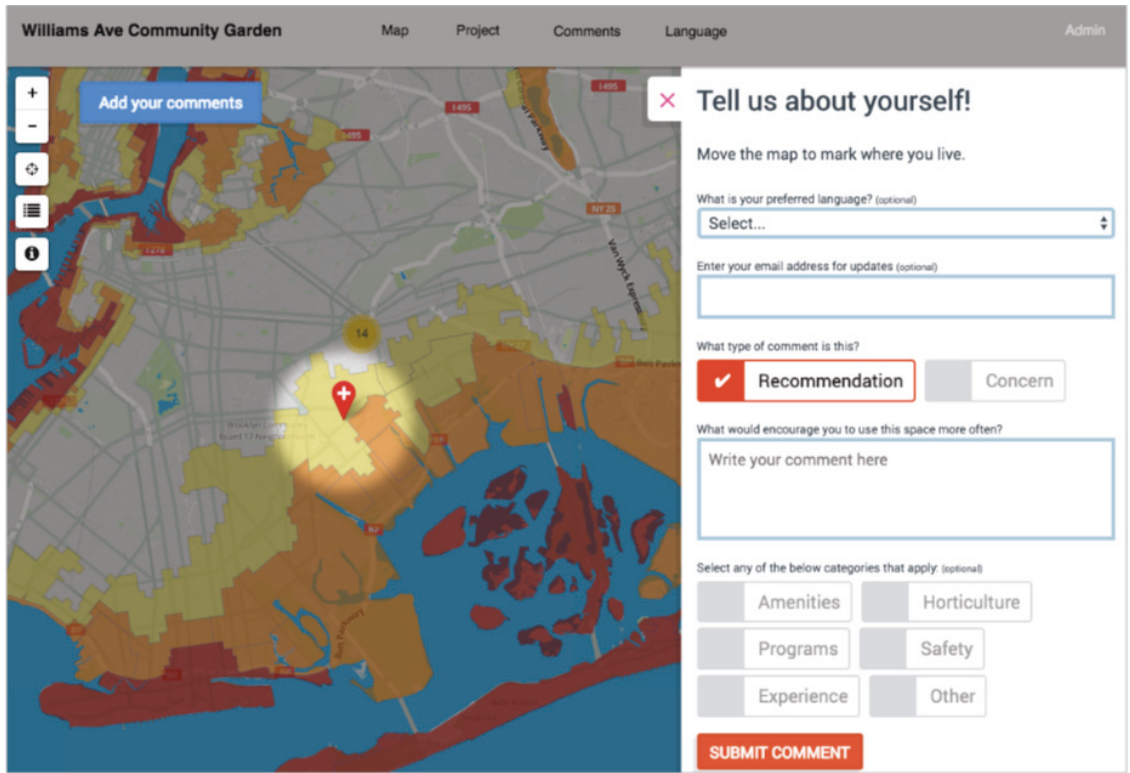
Figure 21 Village Vanguard survey in PC web-browser view. The first question asked users to move the marker to where they lived.



Figure 22 Village Vanguard was designed to be a facilitation tool for in-person community engagement initiatives, as well as being useful for purely web-based surveys

ownership and users are able to shape the project (Spinuzzi 2005). To ensure collaborative development is possible, mechanisms for participation and making verifiable changes to the project must be provided, allowing participants to critically reflect on the project's impact on their work practices (Büscher et al. 2004; Martin, Mariani & Rouncefield 2009).

User participation in design has been described as the sharing of power and decision making (Bratteteig & Wagner 2016), with participatory design's key goal of counteracting the power and knowledge of designers and their highly specialized technical language (Bratteteig 2004). One participatory design method that enables discussions between designers and users without using specific formal language is having them communicate through mock-ups and prototypes (Bratteteig & Wagner 2016; Simonsen & Hertzum 2008).

NYRP contributed to the design of their community engagement prototype through semi-structured interviews and discussions on their existing processes, as well as through design reviews on user experience documents. However, like many of the early participatory design projects to design software (see Section 2.5.1.2.), the decision to look for a technology solution (in this case PPGIS) had already been made by me. To truly include NYRP in all stages of the design process I would have explored alternative solutions with them, including non-digital ones.

Due to time constraints, deliberative democratic practices weren't used in the design phase of the Village Vanguard prototype, e.g. minipublics or deliberative discussion focus groups. For this reason, Chapter 6 explores how greater participation of end users in the design of PPGIS can improve their language design, accessibility and overall uptake.

Due to time and resource constraints, not all features requested by NYRP could be developed in the first prototype although they were all captured and included in later design documents (see Appendix 4). These features were primarily to do with NYRP's administration capability, e.g. having the ability to edit project information and set up new projects through a content management system.
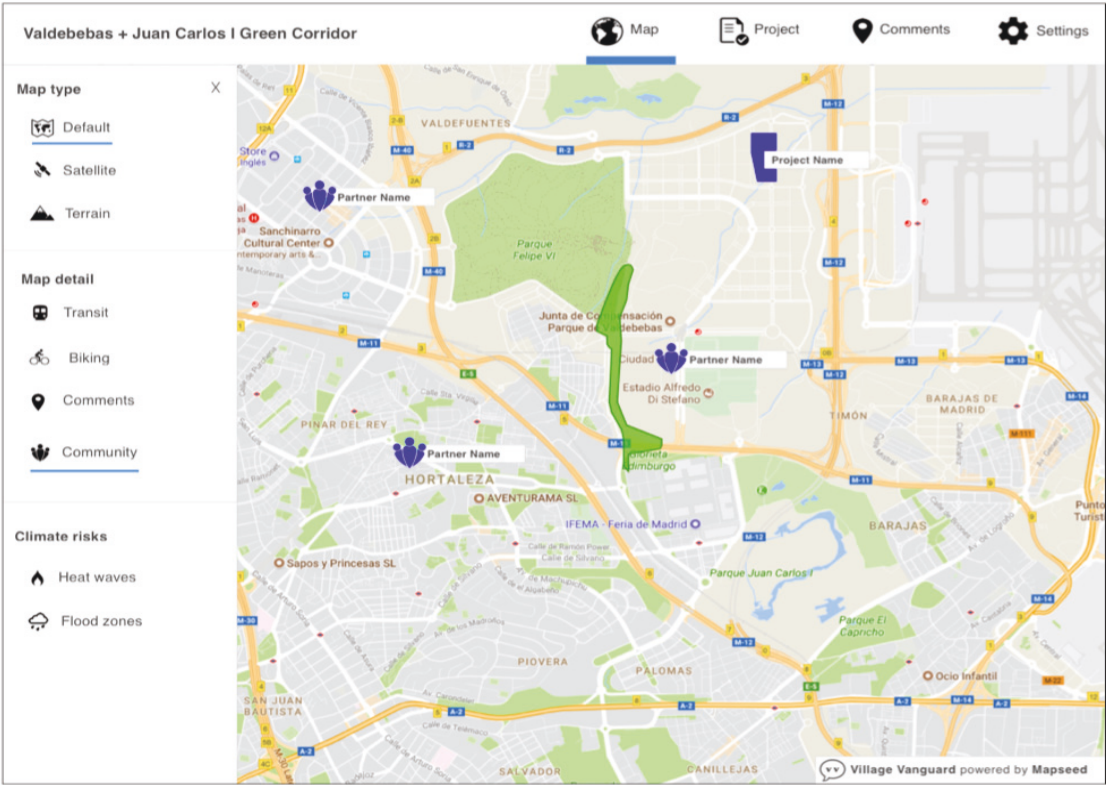
Figure 23 A 'Community' map layer, to highlight the locations of local and potential project partners, such
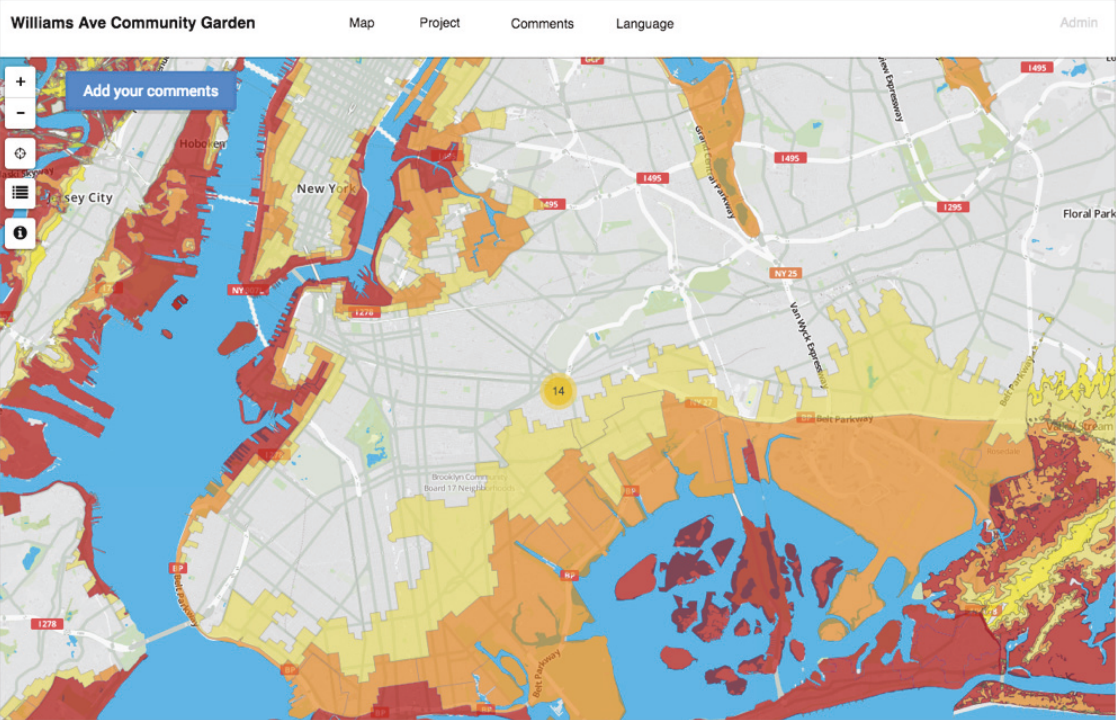


Figure 24 New York Flood zones for hurricane categories 1-4

### 5.3.2. Prototyping

While working with NYRP on the design of their PPGIS prototype I came across the Collective Intelligence for Democracy Workshop and its call for prototypes that aspire to improve democracy through increased citizen inclusion and collaboration. In June 2017, I applied to be part of this workshop with the work I had done with NYRP.

#### 5.3.2.1. The 2017 Collective Intelligence for Democracy Workshop

Medialab-Prado is a program run by the Madrid City Council's Culture and Sports Department. Medialab-Prado is a citizens' laboratory for the production of open cultural projects. Anybody can submit or sign up for project proposals, which are developed on a collaborative basis. Project groups conduct collaborative research that address a wide range of topics (Medialab Prado 2019).

In 2017, the Medialab-Prado Collective Intelligence Laboratory for Democratic Participation invited people from all over the world to attend a two-week workshop in Madrid to develop digital mechanisms to address challenges relating to democratic participation. The Collective Intelligence for Democracy Workshop was concerned with democracy, citizen empowerment and collaborative decision making through emerging technologies. More than a lab for prototyping, the workshop provided networking space for global actors to meet and work together over two intensive weeks.

The Medialab-Prado made a call for project prototypes that "activate collective intelligence and improve democracy and civic engagement" (Innovazione Democratica 2017). Ten projects were chosen from around the world covering a wide range of participation technologies—the NYRP PPGIS prototype was one of them.

#### 5.3.2.2. Establishing Mapseed as a technology partner

The use and development of free and open-source software was a pre-requisite for the Medialab-Prado workshop projects, with the final prototypes needing to be available under licenses conducive to re-appropriation, reuse and distribution. The Village Vanguard prototype aligned with this, being built on the open-source mapping platform Mapseed. What was even better, the three co-founders of Mapseed had applied and been selected as my collaborators.

I met Jacob Caggiano, co-founder of Mapseed, in early 2017 at a Participatory Budgeting fundraiser event in Brooklyn. Mapseed had already been used on several community engagement projects for land management and urban planning, including a successful participatory budgeting campaign for the City of Durham, North Carolina. Mapseed is a web application powered by a Django backend (written in Python) and a static site frontend written in React/Redux, running in Amazon's cloud infrastructure. The application's mapping layer utilizes Mapbox's stack, including MapboxGL-JS and Mapbox's geocoding engine (T. Croxson, 2020, pers. comm., 11 February).

I wanted to develop a PPGIS tool that was open-sourced so that it could readily be used by not-for-profits like NYRP, as well as City agencies with limited budgets. Not only was Mapseed an up-and-coming PPGIS platform, they made all their source code freely available on GitHub[7].

### 5.3.2.3. Using the Scrum methodology to develop the PPGIS prototype in Madrid

Scrum is an agile approach to web development that I had previously used professionally. Scrum teams are self-organizing and cross-functional, meaning the entire team decides on how problems will be solved and who will work on which tasks (Bright Labs 2002). I acted in the supporting roles of scrum master and product owner, leading the daily status update meetings and guiding the team to build a prototype that addressed NYRP's needs.

The product backlog is the master list of all functionality desired in the product. A scrum completes these features in a series of sprints—set periods of time. At the start of a sprint, team members commit to completing several features from the project's product backlog. For large projects, a sprint may last two to four weeks, but given the Madrid workshop time constraints our team decided on five two-day sprints to create our PPGIS prototype (see activity details in Appendix 3).

My international and interdisciplinary team (see Figure 25) was comprised of:

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[7] GitHub is a code-repository hosting service that uses Git, a free and open-source distributed version control system

- Erika Whillas – Project lead, Senior UX designer, Australia

- Sonia Delgado Berrocal – Landscape architect and researcher, Spain

- Malu Oliveria – Journalist and researcher, Brazil

- Carles Boïls Gisbert – GIS expert, Spain

- Jake Caggiano – Mapseed co-founder, United States

- Trevor Croxson – Front-end developer and Mapseed co-founder, United States

- Luke Swart – Computer Engineer and Mapseed co-founder, United States



Figure 25 My collaborators at the Collective Intelligence for Democracy Workshop, clockwise from front right: Malu Oliveria, Sonia Delgado Berrocal, Jake Caggiano, Carles Boïls Gisbert, Luke Swart, Trevor Croxson

### 5.3.2.4. Team decisions to build and test the PPGIS prototype

Goal#9 of the prototype was to make in-person community engagement processes easier for decision-makers to run, report and replicate specifically for urban green-space planning (see Figure 22 for a depiction of how the prototype might be used in an in-person setting). To ensure that the system could be readily replicated and was not only relevant to the two projects I had discussed with NYRP, my workshop proposal also included an instance of the PPGIS tool for a Madrid participatory budgeting project for developing urban green corridors. A benefit of setting up a Madrid-based project was that the team could do some testing in the field. Another project to test the prototype, Parque Augusta in Sao Paulo, was suggested by Malu Oliveria, who had worked with activists in Brazil to win back a 24,000 square-metre/258,334 square-mile green space from property developers in central São Paulo. At the time of the workshop, the Parque Augusta activists were preparing a community engagement program to inform the design of the future park.

Appendix 3 includes a detailed account of the ten-day scrum of five two-day sprints. Some key decisions that were made by the team as we developed the prototype were:

- Use the same heat map colours used by the Australian Government Bureau of Meteorology, with a data range of 5°C to 50°C/41°F to 122°F
- Use Landsat 8 data (Band 10 for Thermal Infrared 1, and Metadata of satellite information), and polygonise the raster data for the heatwave data layer (see Figure 26)
- Develop a hypothetical green corridor project for Decide Madrid (work on this participatory budgeting project wouldn't begin until 2018) (A. Baciero, 2017, pers. comm., 31 October) and gather real community comments to test the prototype in Madrid (see Section 5.3.2.5.)
- Change Mapseed's default base map to one that doesn't include roads and transportation, as transportation will be a data layer in the prototype that can be turned on and off
- Translate the prototype into Spanish and Portuguese to make it easier to use in the countries where the projects are located
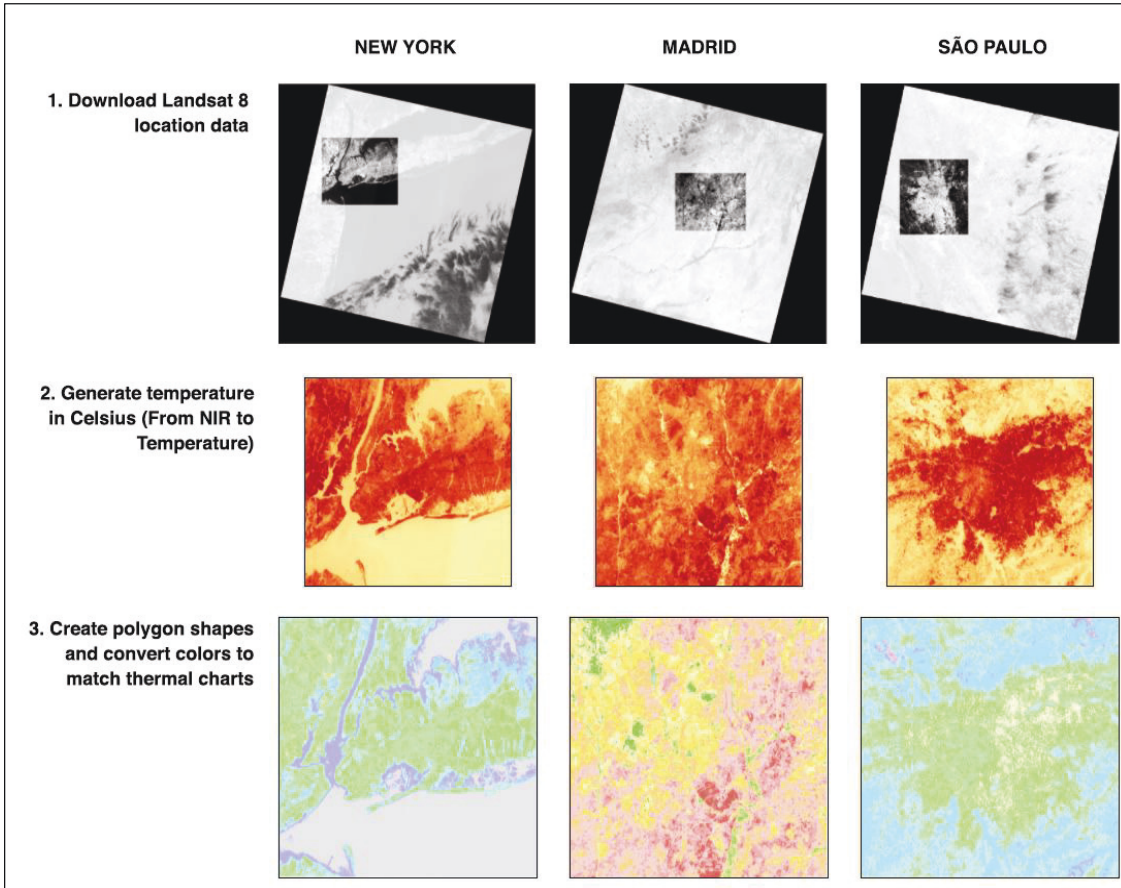
Figure 26 Procedure to generate geo-spatial data layer for the NYRP prototype depicting urban temperatures during a heatwave

### 5.3.2.4.1. A note on NYRP's role in the development process in Madrid

As previously outlined, NYRP was both the designated end-user and the co-designer of the PPGIS prototype developed in Madrid. However, due to time and resource constraints, it did not participate in the daily decision making needed in the development scrums. By signing off the user experience design, NYRP had endorsed me to develop the prototype we had co-designed in the lead up to the Madrid workshop. NYRP did, however, provide all project information for the two garden projects set up by the team in Madrid as well as supply survey questions and preferences on geo-spatial data layers.

### 5.3.2.5. Manzanares, a hypothetical project for field testing the PPGIS prototype

The Manzanares Corridor was part of a Decide Madrid project to link several parks in the city with walkways, bike paths and green spaces (see Figure 27). The Manzanares Corridor will link the Casa de Campo park to the cultural enclave of Madrid Rio with a 2km/1.2mile pathway along the Manzanares River. On one side of the Corridor is the Palacio neighbourhood, located in the Centro district, a commercial and residential area popular with tourists. On the other side are Puerta del Ángel and Cármenes, residential neighbourhoods of the Latin district, with a large community of middle class and lower middle-class families.

Once all the project data was loaded and translated for our green corridor project along the Manzanares River in Madrid (see Figure 28-31 for examples of Madrid geo-spatial data), two of our Spanish speaking team members, Sonia Delgado Berrocal and Carles Boïls Gisbert, went to our hypothetical project site and used the prototype to gather 25 community comments (see Figure 32). A predominant concern raised by participants was that there was currently a lot of activity on a narrow space along the river, with bike riders, skate boarders, pedestrians and cars all sharing the one path, and it would be good to separate and clearly mark different areas of use on the path.

Gisbert (2017, pers. comm., 21 November) observed that people were happy to answer the survey generally because they were pleased with the participation tools and opportunities the Madrid City Council provided. In 2015, the Decide Madrid platform had

launched, powered by the open source software Consul, and provided Madrid's citizens opportunities to engage with the local government in four ways (DeJohn 2017):

1. Participatory budgeting: citizens can propose projects up to a budget of €100 million
2. Proposals: citizens can propose and support ideas for new legislation
3. Consultations: the opportunity for Madrid citizens to provide opinions and vote on council proceedings
4. Debate: a platform for deliberation which doesn't lead to direct decision making but gives the City access to public opinion

Berrocal (2017, pers. comm., 22 November) found that it was helpful to show community members the map with the project site clearly marked before asking them the survey questions. While Berrocal also found other map layers useful to show participants, Gisbert only wanted to use the survey pages when using a phone in the field. Berrocal found that the interviewees were left wanting to be involved in more of these types of initiatives, and some asked how their friends could participate online. Some participants were a little disappointed that they would not know how or if the government would value their comments.

After this testing in Madrid, we had a functional PPGIS prototype, Village Vanguard, that was ready for further testing in NYC.
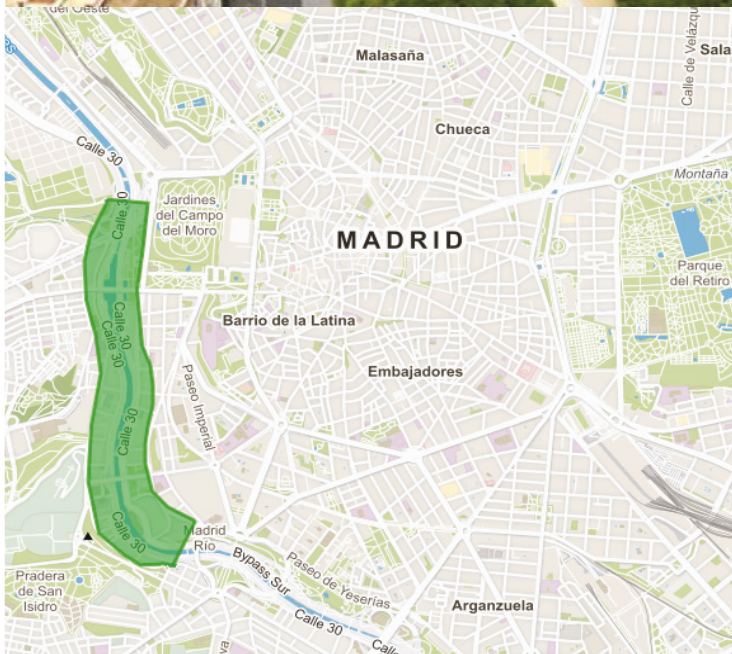
Figure 27 The title for this participatory budgeting project was 'Unir zonas verdes para crear un corredor ecológico alrededor de toda la ciudad', which roughly translated to 'Join green areas to
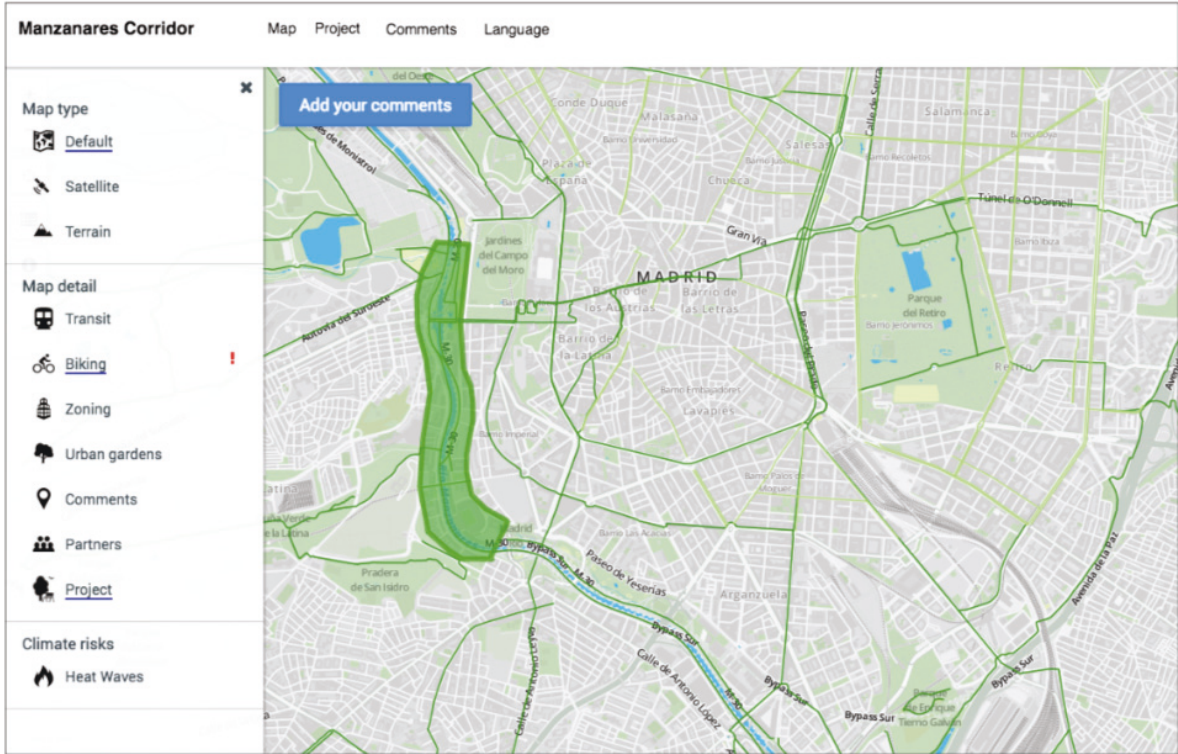
Figure 28 Madrid bike path data
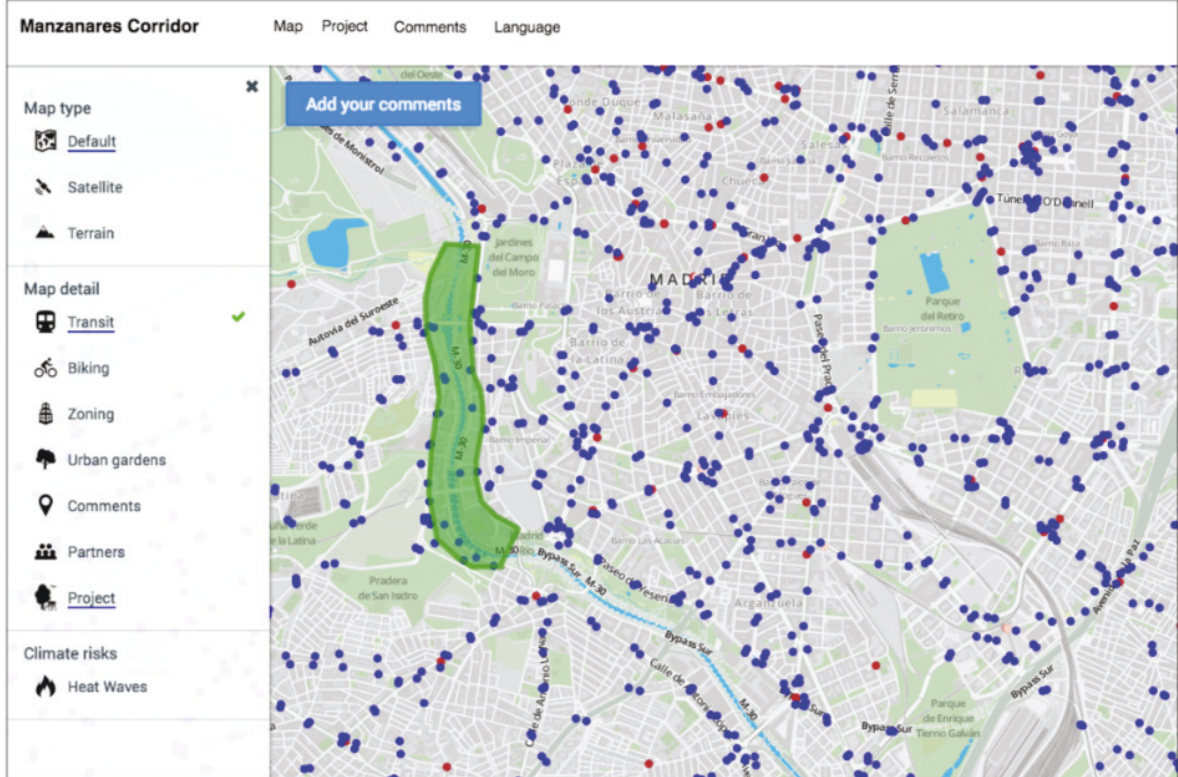


Figure 29 Madrid bust stops and train stations
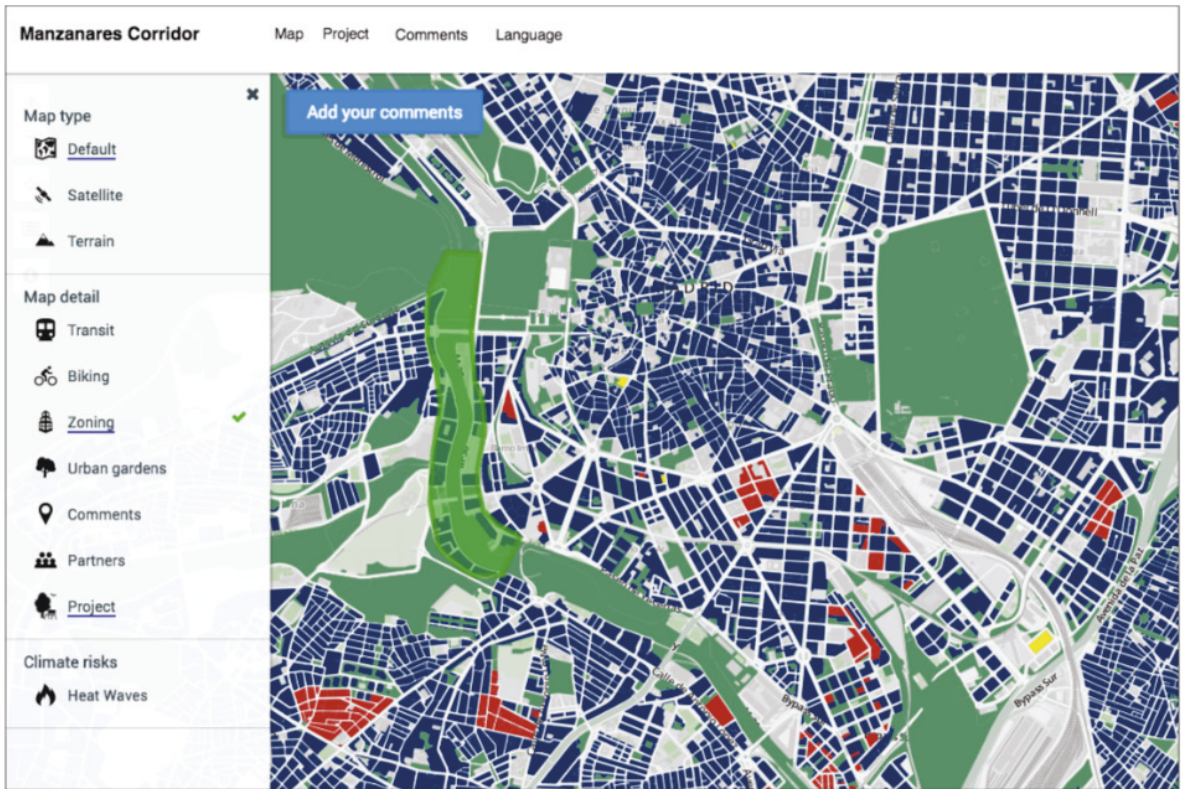
Figure 30 Madrid land use zoning data
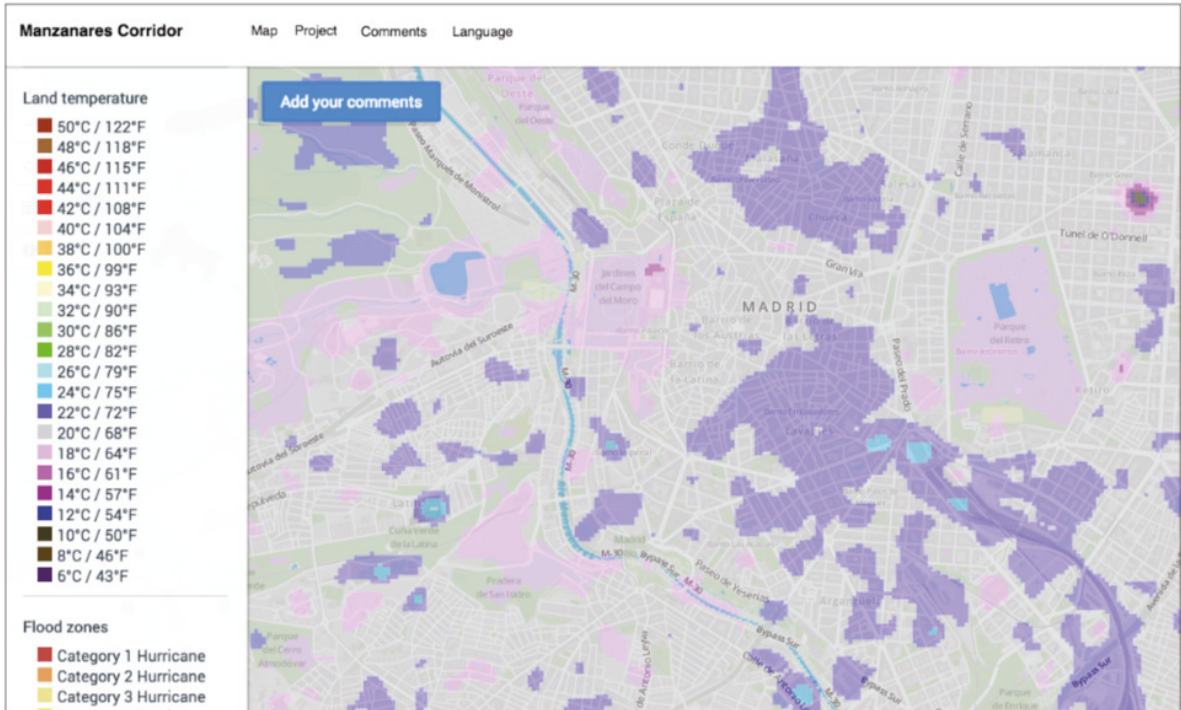


Figure 31 Heat map of Madrid heat wave data, used to highlight the cooling effect of green spaces

**25 Community comments submitted** ■ 3 Concerns ■ 22 Recommendations

| | |
|---|---|
| Amenities 39% | |
| Other 36% | |
| Safety 15% | |
| Programs 6% | |
| Horticulture 3% | |
| Experience 0% | |
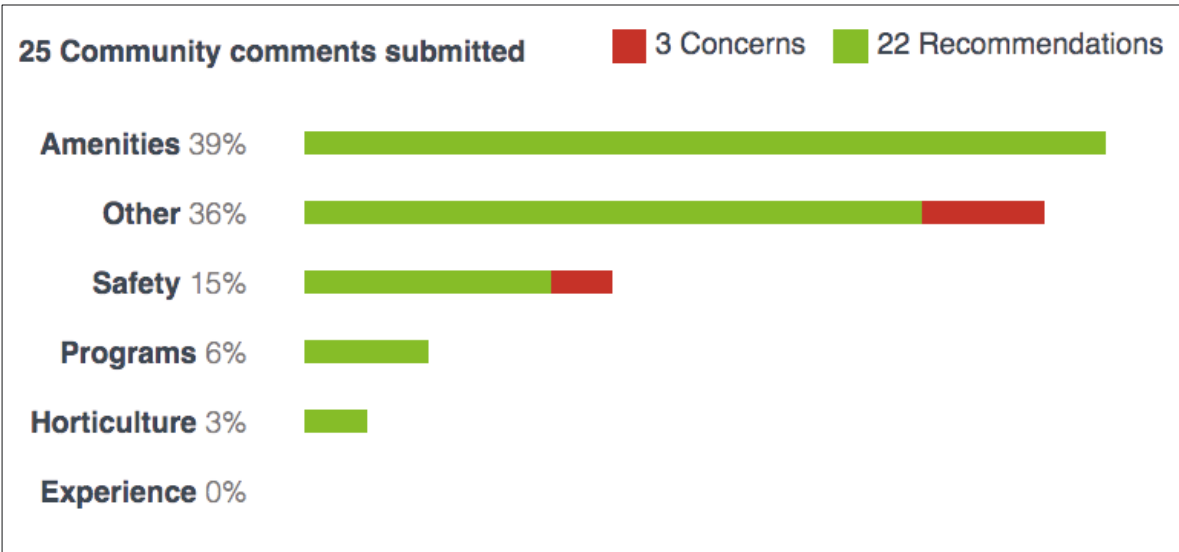
Figure 32 Two of our Spanish speaking team members, Sonia Delgado Berrocal and Carles Boïls Gisbert, gathering comments for our hypothetical project along the Manzanares River in Madrid

# 5.4. Testing the PPGIS prototype in NYC

The NYRP PPGIS prototype, though designed for the stalled Haven Project, was tested on three NYRP garden redesign projects: Williams Ave Community Garden, Hull Street Community Garden and Bathgate Community Garden.

The following is a summary of community contributions for each garden project that used Village Vanguard prototype:

- Williams Street garden: 22 community comments submitted (21 recommendations, 1 concern), top categories were amenities (28%), horticulture (22%) and experience (22%)
- Bathgate community garden: 34 community comments were submitted (32 recommendations, 2 concerns), top categories were programs (25%), horticulture (20%) and amenities (16%)
- Hull Street garden: 36 community comments were submitted (34 recommendations, 2 concerns), top categories were amenities (24%), 'other' (24%) and experience (18%)

Labels in figure:
entrance / entrada
shade structure / estructura para sombra
stage / plataforma
picnic table / mesa de picnic
permeable pavers / pavimento permeable
benches / bancos
raised planter / cama de siembra
compost bin / contenedor de composta
shed / almacen
mulch / mantillo
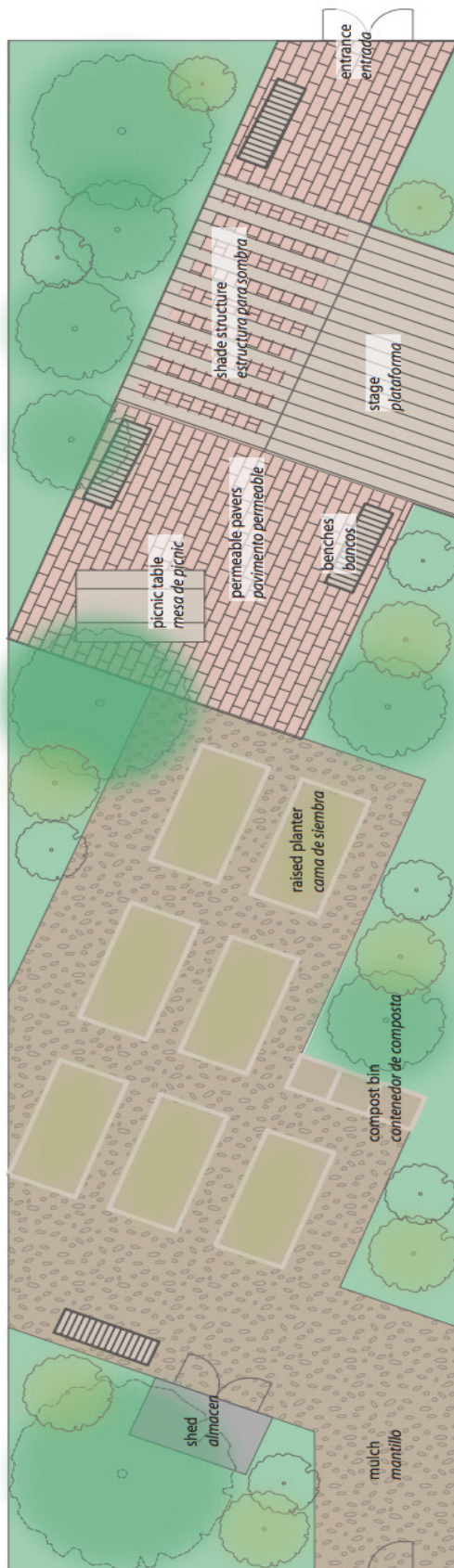
For the Williams Ave project, I was able to interview two participating community members as well as two members of NYRP's community engagement team. I will use this project as a basis for presenting user feedback below.

NYRP acquired Williams Ave Garden in 1999, preserving it as open space in perpetuity. In 2017, NYRP received New York State funding through the Vital Brooklyn initiative to rebuild the garden, which reopened in spring 2019. As a result of the garden redesign, amenities now include 10 raised garden beds, a composting toilet, a tool shed and a compost bin. There is a gathering and recreation area with a grill, seating, space for exercise classes, a performance stage, a shade structure that also provides shelter from rain, and a laser cut metal fence featuring stylized images of Brooklyn's pre-colonial landscape. Today, the garden provides a respite from the mostly industrial neighbourhood that surrounds it and hosts frequent neighbourhood events. Project partners included: New York Governor Andrew M. Cuomo; New York State Parks Commissioner Rose Harvey; Dormitory Authority of the State of New York; NYC Council Member Rafael L Espinal Jr.; New York Department of Transportation; Trey Whitfield School.

Figure 33 Williams Ave Community Garden redesign

### 5.4.1. NYRP PPGIS prototype feedback from the Williams Ave project

Community engagement for the Williams Ave Community Garden rebuild was a little different in format from other NYRP garden projects. Funding for the project came from the New York State Governor as part of the Vital Brooklyn initiative, whose timeline required engagement to begin in winter. This negated the opportunity for an open house session at the garden, "and I'm pretty sure he wanted it done before the election" (C. Reynoso, 2018, pers. comm., 20 October). NYRP had a small office around the corner from the Williams Ave Garden and hosted three charrette-style community meetings, as outlined in section 5.1. These meetings were run by NYRP's Charlie Reynoso with the support of Juan Rodriguez, who took notes, manned the recorder, and helped with anything else that Reynoso couldn't do while running the meeting. Each meeting for the Williams Ave project had 9-12 participants, and given the garden only had one regular user up until that time, NYRP considered this a good turnout. Village Vanguard was used in these meetings during discussions on garden features and programming to gather ideas from participants in the form of recommendations or concerns, with the option to apply one or more categories to submissions, i.e. amenities, experience, horticulture, programs, safety or 'other'. For reasons discussed below many participants submitted multiple ideas in one comment submission, and tagged them with multiple categories. Prototype features that were used in meetings included the project overview (which included proposed designs), the map indicating garden location, the PPGIS survey, and the comments section for review of contributions. The geo-spatial data sets of flood plains, heatwaves, etc., were not used in meetings for reasons discussed shortly.

I'll now share my findings from interviews with NYRP staff and community members on the benefits and challenges of using the PPGIS prototype.

### 5.4.1.1. The PPGIS prototype helped NYRP gather comments they could not have otherwise and helped facilitate and inform community discussions

Overall the prototype helped NYRP gather comments and aided the facilitation process, and provided a mechanism for community members who were unable to attend to submit ideas. For this garden project, NYRP also did a tabling event outside Trey Whitfield elementary school, with NYRP staff running the prototype with the aid of touchscreen

tablets. This event allowed them to gather significant feedback from parents not usually able to participate in community events:

> The meetings we did have were really successful, the app came in handy for a lot of it, especially gathering feedback from people who didn't come to the meetings…We did a tabling event at a school nearby one of the gardens and set up a table with the app and got a lot of feedback from parents. It definitely came in handy and we got a lot of feedback that we otherwise wouldn't be able to [get]. So that was great (C. Reynoso, 2018, pers. comm., 23 March).

Reynoso anticipated that the prototype would be especially useful in summer when open-house garden meetings would commence as gathering multiple comments from a range of people simultaneously had previously proven challenging:

> Where I think [the PPGIS prototype] benefits us and think it will benefit us even more in the future is when we're having the first garden meeting for this type of process. Since these meetings were happening over the winter we didn't get to have the open house meeting [at the garden]. But I think that's when it will really come in handy because usually what we'll do is we'll have a table and some poster boards, and being able to have those iPads, or telling people they can go on their phones and put the feedback into this app would really be helpful because we'd be talking to multiple people at the same time, and a lot more people (C. Reynoso, 2018, pers. comm., 23 March).

In the first meeting of a NYRP garden redesign project—which are typically held onsite—NYRP keeps the atmosphere informal and prompts participants with questions and information on notice boards to have them think creatively. For the Hull Street Community Garden and Bathgate Community Garden Reynoso made the PPGIS prototype available on tablets to gather more thought-out responses from participants after they'd "warmed up":

> We have boards with information and questions, and we ask community members to write their answers to each question on pieces of paper. I look at that as kind of an icebreaker, to get people to think outside the box and once they've done that exercise we then have the iPad with the app and that's where they sit down and put more information to express how they feel. So I think that's been really helpful (C. Reynoso, 2018, pers. comm., 23 March).

In line with deliberative democracy's recommendation for respectful and informed discussion among people impacted by a planning decision, NYRP's ultimate goal for community engagement meetings is to have participants discuss and collaborate on ideas for community gardens. Nonetheless, sometimes these discussions are dominated by individuals:

> That's ultimately the goal, to try to have it where people can chat back and forth, they're not necessarily just talking to me. I think there has [sic] been some examples of that. Mostly, obviously it's the people who are comfortable talking, and they will just go back and forth and disagree or even agree. Somebody will point something out and the others may not have noticed that and they'll agree and support it. [For example] this guy, who's actually the president of the Business Improvement District[8] in that area, he was taking over the meeting, giving all his thoughts and everyone was kind of sitting back. But then eventually he pointed out how East New York has so many gardens and agricultural spaces that it would be nice to have a place where there was more of a focus on events and gatherings, and the rest of the group really picked up on that and agreed, some of them disagreed, some of them wanted more garden beds. But I think even that conversation was more back and forth between them, as opposed to him talking to me or me talking to him.

In terms of facilitation, the PPGIS prototype was useful to quieten the louder and dominating voices:

> I think even in the first meeting, people who had a lot to say were also able to use the app to further their thoughts. So, versus them just talking all the time, you could say 'that's a great thought, put it in the app.' Which is what we kind of did with the two ladies from East New York (J. Rodriguez, 2018, pers. comm., 23 March).

Having tablets readily accessible during community discussion also helped shy people contribute:

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[8] A Business Improvement District (BID) is a    geographical area where local stakeholders oversee and fund the maintenance, improvement, and promotion of their commercial district.

> I think part of the reason the app has been successful, or helpful for us, is because a lot of people who aren't comfortable sharing their opinions can just put them into the app (C. Reynoso, 2018, pers. comm., 20 October).

Another goal of democratic deliberation is for participants to understand other viewpoints, and subsequently shift their own position in response to this sharing of perspectives. By showing proposed garden plans to meeting participants, which were made available in the PPGIS prototype, ideas that were initially opposed were better understood and sometimes gathered support:

> I think also giving them the plans helps a lot. So, when we create a design that the community doesn't think has enough garden-bed space, once they see the designs in-person we can work with them and say "if we move this over here you'll still have that same number of beds, but it actually opens up more space for programming." I think once people are all in the room talking about it, it really lets them see the other perspective, and sort of accept the idea of letting go a bit, and accommodating others as well (C. Reynoso, 2018, pers. comm., 20 October).

In meeting with goal#8, the NYRP PPGIS prototype included a comments dashboard to see community contributions in real time, as well as their assigned categories and whether they were recommendations or concerns. Having the community comments readily available helped NYRP's community engagement team prepare for the design presentation meetings and prepare reports for NYRP Capital team:

> As far as preparing for meetings, having that information there for myself so I can look at what designs the capital team came up with, look at the comments, and then sort of gear the meeting to what people have been talking about. And then the comments definitely helped reporting, like I said what we end up doing is taking the comments right off the app, putting that in a document and it's really easy to share it with the capital team (C. Reynoso, 2018, pers. comm., 23 March).

The Williams Ave project required Reynoso and Rodriguez to speak at local events, including several presentations to the Local Development Corporation of East New York (LDCENY), community board meetings, and the executive community board meeting. At these meetings, Reynoso and Rodriguez informed attendees about the PPGIS prototype and the ideas submission process. Community concerns that Reynoso and Rodriguez

addressed at these meetings included increased gentrification, clarifying who owned the garden and if they planned to sell it, and why an organization with a Hollywood star was coming into their neighbourhood. In Reynoso's own words:

> I wasn't expecting the pushback we ended up getting, so we went into the meetings hoping to get their thoughts and letting them know about the [NYRP engagement] meetings... So, letting them know when those were so they could attend. I was mentioning the app, letting them know that if they're not able to attend they can always go to this website and share their feedback there. But once we got some of that pushback, it was about acknowledging that and figuring out how we can calm them, calm the nerves, and let them know that it's not us coming out of nowhere, we've actually owned the property since '99, and we're getting funding from the Governor (C. Reynoso, 2018, pers. comm., 23 March)."

At these local meetings, the PPGIS prototype's benefit of gathering comments otherwise out of reach to NYRP became apparent:

> Where I thought it really helped even more was going to partner meetings and talking to the LDC and the community board. People there, knowing that they weren't going to be able to attend the meetings, liked going on the [PPGIS] website and putting their feedback there. Or even when we went to Hull St, when we were first invited to the school, we got a lot of feedback that day at the school, and that's a lot of feedback we wouldn't have been able to capture without the app. We could have gone to the school and stood there and asked people, but I don't think we would have been able to get as much information as we did having the actual iPad and the app available and saying just "here, tell us what you think" (C. Reynoso, 2018, pers. comm., 20 October).

It is important to note that assisting the collection of comments does not mean that the PPGIS tool assisted in deeper, slower thinking (Kahneman 2011). Without effective facilitation, discussion and deliberation we run the risk of becoming very efficient at collecting fast thinking suggestions from lots of people, rather than facilitating slow thinking that leads to learning, and new co-intelligence. As explored in Kahneman's (2011) work, a fundamental feature of fast thinking is that it's what our attention is drawn to, what we focus on, and what we recall, but it is not always what is most necessary or needed for optimal decision making. Slow thinking on the other hand is conscious, slow, controlled, deliberate, effortful, statistical, and suspicious. Kahneman's insight is that people don't just

get hard problems wrong, they get trivial problems wrong because they don't think about them in the right way. While many slow thinkers advocate education as a remedy to fast thinking, Kahneman explains that slow thinking might not kick in until fast thinking has first processed the message, otherwise the message might be ignored and never get anywhere (Shleifer 2012).

Effective public participation requires more than innovative technology, and for advocates of inclusive planning, the best outcomes from the use of PPGIS are when it is combined with discourse. For this reason, Village Vanguard was designed to assist discourse and collaboration, rather than just data collection, to encourage interpersonal engagement and discourse in the planning process.

### 5.4.1.2. Supplied geo-spatial data layers were useful for NYRP design team but were not used in community meetings

NYRP's PPGIS prototype was loaded with various geo-spatial data layers which could overlay the primary map screen, i.e. public transit stations and routes, bike lanes, community partner locations, heat wave temperatures, hurricane flood plains and zoning districts. While NYRP design team found these map layers very useful, Reynoso did not use them in meetings, nor was he aware of community members using them on their own:

> I think they were cool and I think they were useful for us, and we liked looking at them, but I don't think I ever said, "look at these pages" and I don't think anyone went [to them] on their own (C. Reynoso, 2018, pers. comm., 20 October).

The heatwave geo-spatial data was also not referred to in meetings, however Rodriguez did observe that:

> East New York is currently having their resiliency study and some of the garden members who have attended those meetings are now asking questions about that. So maybe in the future as that becomes more of a hot topic, pun intended, it could be something useful (J. Rodriguez, 2018, pers. comm., 20 October).

When asked what data layers may be of use in future, Reynoso suggested the information provided by the NYC Department of Environmental Protection (NYC DEP) on areas prone to flooding. This data shows areas of the city that flood for reasons including sewers

overtaxed during intense rain events, blocked catch basin grates in streets and overall increased precipitation caused by climate change (NYC DEP 2020). This information not only informs NYRP's designs—two of their gardens in flood risk areas now have rain gardens to capture water—it also helps them apply for NYC DEP funding. East New York, where the Williams Ave garden is located, was historically marsh lands and some areas are still prone to flooding (Spafford 1824).

Future NYRP prototypes would benefit from consulting community members on what geo-spatial data they would like to see to inform their discussions on designing community gardens or other green-spaces.

### 5.4.1.3. Challenges using the prototype

At times Reynoso found it difficult to run a meeting while simultaneously instructing people to use the app. Given the intimate size of the meetings, he felt awkward stopping discussions to tell participants to use the app. For this reason, Reynoso stopped trying to have people use it, instead letting them know that the tablets were available to enter feedback while discussions were taking place. Rodriguez observed:

> It became a natural progression as people were talking to go to the iPad and add additional comments, or if they required a person [to help them] to add that comment (J. Rodriguez, 2018, pers. comm., 23 March).

A lot of older NYRP gardeners are not tech savvy and were apprehensive about using the prototype, even though they had few issues once they started: "I think the older gardeners just assumed they would have problems with it" (C. Reynoso, 2018, pers. comm., 20 October). To help these users feel comfortable, as well as to help introduce the app to larger groups, NYRP created an instructional video:

> We did create an instructional video. But mostly it's because of the age of some of our gardeners, they're not as familiar with touch screens or apps. So, it was just a way, also to explain to a larger group, how to use the app before they used it. But when actually using it, very few questions came up (J. Rodriguez, 2018, pers. comm., 20 October).

When participants used the prototype, Reynoso and Rodriguez observed that very few questions came up. Younger users and participants already familiar with smartphones

experienced no issues using it. One complaint that did arise was around users having to enter personal information each time they wanted to add a comment, and many submissions were in fact several ideas included in the one comment field. Future iterations of the prototype will ensure that users can add multiple comments in one session without the need to re-submit demographic information. Future iterations will also include an instructional introduction to give users a basic tour of the PPGIS features.

It should also be noted that in community engagement initiatives those not comfortable entering their ideas digitally should be able to contribute through traditional handwriting on paper. Handwriting can be beneficial in terms of facilitating and optimising learning, with research indicating that long-hand note taking can result in better recall of learned concepts (van der Meer & Van der Weel 2017).

### 5.4.1.4. NYRP feature requests

After a discussion with Annel Cabrera-Marus, NYRP's senior director of Engagement and Programming, Reynoso provided a list of feature requests. A key area for development was scaling the prototype, to have an instance for every NYRP garden currently undergoing design or renovation, with a home page map showing where every NYRP garden was located and what stage of development it was in. Gardens not undergoing development would also be included on this map so that users could access information about them. NYRP wanted increased administration control over the app to monitor and control comment functionality, easily edit project information, upload images and PDFs and create their own prototype instances for future projects (see Appendix 3 for all feedback and updated prototype designs).

### 5.4.2. Feedback from Williams Ave community members

I spoke with Parvoneh Shirgir, (2018, pers. comm., 12 December), site director at the YMCA, who runs the high school equivalency program with young adults aged 17-24. The program operates out of the fifth floor of a school building down the street from the Williams Ave garden. Young adults spend the day at the YMCA, from 9am-3pm mainly undertaking academic lessons. It also provides service learning, which is where their

engagement with NYRP and the garden stems. Parvoneh had reached out to NYRP after seeing a sign in the Williams Ave garden about getting involved in the space. NYRP provided the YMCA with a garden key and when funding came through for renovations, Parvoneh was invited to participate in the redesign.

Parvoneh attended all three NYRP community engagement meetings for the garden renovation. After talking to her students about what they'd like to see in the space, Parvoneh brought a synthesized list of comments to the first meeting, and after this meeting reported back to her students saying, "these are some of the ideas that people brought up, what do you think?" Parvoneh then used the prototype to post additional student comments. She felt the app was very straightforward to use, but had some concerns about being asked where she lived:

> It's a graphical map of where people are in proximity to the garden, and because I'm working in an office environment and school environment I felt okay about putting down my marker, but otherwise if it had been my private home I'm not sure I would have wanted to do that. Not that I think anyone [connected] with the garden is going to use my information with ill will, but you know, there were six of us at the meeting, and it was pretty clear then who said what, and where they live, so the privacy aspect of that [is a concern].

Moving forward, rather than asking people to place a marker where they live, asking for a zip/post code could help reduce privacy concerns. Furthermore, the survey should be clear why this information is being collected and how it will be used.

Because Parvoneh was bringing a list of comments from students to the meeting it would have been easier to email NYRP the comments rather than enter them into the prototype. Parvoneh did, however, agree that it was useful to have a mechanism for collecting additional feedback after the meetings.

I also spoke with Brooklyn resident Monti Lawson (2018, pers. comm., 4 December), who works as a fundraising specialist for not-for-profits. Monti been working with the local community to garner interest in NYRP Hendrix Community Garden for a few years, and worked with NYRP operations leads to add features like garden beds. The Williams Ave Garden is very close to where Monti lives and he was invited by NYRP to take part in the renovation redesign process.

When asked about using the prototype, Monti semi-jokingly said, "When I saw the app, I was like, why am I going to go to this meeting now? I don't need to, I can just use the app!" He did, however, attend all meetings, and confirmed the app helped shy people contribute their ideas:

> In meetings people aren't super forthcoming, they are embarrassed by their ideas, so having a third party, and no one judging, gave people an opportunity to throw out their wildest ideas. And we were able to discuss the ideas collectively, without them being attributed to anybody. For some of the people who [sic] English wasn't their first language, we were able to translate their comments, and get everybody on the same page that way. I find it extremely useful.

When asked what improvements or features he would like to see in the prototype, Monti said he wanted the community to have more say in the final garden design, and for the prototype to accommodate this:

> We just got the final presentation of how things were going to look, it would have been nice if we could move stuff around, to see how different things fit together. For example, one of the things we kept going back and forth about with the Williams Ave garden was the main gate area, so it's frustrating that we didn't get to see different options. It would have been nice to be able to make our own plan and show them!

Monti's comments, among others, revealed issues with NYRP's overall process in terms of their community accountability and inclusivity, which I will explore in the deliberative system discussion of NYC green-space governance in chapter 7.

For now, I'll highlight that NYRP prototype could be improved the following ways:

- Better supporting older users
- Removing redundancies in the comment submission process
- Refining geo-spatial data layers to inform the design and help NYRP's funding efforts
- Allowing residents to explore their own ideas for the gardens

In line with the iterative nature of participatory design I took on the feedback received from testing the PPGIS prototype and incorporated it into a revised design. To see a complete

list of the feedback from NYRP and community members and how it impacted the revised prototype designs see Appendix 4.

### 5.4.3. Summary of findings from testing the PPGIS prototype

The use of PPGIS to engage urban dwellers in the planning processes of projects that affect them is well explored in the literature (Brown, Sanders & Reed 2018; Jankowski et al. 2021; Kahila-Tani 2015; Kahila-Tani et al. 2016; Rall, Hansen & Pauleit 2019). In terms of urban green-space planning, PPGIS studies have been conducted in recent years on issues including urban happiness (Kyttä et al. 2016), environmental justice (Raymond et al. 2016), urban densification (Kahila-Tani et al. 2016), values of formal and informal green spaces (Pietrzyk-Kaszyńska, Czepkiewicz & Kronenberg 2017), physical activity in urban parks (Brown, Schebella & Weber 2014), and residents' values for green open space (Ives et al. 2017). While PPGIS results often are not completely representative of a population (Brown & Kyttä 2014), they can help green space designers understand the perspectives and values of green space users, which can inform design decisions and assessments (De Vreese et al. 2016).

The use of PPGIS in public meetings, workshops, or other group processes for data collection is gaining popularity. The use of maps in planning workshops can help to communicate spatial information to stakeholders, help groups assess land-use plans and alternatives, and help planners gather input for decision support (Brown et al. 2014). Workshops may involve participants drawing on paper maps to identify locations of meaning and attachment (Lowery & Morse 2013), facilitated and assisted mapping on web-based PPGIS applications (Ernoul et al. 2018), or carrying out planning tasks using spatial decision support tools implemented in an interactive instrument such as the 'Touch table' (Arciniegas & Janssen 2012).  A benefit of assisted and facilitated community data collection in PPGIS workshops is that issues related to poor map-reading skills, misunderstood questions or other difficulties with map-based questions can more readily be overcome (Kahila, Kyttä & Geerzman 2018). Land-use changes can spark some level of conflict  (Brown et al. 2014), and the use of participatory mapping in community

meetings can help direct public concern more constructively by focusing discussion on the qualities of place rather than the politics of land use (Cheng, Kruger & Daniels 2003).

To improve community engagement in NYC's green-space planning, my research is interested in supporting the efforts of green-space advocates. To answer my first research question, how can PPGIS make community engagement processes easier for green-space stewards like NYRP and their participants, I'll now highlight my key findings from the testing of the co-designed PPGIS prototype;

- The PPGIS prototype helped NYRP gather comments from multiple people simultaneously on tablets at their charrette-style meetings and at community events (goal#1), and provided a mechanism for community members who were unable to attend to submit ideas. By having the prototype on tablets and available on smartphones, NYRP were able to digitally gather comments from parents outside schools (goal#3), and directed attendees of local government meetings to leave comments at their convenience

- In terms of facilitation, the PPGIS prototype was a useful tool to quieten louder voices, as well as to help shy people contribute. Having the tablets available for participants at these meetings allowed those with a lot to contribute to refine and further their thoughts as they entered them in the PPGIS survey, and the time they spent entering them allowed others to speak (J. Rodriguez, 2018, pers. comm., 23 March). NYRP also found it became a natural progression for quiet participants to add comments as others spoke, and some would also ask NYRP to help them enter comments into the application (J. Rodriguez, 2018, pers. comm., 23 March). Community participant feedback confirmed that the PPGIS prototype helped shyer meeting participants contribute comments, and that it was useful to have a way for those who could not attend meetings to also contribute (M. Lawson 2018, pers. comm., 4 December).

- The digital collection and real-time reporting of community comments on garden projects helped NYRP to document meetings, and made it easier to share captured ideas with the public and other stakeholders (goal#9). The digital collection of community ideas with embedded geo-spatial data removed the need for NYRP to convert notes written on paper, a process in participatory mapping

that can result in introduced errors. (Brown, Weber, Zanon, & de Bie, 2012). This also addressed the project goal#1 to tackle the typical "Post-It Notes galore" approach to community workshops, and created a repository of community comments accessible to all NYRP teams. When the community engagement team needed to present the garden design proposals to the community, the digitized comments helped explain why certain decisions were made and what community requests they were in response to (goal#8). Also, when NYRP Community Engagement team needed to report to NYRP Capital team on what was heard at garden redesign meetings it was easy to copy and paste comments from the prototype straight into their reports (goal#2).

- Goal#7 of helping communities understand the impacts of climate change through geo-spatial data, and goal#4 of presenting ideas to stimulate but not dominate or direct community idea generation was not achieved, as NYRP facilitators did not refer to these data sets during community meetings. The additional geo-spatial data layers created in the app, i.e. for bike lanes, public transport stations, flood plains, heat maps of hot days and zoning areas, proved useful for NYRP's Design team but not to the facilitators of the community meetings (C. Reynoso, 2018, pers. comm., 23 March). Given that NYRP Design team found these geo-spatial data sets useful, their offerings could be expanded. For example, to help future NYRP projects gain funding, the PPGIS prototype could be expanded to include data sets, including the areas the NYC DEP identified as prone to flooding during intense rain events, which NYRP's rain gardens are already trying to address.

- Feedback from the community also highlighted opportunities for the PPGIS prototype to offer increased participation in NYRP's garden design process by enabling functionality in the PPGIS prototype that would allow community members to propose their own designs for community gardens (M. Lawson 2018, pers. comm., 4 December).

Improvements could be made to the PPGIS application by:

- Integrating the feedback of NYRP staff and community members who used the prototype.

- Engaging community members in the initial prototype design phase to ensure its interface and survey questions are more approachable and relevant to participants, especially older users.
- Focus groups could refine the survey instrument to ensure the process of answering questions is an easy and pleasant experience.
- Future NYRP PPGIS applications should consult the community during the design phase to identify what functionality and geo-spatial data they would like to inform community discussion on green-space planning. For community members, heat map data of an area may be of less interest than playgrounds, schools and supermarkets.
- Community consultation in the design phase would also help to address privacy concerns from community members about collected demographic information, and help to design survey questions and data collection methods that resonated well with the community.

Moving forward, the overall participation of community members affected by proposed land use planning in the design and testing of PPGIS instruments would improve their accessibility and relevance. This could be achieved through PPGIS focus groups designed to improve PPGIS web-surveys for urban planners, which I will now discuss.

# 6. Increasing the participatory design of PPGIS surveys

The NYRP PPGIS prototype demonstrated its usefulness in some key contexts but there was much room for improvement. After evaluating the prototype and identifying its limitations, it made sense to return to the literature to reflect on what I had learned and explore ways the prototype could be further improved. In this chapter I'll take my findings from the previous chapter and draw on survey design literature to answer my second research question, what strategies can help urban planners when developing PPGIS web-surveys? Specifically, I will explore the use of PPGIS and deliberative discussion focus groups to improve PPGIS surveys.

# 6.1. Using deliberative discussion focus groups to design PPGIS web-surveys to increase community engagement

As we have seen, increasing community engagement in urban green-space planning can improve design and ensure ongoing use and maintenance. However, scaling participation in an informed, relevant and representative manner can be challenging. Two approaches that are commonly used are focus groups and web-surveys.

Focus groups allow researchers to gain an increased understanding of a topic or phenomena, help generate insights and diagnose problems. Focus groups have been successfully used to engage culturally and linguistically diverse populations (Halcomb et al. 2007; Huer & Saenz 2003), and are useful for capturing in-depth data about a topic of interest determined by the researcher (Morgan 1996). However, their ability to capture quality data from the participants is reliant on how knowledgeable participants are on the discussion topic (Cobb 2011; Guttman 2007; Kitzinger 1995) which for complex issues may be minimal. Thus, for the inclusion of public opinion in the decision making around complex topics, education is essential. To address this need, researchers have proposed the use of 'deliberative discussion focus groups' (Rothwell, Anderson & Botkin 2016). Theses differ from typical focus groups by providing 1) an educational presentation prior to the group discussion and 2) the addition of an expert co-moderator.

However, deliberative discussion focus groups are still limited to small numbers of participants and are not suitable for large-scale community engagement. Web-based surveys, on the other hand, can be sent to thousands of community members at a relatively low cost. Nonetheless, if designed badly a survey may employ a user interface or language that alienates or confuses participants, resulting in the under representation of those not technologically savvy, or yielding misguided and irrelevant comments. Further, there is no ability to follow up on survey responses, or to clarify the meaning of questions.

Over the years, PPGIS has been used in focus groups and web-surveys with varying degrees of success. While improvements to engagement processes have been made, PPGIS focus groups still face scaling challenges, and PPGIS web-surveys often fail to engage key audiences because of language and interface design. The following section proposes that by using PPGIS driven deliberative discussion focus groups to design PPGIS web-surveys, their usability and uptake will increase, resulting in an increase in community engagement.

### 6.1.1. The use of PPGIS in focus groups

While PPGIS web-surveys have been designed to engage populations on a large scale, the use of PPGIS in focus groups and public meetings for planning projects is also increasing (Brown et al. 2014). Focus groups "collect qualitative data from homogeneous people in a group situation through a focused discussion" (Krueger 2014, p. 34) and can lay the groundwork for subsequent research. Different from other forms of group interaction, focus groups are used by some researchers to gain an understanding of concepts and factors to be considered in later research procedures. Focus groups are not open meetings—participants are invited to attend. This ensures participants have the required characteristics and that the group is an appropriate size for discussions (Krueger 2014). Focus groups differ from the decision-making goals of other convened groups, whose interactions may require some level of consensus or recommendation development (Lowery & Morse 2013). Although consensus is not the primary goal of focus groups, participants do discuss their ideas and influence each other, with the researcher serving as a facilitator, observer and ultimately as an analyst (Lowery & Morse 2013; Nassar-McMillan & Borders 2002). Focus groups range in size but should be small enough for everyone to have an opportunity to contribute and large enough to provide diversity of opinion. Krueger (2014) recommends that focus groups be kept to 12 participants or less, as larger groups tend to fragment into smaller conversations. A primary goal of focus groups is to utilize group interaction "to produce data and insights that would be less accessible without the interaction found in a group" (Morgan 1996).

PPGIS has proven to be an effective tool to inform and capture the data generated by focus groups, helping to make it readily available for analysis. The use of PPGIS in focus groups and public meetings for planning projects is not uncommon (Brown et al. 2014). Examples of workshops and focus groups generating PPGIS data for urban planning can be found in the United States, Brazil and the Netherlands (Al-Kodmany 1999; Bugs et al. 2010), and there are documented cases of PPGIS adoption in planning practices (Jankowski et al. 2017) in Poland (Andrzejewska et al. 2007), Finland (Kahila-Tani et al. 2016) and Sweden (Babelon, Ståhle & Balfors 2017).

Studies suggest that data collected using PPGIS focus groups are best suited for identifying the range of values and land use issues for planning processes, rather than serving as spatial data directly used for decision support (Brown et al. 2014; Carver et al. 2009). In other words, while focus-group data may not be appropriate for primary decision support because they are only a small sample of the population, they are useful to identify the range of public values, which can then be used to inform large-scale surveys. Those collecting community ideas through PPGIS focus groups should clearly communicate the limited scope and use of the collected data, so as not to create unrealistic expectations from participants about how mapped information will be used (Brown et al. 2014).

The Lowery and Morse (2013) study of "sense of place" in Franklin and Gulf counties in the Florida Panhandle region is an example of using PPGIS in focus groups to inform development. Here "sense of place" refers to how humans identify and connect with the places with which they interact (Williams and Stewart 1998). As people interact with their surroundings, experiences, activities, observations, values and meaning become connected to specific places (Greider & Garkovich 1994). Such instilled meanings may take the form of livelihood dependence, ecological dependence, and recreational use (Lowery & Morse 2013; Williams et al. 1992).

This study, focussed along the north-western Panhandle of Florida's Gulf Coast, looks at a region experiencing pressure to develop. These counties contain pristine shorelines, beaches, river systems, the Apalachicola and St. Joseph bays and local and state parks. Livelihoods in both counties primarily come from the natural-resource-dependent industries of seafood and beach tourism (Franklin County 2009).

Focus groups were conducted with a broad range of stakeholders from both counties, designed to find the range and extent of attachments to the landscape. Each group was presented with a large aerial photograph of both counties with towns, highways, and special use zones (e.g. state parks) identified. Participants were asked to draw outlines on the map to show the areas of importance to them. These focus groups were not intended for comparison, nor were findings interpreted as representative of the entire population (Lowery & Morse 2013). By using a diversity of focus groups to reach saturation point of mapped meaningful places (the point when no new places are mapped), the researchers were confident that the full extent of spatial attachments had been provided. The focus group format promoted synergy among participants and facilitated discussion on shared place meanings, attachments, and the social relationships creating these special places. These discussions lead to the identification of additional areas of importance on the map, with most identified important places being supported by several participants in each focus group. The discussions helped researchers identify what places were important to the local community, as well as providing detailed insights as to why specific places were important (Lowery & Morse 2013). It should be noted that while this approach was useful to the researchers, it was not necessarily a deliberative one, as it generated a list of places important to different people, rather than a list of places important to everyone, which would require conversations with not just diverse but also representative groups of people.

While drawing on paper maps is still a common use of PPGIS in focus groups, interactive maps can be more effective in communicating information (Kingston 2007), and can integrate participant contributions with GIS databases in real time (Al-Kodmany 1999). Interactive maps can be used to communicate spatial information to stakeholders, provide analysis tools for plan alternatives and provide a simple interface for community input (Arciniegas & Janssen 2012). All of this allows for the aggregation and analysis of community and stakeholder comments in ways previously unavailable and can assist the deliberative qualities of the participation process.

PPGIS focus groups, while providing rich qualitative data, have their limitations (Jankowski et al. 2017), including: the requirement of participants' physical presence at a time and place, which reduces attendance of those with limited time and mobility (Halvorsen 2001; Kingston 2007); the dominance of experienced and loud individuals over the inexperienced

and quiet ones (Kahila-Tani et al. 2016; Kingston 2007); intimidating environments for those uncomfortable with public speaking due to educational, social or cultural reasons (Halvorsen 2001); limited scalability, both in numbers of attendees and their geographical range (Nyerges & Aguirre 2011), which constrains the diversity of opinion and representation (Halvorsen 2001); and the risk of acquiescence in participants' opinions, or "groupthink" (Brown 2015). Some of these limitations can be addressed by effective facilitation of PPGIS focus groups. Facilitators can make discussion more effective and efficient, enabling a group to work through information, collaborate, contribute, and listen to each other in a limited period of time (Kaner 2014).

For community participation challenges related to accessibility and scale of numbers and geographic reach, PPGIS web-surveys can be an effective means of engaging the public at-large on planning decisions. However, PPGIS web-surveys face their own challenges, chiefly those of engaging older adults and focusing the attention and contributions of participants on a specific problem at hand (Jankowski et al. 2017). Two approaches to address these challenges are improved usability of web-based PPGIS interfaces and ensuring that the language and terminology used in PPGIS web-surveys are appropriate to the target audience. We will now look at the usability challenges faced by older adults when using PPGIS applications and some approaches to mitigate them.

## 6.1.2. Addressing usability challenges of PPGIS among older adults with focus groups

The feedback on the NYRP PPGIS prototype indicated that there were possibly some challenges for older people working with the digital application (see Section 5.4.1.3.). While not all PPGIS studies have found age to be relevant, it has been observed that participation in traditional engagement activities such as signing petitions and attending town hall meetings increases with age, while non-traditional methods, such as web-surveys, are used more often by younger people (Weber, Loumakis & Bergman 2003; White & Selwyn 2013). Given the fluctuations of age representation in the examination of several PPGIS studies (Gottwald, Laatikainen & Kyttä 2016) researchers have concluded

that participation can also be related to the topic in question and the sampling methods used (Brown 2012; Brown, Kelly & Whitall 2014).

Gottwald et al. (2016) explored the usability of PPGIS among older adults to identify strategies to increase the social equality of access (Meng & Malczewski 2010). Their study draws on the ISO 9241 international standard definition of usability, being "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use" (Standard 1998). The research involved 20 adults with an average age of 70, 80% of whom were women, who had at least a high school diploma. Participants were asked to complete a PPGIS web survey and mark locations on an interactive map in the context of how urban planning could contribute to the healthy and active lifestyles of older adults.

Their results showed the existence of cognitive, motor and sensory challenges in older adults. Cognitive challenges, primarily as a result of low Internet and map literacy, led to disorientation and confusion with participants often feeling "lost". This was addressed by removing mouse map-zoom functionality and adding a neighbourhood drop down list that allowed users to zoom to a desired area on the map. Given that most of the participants asked for instruction, the revised survey included a short, printed user guide and a link to a video tutorial.

Motor challenges included route drawing and the scrolling of text boxes, which were addressed by the removal of the drawing task, although scrolling text could not be addressed as it is dependent on user screen size and resolution.

The majority of challenges facing the group were sensory related. Text was described as "disturbingly" small, and button size, colour and symbol use made visibility difficult, contributing to confusion. Because of this all text size was increased and button colours and symbols, e.g. the delete button for map markers, were adjusted (Gottwald, Laatikainen & Kyttä 2016). Colour is known to have major visual effects on older users, even more than shape or size (Vrenko & Petrovič 2015). Bakaev et al. (2007) found that older adults show an aversion to "expressive aesthetics" compared to "classic aesthetics." In PPGIS this translates into simple grayscale maps with low contrasting colours as being preferred to maps with bright contrasting colours (Cinderby 2010).

The above demonstrates how focus groups can be an effective way to improve the design and usability of PPGIS instruments (Gottwald, Laatikainen & Kyttä 2016; Ouimet et al. 2004). I will now discuss the potential use of focus groups to improve the language, terminology and design of PPGIS surveys.

### 6.1.3. Using focus groups to design survey language

The participatory design of the NYRP prototype focused on engaging NYRP staff via interviews. However, feedback from community members that used the prototype (see Section 5.4.2.) indicated that there would have been value in engaging NYRP gardeners during the design process to better understand their needs. One way to approach this in the future is through focus groups with survey end-users.

Focus groups are an effective tool for developing surveys and can refine known information and elicit new insights about a topic (Nassar-McMillan & Borders 2002). With these insights researchers can develop meaningful survey questions to gather input from larger community samples (Krueger 2014). Focus groups can help provide the language that is appropriate to engage a community (Stewart & Shamdasani 2014), help refine and generate survey questions, and assist in the preliminary test of a survey instrument (Morgan 1996; Nassar-McMillan & Borders 2002).

In the context of this dissertation, the use of focus groups is to engage diverse groups of people, rather than those typically used for market research that target demographically narrow groups. Focus groups have been successfully used to engage culturally and linguistically diverse populations, with their success dependent upon the cultural competence of the research team and the research questions (Halcomb et al. 2007; Huer & Saenz 2003).

In studies where little prior research was done on a topic the dynamics of focus groups can generate critical items that may not have surfaced otherwise (Krueger 2014; O'Brien 1993). This was the case for Nassar-McMillan and Borders (2002) when they developed the "Volunteer Work Behaviors Questionnaire" (VWBQ) for mental health care volunteers. At the time, no prior research had been conducted on the topic of volunteer work

behaviours, few program descriptions were available, and little was known about what tasks these volunteers performed (Nassar-McMillan & Borders 2002). Focus groups provided the researchers with the data they needed to generate survey items, and helped to modify the language to align with volunteer work practices and terminology.

Follow up focus groups can be used to refine survey instruments. In the case of the VWBQ, the survey resulting from the initial analysis of focus groups consisted of 130 survey items. Volunteers and administrators who participated in the initial focus groups were asked to review the survey items, answering whether or not these items were relevant to them, and were invited to provide suggestions or comments. As a result, the final survey instrument was reduced to 99 items.

Focus groups are important to the survey research process as they help the investigator learn the language that their research population uses to describe the research topic and their experiences around it, as well as understand the community's perspectives and values. This helps a quantitative investigator "ask useful questions, and to ask questions in a useful way ((O'Brien 1993, p. 13)". Focus groups can also demonstrate to vulnerable or understudied populations that the researcher is not just treating them as data but is genuinely interested in listening to them (Krueger 2014; O'Brien 1993; Stewart & Shamdasani 2014).

By learning the phraseology that focus group participants use to describe their own experiences researchers can design surveys using words and phrases that enhance respondents' understanding and ultimately improve data quality (Lown et al. 1993). This is illustrated by the Portland Men's Study (PMS) by O'Brian (1993), which involved a series of focus groups that examined the social relationships among gay and bisexual men at risk of AIDS, and used these findings to develop a survey targeted at this population. In the initial focus groups, the human immunodeficiency virus was referred to as HIV. However, focus group participants commonly referred to HIV as the AIDS virus and to the epidemic as the AIDS epidemic. To avoid confusion in the survey, the focus-group language was used.

Focus groups can also provide qualitative experiences and perspectives that can shape researchers' measurement decisions (O'Brien 1993). In the PMS survey, questions were

developed asking about particular situations in which gay men engaged in sexual activities that were widely considered to carry a risk of HIV transmission. However, the researchers lacked specific questions to address interpersonal and intrapersonal dimensions, such as partners' attitudes or situational influences. Focus group participants, in their response to the question "Why is it that sometimes people have safer sex, and sometimes not?", described their experiences. These were readily translated into survey items by researchers.

Focus groups can generate unexpected hypotheses that merit further quantitative investigation. In the PMS study, focus groups led directly to the inclusion of questions about communication style around safe sex after participants talked about the different ways they communicated their interest in safer sex to a potential partner. Survey items were developed to address this issue which respondents could agree or disagree with. For example: "talking about safer sex gets in the way of enjoying sex" and "if I want to have safer sex, the way I tell my partner is I talk to him about it."

While the above examples refer to focus groups improving surveys and not specifically PPGIS web-surveys, the lessons are still applicable. This leads us to the opportunity at hand: using PPGIS focus groups to improve and compliment PPGIS web surveys.

## 6.1.4. The opportunity to use PPGIS focus groups in combination with PPGIS web-surveys

As already established, PPGIS focus groups are an effective way for researchers to gain a deeper understanding on a topic and help establish the range of values or concerns of a given population. PPGIS techniques can help inform and document focus group discussions in geo-spatial terms (Lieske 2015), and help to explore alternative project solutions (Brown et al. 2014; Crossland, Wynne & Perkins 1995; Keenan 2006). When focus groups are combined with web-based PPGIS tools these ideas and discussions can be captured in real time, making the analysis and reporting of community engagement easier for urban planners. PPGIS focus groups can establish and improve the language, terminology and visual design of web-surveys and PPGIS map interfaces, making it easier

to engage typically hard to reach groups while ensuring all participants are provided with a user-friendly and readily understood mechanism for engaging in planning processes. Using focus groups to test PPGIS survey instruments could help researchers to refine survey items before scaling community engagement.

For PPGIS projects committed to genuine collaboration, participation should also take place in the data analysis and visualization phase (Kahila, Kyttä & Geerzman 2018). For example, in Helsinki's 2050 master plan project, collected PPGIS data was published online, used in public meetings and workshops, and a hackathon was run to analyse and visualize collected geo-spatial data (Kahila-Tani et al. 2016). Community collaboration in the analysis stage could be facilitated by publicly publishing the comments gathered by large scale PPGIS web-surveys, and public reporting on how these ideas influenced urban projects. This would also be a mechanism for improving the accountability of government.

While there are recommendations in the literature to combine in-person PPGIS approaches with large scale PPGIS web-surveys (Brown et al. 2014; Gardevärn 2017; Jankowski et al. 2016), little has been reported on this approach. My recommendation for future researchers is to engage focus groups and research partners in the co-design of PPGIS-surveys as a means to improve and scale community engagement. Doing this during the design stage of the NYRP prototype would likely have addressed several of the feedback points that eventually emerged. To align this process with the principles of deliberative democracy a special type of focus group is recommended, i.e. deliberative discussion focus groups.

### 6.1.5. Deliberative discussion focus groups

Some deliberative democracy theorists and researchers have argued against the use of public opinion surveys and focus groups as a means to develop policy, instead recommending approaches with informed and considered political discord and debate such as citizen juries and consensus conferences (Einsiedel & Eastlick 2000). In these types of deliberative democracy forums participants go through a learning process that results in recommendations for policy makers in a written report, which is disseminated to the public via the media (Smith & Wales 2000).

Focus groups are seen by some deliberative democracy theorists as a means to identify and target popular ideas for political campaigns:

> The entire point of polling and "focus group" research in campaigns is to discover the popular appeal of different combinations of myth and greed that will effectively motivate voters in an exceedingly fine-grained fashion. Politicians formulate appeals from focus groups and "pre-test" their position with pollsters, constantly modifying them to increase their appeal to marginal voting groups… The aim is to spin a message that will snare a majority… The search is on for eight-second sound bites that hit "hot button" issues discovered though focus group research (Fishkin & Laslett 2008, p. 10).

Deliberative democracy forums, such as mini-publics, citizens' juries, consensus conferences and deliberative polls are distinguished from focus groups by their purposeful provision of information to participants, their emphasis on dialogue that leads to iterative revisions of opinions by the participants as they integrate new information and others' perspectives, and by their composition being representative of a broader constituency, as opposed to a swinging voter (Chambers 2003). Deliberative democracy forums have been used to facilitate informed and meaningful public input into a range of complex topics, e.g. ethical, legal, and social issues of electronic medical records and genomics (Clayton et al. 2010), the construction of nuclear reactors and future nuclear policy in Japan (Matsui 2020), and Ireland's Abortion Referendum (Suiter 2018).

Deliberative democracy forums and focus groups have several comparable and contrasting characteristics. Deliberative democracy forums are distinct from other community forums models through their preparatory work of framing and identifying key issues for deliberation prior to the actual public forums, and their emphasis on community activation (Sullivan et al. 2017). Focus groups share this characteristic of considerable preparatory work. Deliberative democracy forums typically use framing sessions to identify points for deliberation (Morse et al. 2005), while focus group facilitators develop interview outlines (Krueger 2014). Other shared characteristics include group discussions that last between one and two hours, although focus groups will typically meet for only one session and participants of deliberative democracy forums will meet multiple times (Sullivan et al. 2017). Participants of deliberative democracy forums and focus groups are also generally paid (Greenbaum 1998).

Focus groups and deliberative democracy forums do differ in several ways, including the type, selection process and number of participants, and the facilitation and discussion styles of the group discussions. Scholars in public discourse make a distinction between "dialog" which is intended as a means to discuss and exchange ideas and "deliberation" which is intended to weigh options, make choices, and seek common ground (Sullivan et al. 2017); focus groups are more aligned with the former, and deliberative democracy forums the latter. Focus groups can be described as a top-down approach to gathering and are typically researcher-driven, with researchers selecting the stakeholder groups and the specific participants (Morgan 1996). To foster discussions, focus group emphasize inter-personal dynamics, and facilitators strive to remain separate and objective (Krueger 2014). Deliberative forums use a more bottom-up approach, and an assumption underlying public deliberative forums is that the people most affected by the issues discussed are those with the answers. While focus groups can result in the activation of participants (Williams & Katz 2001), they are designed to gather information from key stakeholders, whereas deliberative forums not only gather information but also aim to empower communities to take action. Deliberation also strives for participants engaging with viewpoints other than their own, with the possibility changing their mind on an issue. In genuine deliberative processes participants must be "open to the facts, arguments and proposals that come to their attention and must share a general willingness to learn from their colleagues (Bessette 1997, p. 46)." Deliberative forums may be facilitated by individuals from the community, who may know forum participants personally. Forum participants are recruited from self-selected, unpaid volunteers to represent the community at large, rather than being chosen to represent particular stakeholder groups.

If focus groups are to be used in the process of including of public opinion in the decision making around complex topics, educating participants on topics of concern and providing an expert facilitator could be of value (Rothwell, Anderson & Botkin 2016). Rothwell, Anderson and Botkin (2016) have proposed 'deliberative discussion focus groups' that educate and inform participants about the topic of interest prior to the focus group discussion, to help improve the data quality through informed opinions. They argue that for certain topics like healthcare, scientific and technological advancements require educating research participants prior to data collection about these to gather quality data.

Two key additions to the typical focus group format that transform it to a deliberative discussion focus group are 1) an educational presentation prior to the group discussion and 2) the addition of an expert co-moderator. Toward the end of the deliberative discussion focus groups, the moderator asks for participants' final opinions about the topic of interest, and how their opinions may or may not have changed from the group experience (Rothwell, Anderson & Botkin 2016).

In keeping with the principles of deliberative democracy, the use of deliberative discussion focus groups to inform the design of PPGIS surveys should include dialogue and deliberation between people with a diversity of views. When deliberation is able to produce a collective response from multiple perspectives it acts as a form of collective intelligence (Landemore 2013), and by increasing the cognitive diversity of the decision making or problem solving group, creative alternatives can be developed that can be appealing to all participants (Innes & Booher 1999). For organizations like NYRP this could be done by including stakeholders and community partners in deliberative discussion focus groups, as well as a randomly stratified group of residents and local businesses. While many deliberative democracy forums require several days of participation, conducting several short deliberative discussion focus groups can be a way to capture informed data from a greater diversity of participants who cannot afford to spend multiple days involved in community engagement initiatives (Rothwell, Anderson & Botkin 2016). However, deliberative discussion focus groups will be limited in terms of their ability to generalise findings to a whole population because, like traditional focus groups, the small numbers of people participating and the likelihood that the participants will not be a representative sample (Gibbs 1997).

The process of informing participants on discussion topics of interest set by a researcher mirrors the concepts of deliberative discussion, a key component of deliberative democracy (Fishkin 2009). The deliberative discussion framework proposes five premises to gather higher quality data (Fishkin & Luskin 2005): 1) participants should be informed and supported to make accurate statements; 2) the information presented should be balanced and incorporate both the pros and cons of the topic of interest; 3) presented information should be comprehensive; 4) the discussion must include individuals who are

voluntarily engaged; 5) statements that arise in discussion should be evaluated on their merit, and not judged based on the person who made the statement.

Deliberative public opinion data is highly valuable because as participants become informed on the issues and competing arguments, more thoughtful and informed statements are likely to emerge, leading to better quality data (Gastil & Levine 2005). Given deliberation is essentially a sophisticated version of talking, listening, and reasoning, it lends itself to the focus group setting (Rothwell, Anderson & Botkin 2016). Small groups help foster deliberative discussions through the ability to share and hear opinions along with reasons for these opinions (Hamlett & Cobb 2006).

Deliberative discussion focus groups could work well for the co-design of PPGIS surveys, and I will now summarise my recommendations for this process.

# 6.2. Summary of recommendations for future PPGIS projects

To answer my second research question, what strategies can help urban planners when developing PPGIS web-surveys, and to help future researchers interested in using PPGIS to scale meaningful community engagement, I recommend the following process:

1. Use deliberative discussion focus groups which include drawing on paper or digital maps to establish the landscape of project concerns, establish the vocabulary and categories used by the public for these concerns, and explore what geo-spatial data sets the community would like to inform their discussions.
2. With these findings, develop a PPGIS survey and create geo-spatial data sets, then review/refine these designs with a deliberative discussion focus group.
3. Use the developed PPGIS tool for street canvassing, and in-person community engagement events.
4. Send the PPGIS survey out to the public at large, and/or to a randomly stratified sample of the public, depending on project needs.
5. Make project information and updates publicly available.
6. Develop a public facing dashboard for the granular exploration of community comments.
7. Publicly demonstrate how the comments directly impacted the project design and implementation.

By interweaving participatory design and deliberative democracy principles, the resulting PPGIS tools can serve as boundary objects by providing a broad range of people with opportunities to engage with a planning issue without specialized knowledge, vocabulary or expertise. The development of PPGIS tools with the above recommendations sees them serve as boundary objects in terms of their design and development, use, and ex-post-evaluation (Kahila-Tani 2015) (see section 2.4.2.)

While I had hoped to apply these recommendations to the NYRP PPGIS prototype and use it for design phases 2-5 of the Haven Project, the project stalled during the research period and I relocated back to Australia. Limitation in research funding also meant I was unable to continue the development of Village Vanguard, and with the Haven Project indefinitely stalled NYRP weren't in a position to experiment with scaled PPGIS co-design and testing.

As a result, my research focus shifted, i.e. to understand the political reasons for the stalling of the Haven Project. The thesis now shifts its perspective from a focus on micro-practices of community engagement in urban green space planning to evaluate the role of the broader NYC governance system in green space outcomes. I will now turn my attention to NYRP's advocacy efforts to access their awarded Haven Project funds, and investigate the weaknesses in NYC's green-space governance in failing to deliver these funds.

# 7. Why did the Haven Project fail and how could PPGIS have helped?

NYRP's Haven Project Master Plan began with high hopes for improving the South Bronx waterfront, supported by residents and community organizations, and funded by elected city officials. It would serve NYC's most underserved and be a small step towards environmental justice and economic equity of city capital investments. However, the master plan was never initiated, derailed by a non-cooperative NYCDOT and a lack of effective advocacy. To understand why the NYRP 'Release the funds' campaign failed I will now present a comparative case study to synthesise the differences and patterns across the Haven Project and the successful community-driven advocacy campaigns for the High Line and Bushwick Inlet Park. I will then explore how PPGIS could have helped NYRP's campaign gain community, press and local government support. In Chapter 8 and 9 I will explore how a deliberative system lens and deliberative democratic initiatives could further add to this strategic toolkit for green space stewards.

# 7.1. Overview of the Haven Project and the 'Release the funds' campaign

The focus of this chapter is on research question 3, "what can be learned from successful advocacy campaigns for NYC parks and community gardens?", and provides a foundation for answering research question 4, " what deliberative systemic impacts do NYC's formal community engagement mechanism have?" By comparing the Haven Project campaign to those of the High Line and Bushwick Inlet Park, this chapter explores how NYRP could have increased public support, and what official processes could have helped strengthen their case to the NYC Mayor's Office. By doing this I hope to inform future advocacy efforts, for NYRP and other green space stewards. I'll start by painting a picture of the social, environmental and health challenges faced by the Mott Haven and Port Morris communities to demonstrate why the Haven Project warranted an advocacy campaign for its survival.

### 7.1.1. Challenges faced by the Mott Haven and Port Morris communities

Mott Haven and Port Morris lie within the poorest congressional district in the United States (McLaughlin 2019)—45% of residents live below the poverty level and 44% of adults did not graduate from high school (US Census Bureau 2015). The legacy of Robert Moses' mid-twentieth century highway projects (Ballon & Jackson 2007) means thousands of vehicles pass through the South Bronx on a daily basis. Many of the residents' health

Figure 34 NYRP Willis Avenue Community Garden, Mott Haven (Care of NYRP)

issues are a result of the negative environmental conditions these highways and other industrial infrastructure have brought[9]. Asthma rates in the South Bronx are 50% higher than NYC as a whole (NYC Department of Health and Mental Hygiene 2013), and the area has the second-highest rate of avoidable hospitalization in NYC (Olson et al. 2006). In a 2013 survey (NYC Department of Health and Mental Hygiene), 34% of adults had not participated in any exercise in the past 30 days, and 71% of adults were overweight or obese. Pedestrian injuries in the South Bronx are responsible for 114 emergency room visits and 32 hospitalizations per 100,000 residents annually, compared to 111 and 26, respectively, citywide (NYC Department of Health and Mental Hygiene 2012). This high rate of injury reflects pedestrian connectivity challenges in the area, e.g. at East 138th

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[9] The Mott Haven-Port Morris section of the South Bronx is a peninsula surrounded by highways, power plants, waste transfer stations, truck-intensive facilities, and an 850 acre maritime industrial area, the largest in NYC (South Bronx Unite 2018).

Street, going from Mott Haven to Port Morris requires crossing 13 lanes of traffic (Marton & Peterson 2015).

New Yorkers for Parks (NY4P), a not-for-profit that conducts research and develops policy recommendations for NYC parks, reported in their Mott Haven Open Space Index (2014) that the South Bronx's open space rates are well below standard: 0.32 acres of active open space per 1,000 residents versus the city standard of 1.0 acre, and 0.80 acres of passive open space compared to the 1.5 acre city standard; 50% of residents are within a 10-minute walk of a large park, and 68% are within a five-minute walk of a small park or playground, compared to the 100% average city standard for both metrics; many parks need capital upgrades, and pocket parks are primarily asphalt.  If the Mott Haven Open Space Index (OSI) survey included neighbouring Port Morris these scores would be lower[10].

The Haven Project master plan was developed by the NYRP and the South Bronx community to alleviate the lack of waterfront recreational space through a network of connected open spaces near the Mott Haven and Port Morris shoreline. South Bronx residents are cut off from their waterfront by heavily-trafficked roads and industries, including a FreshDirect trucking facility and *The New York Post* printing plant. In certain areas, the air pollution from industry is so bad locals have given the area the nickname "asthma alley." The first phase of the Haven Project aimed to revitalize a burned-out pier at East 132nd Street (see Figure 35) owned by the NYCDOT into a 409 square-meter/4,400-square-foot park. In 2016, the NYRP's consultants (OLIN, McLaren Engineering Group, and Range) estimated the cost for the pier construction at US$3 million, and the city allocated US$2.75 million towards it in the 2017 fiscal year budget. The NYRP raised an additional US$750,000, which it used to design the project and, for a time, run a shuttle that linked residents to the Randall's Island Connector (Spivack 2019).

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[10] NY4P developed their Open Space Index (OSI) as a tool to guide neighbourhood open-space planning and advocacy. The OSI was informed by a survey of urban open-space policies and metrics, NYC's open space and sustainability goals (NYC 2007), and recommendations by experts in urban planning and environmental advocacy (NY4P 2014).

### 7.1.2. Why the Haven Project stalled

NYRP's awarded funds were never transferred to the NYC Economic Development Cooperation (NYC EDC) so the project couldn't move forward. Explained Bethany Hogan, the NYRP's head of government affairs at the time:

> There are actually only two agencies that can manage money to be diverted to external groups to use, that's the Economic Development Corporation and the Department of Design and Construction. The money went to the Department of Transportation instead. DOT can't issue funding agreements with groups like [NYRP], they are not able to act as a pass through for that funding, and also they aren't able to deliver projects like this. DOT can't build piers. They're not legally allowed (B. Hogan 2018, pers. comm. August 31).

Initially the funds were withheld by NYCDOT because of a misunderstanding of the project plan and costs. The NYRP had included the entire Haven Project budget in their application, approx. US$30 million, although they were only asking for phase 1 funding, US$3 million. When the time came to transfer the funds to NYRP, the city saw the project as far from being fully funded, thus not ready to go through a funding agreement. On the advice of several government agencies, the NYRP made an application to repurpose the funds, and although NYCDOT had agreed to support this, they let the NYRP down at the critical moment, making their application ineligible:

> Our solution to this entrenched problem was pretty straightforward. We were advised by everybody, by EDC, DOT, the Department of Parks, Council finance, everybody, we were advised to submit an application to repurpose the funds. So the repurposing application simply said, "this is the real budget, it's US$3 million. At a very minimum, we can do a very foundational design for US$2 million, it will be safe, it will be great, Olan Architects came up with it… So we can do it with that money. It needs to be transferred as a non-city project, and it needs to go to EDC." All of that was good, it was all in compliance. But that application required some form of documentation from NYCDOT as a landowner saying, "we approve this work," or "we're accepting of this because it's our land that the work is supposed to happen on, and we advocate for this transfer." Up until the final hour NYCDOT was telling us that they were going to do that, and then they just didn't do it. They didn't provide the documentation. So without their documentation our application was ineligible (B. Hogan 2018, pers. comm. August 31).

After an outcry from the NYRP, the NYC Mayor's Office assigned someone to manage the issue. This was very encouraging for NYRP, and they spent several months working to get the NYC Mayor's Office fully engaged, hoping they would be able to motivate NYCDOT to fulfil their bureaucratic requirement to repurpose Haven funds to EDC. As part of this effort, the NYRP prepared a memo (see Appendix 5) addressing all the NYCDOT's concerns they had indirectly been made aware of:

> We've had a lot of conversations with lots of different partners, and pretty high-level staff members at various agencies. One of the things that was recommended to us that we've done is drafting out what we understand all of DOT's concerns to be and then bullet by bullet responding to them. So we submitted a memo to the Mayor 's Office about two weeks ago… So we're hopeful that that can help us say, 'We've eliminated or we've established responses to every single challenge you've raised so far'… Our expectation is that the Mayor 's Office would then go to DOT and be like, "What can you possibly complain about now?" (B. Hogan 2018, pers. comm. August 31).

However, the NYC Mayor's Office never issued a formal reply, and although the NYRP was told the NYC Mayor's Office would coordinate a meeting to discuss the issue, it never transpired, with no formal communication about the memo from the NYCDOT or the NYC Mayor's Office. NYC does have an open records website[11] where all emails on a project can be requested from every NYC agency by filing a Freedom of Information Law (FOIL) request, but this would not have solved the problem of NYCDOT's silence.

After three fiscal years, as a result of rising construction costs, the estimated funds required for Phase 1 of the Haven Project rose to US$5.5million. While NYRP had raised additional funds, the city's lack of commitment was making that process challenging:

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[11] NYC Government's home for filing Freedom of Information Law (FOIL) requests (https://a860-openrecords.nyc.gov/)

Figure 35 The burned-out pier at East 132nd Street would be transformed under the Haven Project. Photo by Nathan Kensinger (Spivack 2019)

> Where the rubber is hitting the road right now is that when things are stalled at the city it's really hard to raise funds for the next part, because who would fund a project that the city isn't moving on (B. Hogan 2018, pers. comm. July 26).

The city required NYRP to secure the remaining project funds before it would transfer its share from one agency to another. In a public statement in May 2019, the NYCDOT said (Spivack 2019):

> DOT has worked with EDC, Parks, and the Mayor's Office to move this project forward. The City funding allocated this far cannot be provided to the New York Restoration Project until full funding is in place. The City continues to discuss the project with the New York Restoration Project.

However, there was a lack of engagement or consultation by the NYCDOT with the NYRP to develop a solution. Without the NYRP's knowledge, the EDC had been developing their

own budgetary numbers for Phase 1 of the Haven Project, which continued to move the goal post, so to speak:

> The EDC had been, without our knowing, putting together a lot of budgeting about the project, and basically came to us with numbers that were very different from ours. And when our team looked at them, we saw a lot of discrepancies. We definitely found things that we felt were over budgeted for. But we were never really invited to be part of that process, or engaged in any conversation about it. It was basically just, "Nope, it's underfunded," and that's it (B. Hogan 2019, pers. comm. December 3).

This complete lack of transmission and accountability by NYC agencies is what triggered my research into NYC's formal community engagement mechanisms in terms of deliberative systems contributors–to identify where they were failing and how they could be improved:

> It's kind of a complete paradox when you think about the external presentation of these things, versus what actually is happening behind the scenes. And I totally respect that it's impossible to have that level of transparency across the board. Or I totally expect that sometimes decisions get made that don't have a linear story you can tell, they're a series of discussions that lead to something concrete. But I would hope that out of it, for due diligence to community, that you explain what the rationale is when you just decide to shut something off without any communication (B. Hogan 2019, pers. comm. December 3).

By appearing to dismiss the Haven Project and the needs of the South Bronx community, the Mayor's Office contributed to the continuing inequity of social and environmental justice that is rampant in NYC:

> It's indicative of a long history of issues of inequity… we have a mayor whose guiding principle is equality, and yet through our own bureaucratic systems, that's continuing (B. Hogan 2018, pers. comm. August 31).

### 7.1.3. The NYRP's advocacy campaign to "release the funds"

Initially the NYRP tried to repurpose the Haven Project funds through official channels. To recap, in 2018, under advisement from the NYCDOT, NYCEDC, Council Finance, and the

Speaker's Office, the NYRP submitted an application through the city's FY19 budget to repurpose the withheld US$2 million funds and correct the error from FY17. However, this repurposing request was ineligible as the application did not include the necessary supporting documentation from the NYCDOT (B. Hogan 2018, pers. comm. September 21). Next, the NYRP sent a memorandum to the NYC Mayor's Office (see Appendix 5), addressing issues they thought may be deterring the NYCDOT from cooperating. These issues included the public approval process, project costs, competitive procurement and ongoing maintenance. It was the NYRP's hope that this memo would be shared by the Mayor's Office with the NYCDOT and result in a multi-agency meeting. When this failed to get a response, the NYRP began its advocacy efforts and in September 2018 met with community partners to launch an email and 311[12] campaign (see sample email and phone text for the campaign in Appendix 6 and 7). Hogan says:

> Last week we had a community meeting, and we're proposing that the whole network of people who are engaged in this project—which is a lot, definitely many partners who each leverage hundreds if not thousands of constituencies—that we get all of them to encourage residents who live in the neighbourhood to call 311 and complain about the current state of the pier, because it's hazardous and unsafe, and say that "this could be better, there's funding waiting in the wings to approve this, why is this happening?" We've also drafted an email campaign in which we would send everyone a link to a page to sign up with your name and email address, and then it goes to people that we've pre-selected at City Hall whose inboxes will then be flooded by these emails (B. Hogan 2018, pers. comm. September 21).

Although the campaign ran for several months, Hogan explained that there was "enough of a response that it annoyed local politicians, but not enough of a response that it did

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[12] The telephone number 311 provides access to non-emergency municipal services. It is intended to divert routine inquiries and non-urgent community concerns from the 9-1-1 emergency service number; "Burning building? Call 9-1-1. Burning question? Call 311."

anything." The NYRP acknowledged that the delay in starting the campaign, failing to develop it in collaboration with community partners, and not taking an aggressive advocacy approach contributed to its failure:

> We were trying to play the nice way for so long and strung together a few ideas, and finally implemented them in the final hour because we felt this was our last chance. There was momentum, the campaign was running for a while, but it wasn't like this thing that everyone had planned together, and talked about for weeks. It was just kind of like a reluctant last-ditch effort (B. Hogan 2018, pers. comm. September 21).

NYRP's campaign to release its awarded funds was ultimately unsuccessful. The lack of response from the NYCDOT and the NYC Mayor's Office to the NYRP's efforts to rectify the budgetary mistake meant no justifications for decisions or actions were provided to the NYRP. To answer my third research question, "what can be learned from successful advocacy campaigns for NYC parks and community gardens?", I will now compare the Haven Project campaign to those of the High Line and Bushwick Inlet Park, and find out how NYRP could have increased public support, and what official processes could have helped strengthen their case to the NYC Mayor's Office.

# 7.2. Case selection, interview participants and analysis approach

While the two cases I'm using for NYC context and comparison are not representative of deliberative democracy philosophy, both have several attributes in common that demonstrate how they contributed to deliberative systemic effects. Both had public campaigns initiated by local residents, and gained (and more importantly maintained) the support of local community and government. Both utilized creative strategies to raise public awareness, developed planning studies and ultimately were successful in their negotiations with the city. These case studies demonstrate how the ideas discussed in the private space of residents can move into the public space of community advocacy groups and activism campaigns, and with the support of the press and local government get transmitted to empowered space. The support and momentum of these campaigns put pressure on decision makers to be accountable to the public space of green space advocates, who eventually granted residents the green spaces they campaigned for.

Both the High Line and Bushwick Inlet Park campaigns resulted in public green spaces that are well-used by NYC residents and tourists alike, and their impact on surrounding neighbourhoods can inform the conversation on how to mitigate the negative effects of gentrification. Logistically, the advocacy campaigns for these parks is very well documented and I was able to contact representatives willing to be interviewed for my research.

The parks also have individual characteristics useful to my study. The High Line's success has inspired numerous industrial reuse projects worldwide and led to the formation of the High Line Network, making it an appealing candidate to draw lessons from. Bushwick Inlet Park is the result of a 20-year public advocacy campaign that contributed to the transformation of a highly industrial low-income neighbourhood, much like Mott Haven, into an economically thriving mixed-use and residential area (albeit highly gentrified).

My goal for these studies was to identify similarities and derive insights for future urban green-space advocates. The project themes I will discuss align with many of those recently published in the High Line Networks' Best Practices Toolkit (2019b), and reveal shortcomings in NYRP's advocacy campaign to release awarded project funds.

Interview participants were chosen because of their experience with community engagement and NYC government affairs, their role at the organization associated with the advocacy campaign, and their ability to partake in one or more interviews. My primary interview participants for the discussion in this chapter are:

- Bethany Hogan, Head of Government Affairs and Haven Project lead, NYRP
- Katherine Thompson, Co-chair of Friends of Bushwick Inlet Park
- Ana C. Traverso-Krejcarek, Manager of the High Line Network, Friends of the High Line

For an overview of the methods used for the comparative case analysis see section 3.5.

# 7.3. Backstories of the High Line and Bushwick Inlet Park

### 7.3.1. Railbanking the High Line

Before it became one of NYC's most popular attractions, the High Line was part of a disused elevated train line on the west side of Manhattan. Today, the park runs north from Gansevoort Street in the Meatpacking District, through Chelsea, and up and around the Hudson Yards at 34th Street (see Figure 36).
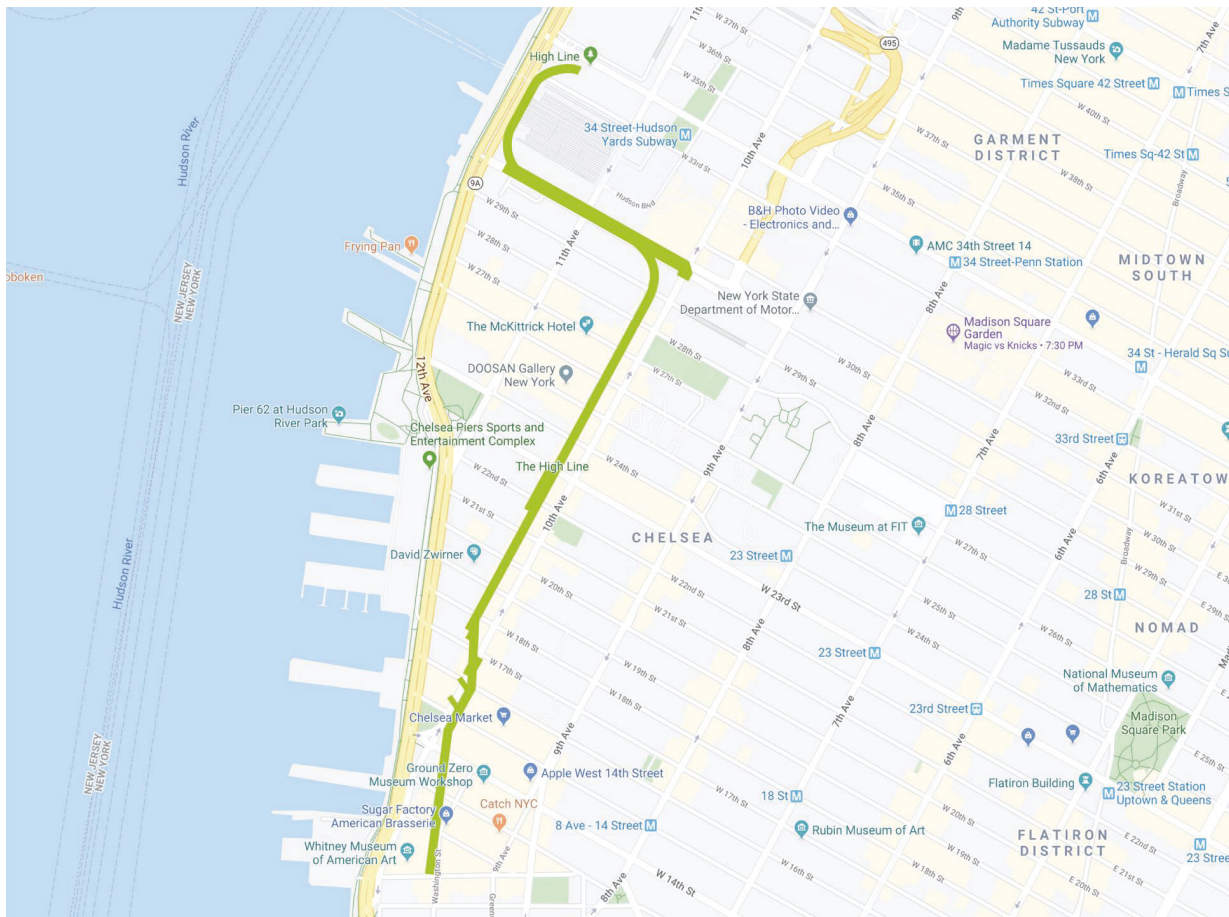


Figure 36 The path of the High Line on Manhattan's west side

In the late 1980s, as rents in Soho and Greenwich Village climbed, Chelsea became the new home for NYC's private art galleries, as well as a "gay mecca" of gay-operated restaurants, stores, and cafes (NYC 2020a; Yadid 2017). Joshua David and Robert Hammond, the founders of Friends of the High Line, moved to the area in 1986 and 1993, respectively, drawn to the nightlife, eclectic architecture and community (David & Hammond 2011). David and Hammond originally met at a community board meeting in 1999, where CSX Transportation, the managers of the High Line railway, were presenting a study they had commissioned from the Regional Plan Association (RPA) on possible uses of the elevated structure. Not long before, an article had run in *The New York Times* (Lueck 1999) alerting David and Hammond that CSX had acquired the High Line, and although the city wanted to tear it down, CSX were open to rail-trail proposals.

NYC consists of 59 community boards, each having up to 50 members appointed by the borough president, half of which are nominated by the City Council. Community boards provide the Mayor with budget priorities and recommendations for projects, programs and activities to meet their district needs. Community boards monitor city service delivery in their district such as policing, sanitation and parks, and are the first to vote on land use review procedures (ULURP)[13], with a goal to increase community participation in planning decisions (Kivelson 2001). The chair of a community board can appoint public members, which allows individuals to serve on subcommittees without being appointed by the borough president or City Council members. Committees meet once a month, and the full community board meets every month (Curbed 2019).

The High Line railway ran through community boards 2 and 4—Hammond lived in the former and David in the latter. CSX was seeking alternatives to the Chelsea Property

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[13] The Uniform Land Use Review Procedure (ULURP) is a standardized procedure whereby applications affecting the land use of the city are publicly reviewed, e.g. zoning changes and the disposition of city property. ULURP is the way the city changes policy on land, and involves a series of consultations at the community and borough level followed by binding decisions by the Mayor and City Council (City Limits 2019).

Owners' demolition proposal as they reasoned the unobstructed right-of-way through Manhattan might someday be of use (Halle & Tiso 2014). A representative of the RPA presented several potential options, and advised that a park would be the simplest. Josh and Robert were the only meeting attendees who had an interest in saving the High Line, so they exchanged cards and began their journey together:

> So that was the genesis of Friends of the High Line, that first community board meeting where no one else was interested in trying to save it. I think we had both looked around, realized no one else was doing anything, and that if something was going to be done, we would need to start it ourselves (David & Hammond 2011, p. 8).

The Federal Government encourages the preservation of railroad rights of way through the "Rails to Trails" program. In 1983, federal guidelines took effect to allow railroad companies to sell or donate their tracks to local governments or civic groups to make way for recreational corridors. These guidelines also enable rail companies to reclaim their rights of way if they elect to restore rail service, in a process known as "railbanking" (Griffen 2018).

To make railbanking available for the High Line a Certificate of Interim Trail Use (CITU) needed to be issued from the Surface Transportation Board (STB). However, in 1999 the STB still had a conditional abandonment order in place, which meant the High Line could be torn down if certain conditional orders were met. The conditions for demolition were that surrounding property owners could guarantee there were enough funds to tear down the structure and pay for the associate liability costs, to which the CSX would need to contribute US$7 million (Broder 2012).

In December 2001, Friends of the High Line went to court, along with the City Council and the Manhattan Borough President, to challenge the tentative High Line demolition agreement reached in the last days of the Giuliani Administration. They argued that because the agreement involved property easements along the route of the viaduct, it should have been subject to the city's uniform ULURP procedures (see Appendix 8). In 2002, the court ruled that it had been unlawful for the city to sign the demolition papers for the High Line without going through the necessary land-use review process (Halle & Tiso 2014).

Almost exactly a year after the Giuliani Administration moved to demolish the structure, plans for the elevated public promenade were formally embraced by the Bloomberg Administration. In 2002, NYC asked the federal STB to grant a CITU, which would preserve the route as a distinctly urban stretch in the national rails-to-trails network (Tate 2013). Although this wouldn't be granted until June 2015, at the time, this was the Friends of the High Line's biggest victory, and gained the city as a committed partner to turn the abandoned railway into a public green space.

**7.3.2. The neighbours against garbage that forged a path for Bushwick Inlet Park**

Bushwick Inlet Park stretches along the East River between North 9th and North 12th Streets in the Williamsburg neighbourhood of Brooklyn (see Figure 37). The Park is the result of a 20-year community campaign to turn a waste transfer station into a public green space.
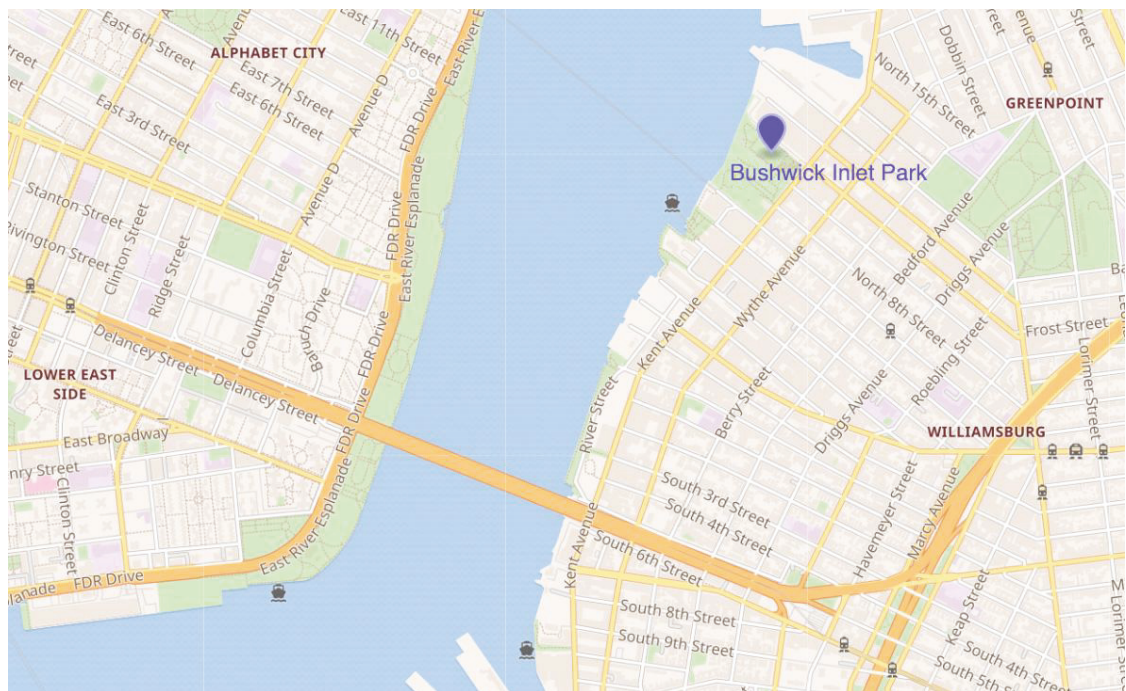


Figure 37 Bushwick Inlet Park in Williamsburg, Brooklyn

Figure 38 Aerial view of the Williamsburg waterfront in 1996 (Joe 2016)

Neighbors Against Garbage (NAG), known today as Neighbors Allied for Good Growth, was formed by five residents of Greenpoint and Williamsburg in 1994 in response to the expansion of Nekboh, a waterfront waste transfer station in the old Brooklyn Eastern District Terminal (BEDT). The feeling of discontent in residents' from Brooklyn's community board 1 (CB1) district had built up over decades as a result of the area's high concentration of municipal waste-collection facilities (see Figure 38), which included solid waste transfer stations, recycling and scrap yards, storage warehouses for hazardous materials, sewage treatment plants and trucking terminals (Campo 2013a).

The environmental impact of the BEDT transfer station grew with its capacity, as Peter Gillespie, one of NAG's founding members, recalls:

> There were all kinds of problems coming from the garbage transfer station—we were having smells coming to the neighbourhood, dust, trucks lining up in our streets, rats in our basement. When the garbage transfer station started operating, it was only one block…they went from a three-acre site to taking over about nine acres…It was at that point, in that second expansion phase, that the community realized that either they were going to stop this transfer station from expanding and operating or the entire waterfront would be taken over by the industry (Campo 2013a, p. 188).

NAG fought against the waste transfer station owners with organized protests, lobbying and legal challenges. It raised awareness about the environmental impacts by writing to elected officials, creating petitions, doorbell ringing, posters, public events and enlisting community businesses and organizations to the cause (Campo 2013a; Cohen 1996).

**7.3.2.1. The residents' battle against corrupt cartels, and a mayor who wanted to keep the trash business going**

Owned by the Barretti Carting Corporation of Hoboken, the transfer station's expansion had been backed by Mayor Giuliani and Sanitation Commissioner John Doherty. However, in June 1995, the Department of Environmental Conservation determined that Nekboh had been operating without an official permit for more than 6 years, and city and state regulators shut it down (NY Times 1995). This coincided with Nekboh owner, Phil Barretti Sr., being indicted on multiple counts including arson, assault, grand larceny, coercion,

and conspiring with a cartel to inflate carting prices (Cohen 1996; McKinley 1995). A month later, after being permitted to resume its paper and cardboard operations, Nekboh was closed definitively once regulators discovered it was processing over double its legal limit (NY Times 1995). In January 1996 USA Waste Corporation bought all the Barretti's company assets (Sengupta 1996) and in 1998, backed by Mayor Giuliani, applied for a permit to expand the size and scope of its operations to 5,350 tons of garbage daily (Yardley 1998b).

Mayor Giuliani had committed to closing Freshkills Landfill[14], a site that absorbed 40% of NYC's daily refuse (Miller 2000), and the waterfront waste transfer stations were key to this strategy. For this reason, NAG focused their efforts on state legislation and hired a lobbyist in the New York State capitol of Albany to influence Governor George Pataki. Pataki had signed a memorandum of understanding in 1998 naming the BEDT land a priority site for the state's open space plan, making it eligible for acquisition with funds raised from the 1996 Clean Water/Clean Air Environmental Bond Act (Campo 2013a). NAG was also able to rally community support, with over 1200 residents attending a hearing in a local high school to speak out against the mayor's expansion plan (Yardley 1998a).

During this time, the U.S. Department of Justice and thirteen state attorneys general ruled that a merger between USA Waste and Waste Management, Inc., the largest and third-largest U.S. waste management companies respectively, would require the merged corporation to divest a number of its properties so as to be in compliance with federal and state antitrust regulations. In part due to community advocacy against the waste transfer

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[14] The Freshkills Landfill site, 82 million cubic meters of garbage sprawling over 1052 hectares, once one of the world's largest man made structures (Jones 2007), is now the largest landfill-to-park transformation in the world. This transformation began after Mayor Giuliani, with the Department of City Planning developing a master plan from 2001 to 2006, construction beginning in October 2008, and completion expected by 2036 (NYC Parks 2020b).

station, the BEDT site was selected as one of the merged company's divested properties (Campo 2013a; Martin 1998).

The community had won the battle but not the war, as the city and state governments would now need to be pushed to find the funds to buy parkland in a part of NYC that was increasing in land value. While the state legislature had earmarked US$10 million for the park (Yardley 1998b), this would not be enough to buy the entire site the community wanted for Bushwick Inlet Park, nor would it be enough to build and maintain the park.

For this reason, state officials worked with the Trust for Public Land (TPL) to find a partner to share the acquisition and development costs. New York University (NYU) agreed, and between 1999 and 2003 the organizations worked together to buy the land and design a park to serve the university and the Brooklyn community. Although NYU would pull out of the partnership due to a lack of consensus with state parks and residents on the design and use of the park, the NYU loan meant TPL was able to buy the central portion of the BEDT site, approximately three hectares/7 acres between North 7th and North 9th Streets, for US$8.3 million (Campo 2013a).

However, as late as 2003 conflicting visions for the area continued and a proposal to reindustrialize the waterfront with a power plant mobilized community activists again (Newman 2003). The waterfront power plant was also opposed by state officials, local elected officials and Mayor Bloomberg (Brick 2004), whose administration had committed to adding 60,000 residential units to the city and saw the waterfront as the last remaining urban space for such large-scale housing expansion (DeSena 2009).

In 2005, informed by the protests, recommendations and negotiations with the community, the rezoning of Greenpoint-Williamsburg was passed by the Department of City Planning and the City Council, which included a two-hectare/five-acre parkland site as well as a US$14 million pledge to acquire the three-acre MTA site on Commercial Street. A two-acre site adjacent to the Barge Park ball field was included with a US$7.5 million fund for its 2010 operating budget. A US$10 million fund would be established to encourage and oversee the shore walk's development, with a provision requiring all developed shore walk site deeds be mandatorily forfeited to the city after completion, effectively establishing public ownership of the shore walk (Hill 2013).

# 7.4. What went wrong?

This section uses a comparative case study approach to establish reasons why NYRP's Haven Project campaign may have failed, and to generalize what strategies could help future green space advocates. The findings were developed through detailed exploration of the Haven Project case, drawing on interviews with those involved, and through the comparison of NYRP's campaign with the successful community-driven ones for the High Line Project and Bushwick Inlet Park. These successful cases helped to shed light on elements that were missing from the Haven Project campaign, which can be broken down into four key areas: 1) organisational structure, 2) media attention, 3) local government, and 4) planning studies.

The Haven Project campaign also suffered from a lack of mutual understanding and co-intelligence from decision makers and communities alike, which will be highlighted in the following analysis.

## 7.4.1. Organisational structure

The advocacy campaigns for both the comparative cases were spearheaded by dedicated organizations created by community members, i.e. Friends of the High Line and Friends of Bushwick Inlet Park. There are other equivalent groups active in NYC today, including Friends of Morningside Park, Friends of Brower Park and Friends of Amersfort Park. These organized volunteer groups typically help NYC Parks maintain, improve and program for green spaces, but are also used for green-space advocacy.

### 7.4.1.1 Friends of Bushwick Inlet Park

Though Friends of Bushwick Inlet Park didn't form until 2009, its members had been advocating for environmental justice with Neighbors Against Garbage (NAG), the Greenpoint Waterfront Association for Parks and Planning (GWAPP) and other

organizations since the late 1990s (K. Thompson 2019, pers. comm., 2 October). Katherine Thompson, the co-leader of Friends of Bushwick Inlet Park, had a history of open-space advocacy in Greenpoint, Brooklyn, having founded a youth soccer league with her husband and neighbours in 1999, which her husband still volunteers for today:

> We had our games in McCarren Park, but the fields were atrocious, there were no soccer fields really, there were pebbles and rocks and nowhere to kick goals. It was incredibly labour intensive to have the soccer league; but it was an all-volunteer league and it was really great, and it became kind of a glue for the community, galvanizing us around activating for public park spaces for families and kids… Out of that, we started advocating for park space. We were strong advocates for getting the park down in Bushwick Inlet that has the soccer fields that are pretty much used 24/7 (K. Thompson 2019, pers. comm., 2 October).

The soccer and football fields of Bushwick Inlet Park opened in summer 2010, however further advocacy was needed to ensure the city acquired all the necessary plots to fulfil its obligations to the community. Friends of Bushwick Inlet Park are still active today and are currently advocating to get the city to allocate funds to demolish the CitiStorage building, which is still occupying land bought for the waterfront park. The group is also active in programming events and workshops in the park, holding envisioning series for the park's future development, applying for grants, fundraising and developing partnerships with environmental and educational initiatives such as the Billion Oyster Project and the New York Harbor School (K. Thompson 2019, pers. comm., 2 October).

### 7.4.1.2. Friends of the High Line

For the High Line, forming an issue-specific organization was necessary to secure initial and ongoing private funding, and win the support of the press. Once the project was completed Friends of the High Line followed the path of the Central Park Conservancy and negotiated an agreement with the city to run the park themselves. This requires raising maintenance funds on a yearly basis. While this is an ongoing challenge for the group, it was imperative to secure contributions, as supporters wanted the city to know that "the only way funders would continue to support Friends of the High Line was if we ran the park" (David & Hammond 2011, p. 110). Initially, fundraising was also how Friends of the High Line established a community support base:

> In the early stages of fund-raising, the money is almost a secondary benefit. What you are
> getting is a group of people who have literally bought into your mission. That bonding—
> especially to a young, new organization—is a statement of partnership, or commitment, or
> belonging, or family, that is irreplaceable in any other way (David & Hammond 2011, p. 27).

The conservancy agreement took three years to negotiate, being settled only a few weeks before the park's opening. Friends of the High Line became the first NYC park conservancy that was formed by the same people who had called for the park's creation, and the first in place when its park's operations commenced.

### 7.4.1.3. NYRP did not form a dedicated group for the Haven Project campaign

While NYRP formed a steering committee to draft the Haven Project master plan, the NYRP remained the organization that led the project and the subsequent advocacy campaign. The steering committee was made up of political influencers, academics, urban designers and community organizations that acted as design partners and thought leaders for the master plan. However, they were not considered co-owners or parties responsible for its implementation. Although South Bronx residents, activists, and non-profits were engaged in public meetings for the visioning of the master plan, due to a lack of campaign experience NYRP was unable to mobilize this community support-base for political advocacy:

> We're not the kind of organization that mobilizes campaigns. We're great at garnering
> input on the design of a project, and talking about the functions a space should fulfil for its
> community, we're not necessarily the activists (B. Hogan 2018, pers. comm. October 25).

As discussed in Section 5.1., as NYRP developed as an organization they established a process for the design and maintenance of their community gardens, and established a track record for developing green spaces in NYC. However, because it was an organization with political restraints due to its relationship with the city, they were limited in their capacity to lead an inclusive and impactful advocacy campaign:

> I think we held too many keys to the castle when it came to what the plan would be, how it
> would be communicated, and what actions we would take. That was partly driven by the
> fact that we had a certain level of removed-ness that we had to communicate, because we
> couldn't do all of the [protest activities] like chaining ourselves to trees, or sleeping

overnight onsite, or going out and yelling at politicians at events—and those are powerful things that citizens need to do—because the NYRP ultimately was not a group of citizens, it was an organization (B. Hogan 2020, pers. comm. June 25).

When city funding was suspended and the Haven Project went into crisis mode, the steering committee shifted its focus and met every three to six months to discuss the state of the project and determine available next steps (T. Gitter 2019, pers. coms. 7 November). However, when aggressive political advocacy was needed to address the political breakdown, NYRP was still seen as the organization leading the effort, and community momentum was lacking (B. Hogan 2018, pers. comm. October 25). This was partly due to a lack of regular meetings with the community and steering committee:

> I think that lack of a consistent environment where [the Haven Project] was being discussed and acted upon universally ended up making it feel like it didn't have the support that it needed to get other people in (B. Hogan 2020, pers. comm. June 25).

NYRP, as a result of their pre-established community engagement processes, was hesitant to take up people's time without having project updates. However, it has been said that a community organization that does not grow will die (Stall & Stoecker 1998). During the High Line Network's third member convening (2018) which I attended with NYRP's Bethany Hogan, a representative from WE ACT, an organization that increases political participation around environmental planning and decision making among communities of colour and low-income residents, made the following recommendation to NYRP:

> In my experience, coming to the monthly meetings we see at WE ACT, if there's not something pressing going on we'll still hold meetings and host something educational around what we're doing, "let's talk about some of the more educational stuff you need to know, so when we get to the point when we ask you to do something you feel confident to actually do something about it"

In this way, WE ACT uses meetings as an opportunity to give supporters information to increase their sense of political agency and motivation. NYRP was unable to rally its community base into political action for the Haven Project partly due to a lack of this groundwork among its supporter base. This is an example of how NYRP's lack of

deliberative processes could be at least partly the cause of the symptoms of malaise seen in the Haven Project.

### 7.4.1.4. Recommendation: Form an issue-specific organization for green space advocacy

As seen above in the case of the High Line and Bushwick Inlet park advocacy campaigns, creating an issue-specific organization can help to garner public support. An issue-specific organization can be more welcoming for people to join, as it only asks participants to support one idea, not a range of issues and agendas. Establishing an organization for an advocacy campaign can also help a wider group of participants feel ownership, especially those present for its conception and early days, as seen with the long-standing members of Friends of the High Line and Friends of Bushwick Inlet Park, some of the latter having campaigned for over 20 years. This broad support and sense of ownership can help to create a more grassroots momentum.

The campaigns created by Friends of the High Line and Friends of Bushwick Inlet Park were able to critique and confront city government, as seen with protests against waste transfer stations and land use planning court cases against the city. An issue-specific organization could help organizations like NYRP, that have pre-existing relationships with government agencies, support a campaign that pursues a range of political strategies without damaging NYRP's political relationships.

There are numerous examples of successful of issue specific green space advocacy groups, such as the Bronx River Alliance, an amalgam of over 70 Bronx community organizations that has transformed an abandoned concrete plant, a former manufactured gas plant, and a trash-filled, dead-end street into sections of the Bronx River Greenway (de Kadt 2006; High Line Network 2021), Brooklyn Bridge Park which is the result of extensive planning and community advocacy over many decades by the Brooklyn Bridge Park Coalition (Webster & Shirley 2018), and the Newtown Creek Alliance that has engaged in creative, hands-on environmental remediation that has brought measurable environmental improvements long the heavily polluted industrial waterway of Newtown Creek in NYC (Curran & Hamilton 2020).

Forming a dedicated group for the Haven Project campaign could have allowed multiple organizations to come together with a unified voice, without being constrained by NYRP's internal political considerations and lack of advocacy experience. This could have resulted in more community supporters to design and execute the advocacy campaign, the development of mutual understanding and co-intelligence, and a louder voice to reach city government, which would be harder to dismiss. For the Haven Project, an issue-specific organization could have promoted a community-driven campaign, as opposed to one that the public was invited to help execute, but not design.

A dedicated organization for the Haven Project could also have helped better articulate its mission to the New York press, whose coverage can help raise public awareness and get the city's attention.

## 7.4.2. Media attention

Friends of Bushwick Inlet Park and Friends of the High Line were both very strategic in their use of creative activism to attract press coverage and raise public awareness.

### 7.4.2.1. Creative activism in the fight for Bushwick Inlet Park

Friends of Bushwick Inlet Park used a variety of protest styles to draw media and ultimately political attention to their cause. This included sleep ins, mock funerals and an inlet occupation via kayak. Creative activism was also the strategy of the predecessor organization, Neighbors Against Garbage (NAG). As well as organizing large protests and rallying outside City Hall, in 1995 NAG began sending vast numbers of provocative postcards to Mayor Giuliani and his commissioner of sanitation, John Doherty. One of these postcards, designed by NAG co-founder Peter Gillespie, depicted the two men handing a permit to Nekboh's (presumably corrupt) owner Phil Barretti, allowing him to expand his business (see Figure 39). The postcards were a tactic frequently employed by NAG to confront elected officials who they believed ignored their concerns (Campo 2013a). It was described by Deputy Mayor Fran Reiter as "the most eye-catching campaign" she had ever seen (Williams 1995). Other creative activism deployed included

clean-up days and waterfront festivals, the latter attracting several hundred residents, press coverage and donations.

As a local issue championed by creative activists, Bushwick Inlet Park also attracted notable press coverage over the years, appearing in *The New York Times* 31 times since 2008. This is a small fraction of the coverage the neighbourhood's open-space campaign received since the mid-1990s.
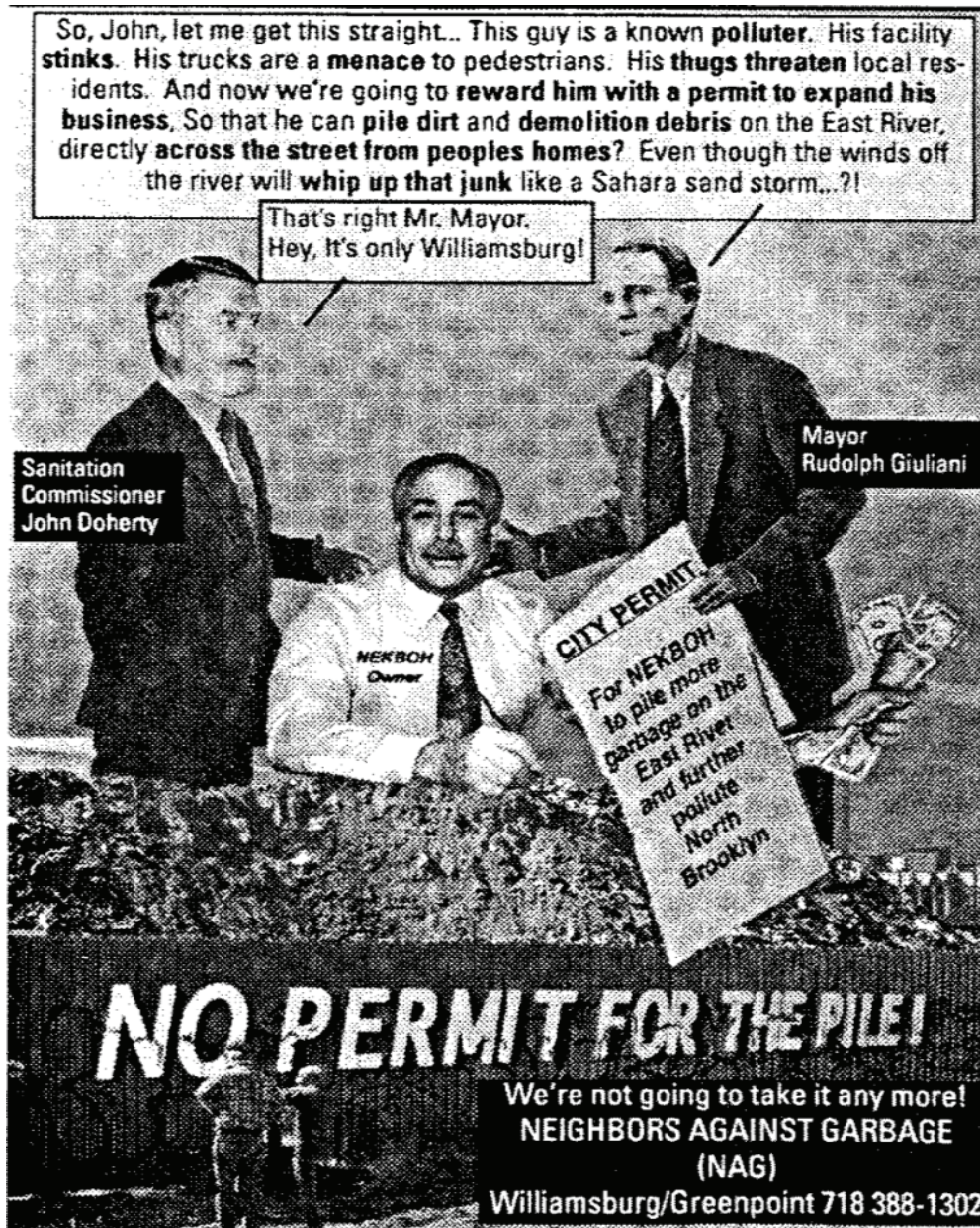


Figure 39 An example of a postcard campaign used by NAG to gain the attention of NYC government (Campo 2013a)

### 7.4.2.2. The New York press' love-hate relationship with the High Line

When Friends of the High Line was initially formed, David and Hammond knew that the support of the press and local community was required to achieve its mission:

> We had both been in New York long enough to know that what the press wants is famous people, or at least well-known people. So we started thinking about people we could get. The first ones we thought of were the gallery people. They were in the neighbourhood… This is what we did at first: collect names of people we could say supported our idea. We didn't have an office, we didn't have a phone number, we didn't have a mailbox—We didn't have anything, just names (David & Hammond 2011, p. 15).

The press came out in support of Friends of the High Line numerous times. On the morning of the City Council's High Line hearing in April 2001, *The Daily News* ran a positive editorial on their effort, and later that year, *The New Yorker* ran a series of High Line photos to accompany Adam Gopnik's article (2001), "A walk on the High Line." The photographs, taken by Joel Sternfeld (see Figure 40), became a major communications tool for Friends of the High Line:

> Instead of showing people architectural renderings, we would show them Joel's photos (David & Hammond 2011, p. p32).

After *The New Yorker* article, more people began to seek out Friends of the High Line, including actor Edward Norton whose father had co-founded the Rails-to-Trails Conservancy and helped create the railbanking legislation. Edward later became a public face for the group, appearing on television program Charlie Rose and other speaking events:

> Look, there are a lot of people who want your money. There are a lot of causes out there doing more important things—saving lives or educating kids. This is about optimism. This is about New York reinventing itself (Norton quoted in Sternbergh 2007).

Friends of the High Line created press releases for milestone achievements, which eventually needed to be signed off by the city once they forged a partnership (David & Hammond 2011). *The New York Times* featured these milestones as front-page news, including when the group was awarded the Certificate of Interim Trail Use (CITU) from the Surface Transportation Board (STB) after a five-year campaign, featuring the headline "A

Figure 40 'Looking East on 30th Street on a Morning in May, 2000' by Joel Sternfeld

Frog of a Rail Line Is Set to Become a Prince of a Park" (Estrin 2005). Bill Cunningham, *The New York Times'* famous street fashion photographer, shot a Friends of the High Line fundraiser event for the paper's party pages. However, not all of the press coverage was completely positive, as seen in the *New York Magazine* piece (see Figure 41) that highlighted the shifting socio-economics of Chelsea as a result of the park, titled "The High Line - How a park built on a junk heap became a glamorous symbol of everything you hate about the new New York" (Sternbergh 2007)':

> New York has become like a gorgeous antique that someone bought, refurbished, and restored, then offered back to you at a price you couldn't possibly afford.

This wouldn't be the only time the High Line was called out for increasing the momentum of NYC's gentrification. This side effect motivated the formation of the High Line Network to help avoid such negative outcomes in future industrial reuse projects.



Figure 41 New York Magazine cover story 'The High Line: It Brings Good Things to Life' (Sternbergh 2007)':featuring 'How a Park Built on a Junk Heap Became a Glamorous Symbol of Everything You Hate'

### 7.4.2.3. Recommendation: Utilize creative activism to attract press and raise awareness

Press and publicity are important tools that community campaigns can utilize to raise awareness and build support. Protestors across the world use aesthetics and creativity to communicate their ideas and ensure their voices are heard (McGarry et al. 2019). In recent years Extinction Rebellion, an international movement that promotes civil disobedience and non-violent direct action in an effort to compel urgent action in climate change, has gained attention from their emphasis on the theatrics of disruption. One of their initiatives is Red Rebels performance group interpreted by Extinction Rebellion groups internationally, wherein performers use Butoh-inspired gestures to communicate the tragedy of ecological collapse and climate catastrophe (Shiels 2019).

During the Haven Project campaign, the NYRP did not have marketing infrastructure in place, and although it did have good relationships with small local press, their cause was not picked up by major news outlets such as *The New York Times.* NYRP was in a difficult position as it understood press was needed to raise awareness about the funding issues it faced, but due to ongoing work with City agencies it was wary to be critical in the media:

> We rely on City funding for other things, so making a big stink about something that City Hall did in the Bronx could impact funding for gardens in central Brooklyn. I'm not saying that we didn't do it because of that, but I think that those might be motivating factors. Our founder was extremely politically active and vocal, but I know our Board wasn't excited about us going out and bashing the city. The Commissioner of the Parks Department is on our Board, and we have a management agreement with the Parks Department in Sherman Creek. I don't think that those reasons precluded us from being vocal, but we had so many vested interests across the city and needed to get by with a lot of these groups (B. Hogan 2020, pers. comm. June 25).

Through their creativity the campaigns for the High Line and Bushwick Inlet Park both received very good press coverage, which helped pressure the city and bring supporters on board. Both groups engaged in creative campaigning to attract attention, and kept up momentum and morale. NYRP, on the other hand, was unable to speak out against the city due to internal politics, and because of a lack of activism experience was unable to effectively utilize the press for campaigning. By not speaking out with a unified voice the

NYRP "release the funds" campaign was unable to demonstrate to the press the support it had from the South Bronx community:

> I think what was so effective about Friends of Bushwick Inlet Park was you knew what they were talking about and thinking about all the time because it was public, and it was loud. And I think with the NYRP, there were times that we tried to do things softly, softly, so not to rock the boat. But that meant that people thought that we weren't doing anything or that we didn't have that much behind us (B. Hogan 2018, pers. comm. September 21)

## 7.4.3. Local government

For public green space projects to be enacted in NYC they require the support of community boards, the City Council and, ultimately, the NYC Mayor's Office.

### 7.4.3.1. The endorsement of community boards is important for the design, advocacy and ongoing support of NYC green spaces

Once Friends of the High Line incorporated as a not-for-profit, Phil Aarons, a property developer who had worked at the NYC Economic Development Corporation, advised the group to alert the local community boards. Phil would become the founding chair of Friends of the High Line and was part of the early meetings with CSX, City Council and the Mayor's Office. David's announcement at a community board 4 meeting about the formation and mission of Friends of the High Line was met with mixed responses. Nonetheless it was here that Josh first engaged with the local City Council member, Christine Quinn. It was later, under the recommendation of Quinn in 2001, that Josh was appointed to community board 4 (CB4) by the Manhattan Borough President, a position he held for six years:

> My time there taught me how to work with large, difficult-to-manage groups that need to be carried along gently to reach one goal or another (David & Hammond 2011, p. 57).

While community board 2 (CB2) endorsed the project early on, it took four years for CB4 to vote on a resolution to save the High Line. However, when it came to pass in 2003 it received a supporting majority of 28 votes to 1.

Brooklyn's community board 1 (CB1) was fundamental to the advocacy and design of Bushwick Inlet Park. As part of NYC Parks' Greenpoint-Williamsburg Waterfront Open Space master plan (2005), the overarching design of Bushwick Inlet Park was developed through numerous community meetings and adopted through a public process involving CB1, city agencies, open-space advocates, community organizations and the public at large (FBIP 2020). The master plan was based on the Greenpoint-Williamsburg 197-a plan, a development roadmap created by CB1 and the local community. More on the importance of 197-a plans shortly.

To date, the incremental development of Bushwick Inlet Park by NYC Parks has followed the original guidelines from the community-driven master plan. Even so, it has been a responsibility of NYC Parks to present all designs to the community, and all designs must be approved by CB1. CB1 also helped NYC Parks publicize community scoping meetings, and provided avenues for design feedback (D. Nelson 2019, pers. comm., 2017 October).

Community board meetings were utilized by Friends of Bushwick Inlet Park to champion their case when the city failed to deliver the park it had promised after the area was rezoned:

> One of the things we did do was go to community board meetings all over the city while the Mayor was rolling out his idea for mandatory inclusionary housing and zoning for equality and affordability. He was so proud of this idea that he went to every community board in the city to present this idea. So the Friends for Bushwick Inlet Park would go to these meetings and say "Watch out, this rezoning is a wolf in sheep's clothing", and the city started noticing (BHS 2019).

Partly as a result of these actions, in 2016 the NYC Council—sponsored by Public Advocate Letitia James, City Council Speaker Melissa Mark-Viverito and council members Rafael Espinal and Deborah Rose—introduced a bill (NY City Council 2016) that created a publicly accessible database of commitments made by the administration in any city-sponsored ULURP application. The database and accompanying annual reports allow elected officials as well as the public to track the promises to communities made by the Mayor and city agencies. Katherine Thompson of Friends of Bushwick Inlet Park said at a panel discussion on the impacts of rezoning Greenpoint and Williamsburg:

This came out partly from our fight screaming "bloody murder, where is our park? you can't break promises" … It's so much work to get them to do what they promised (BHS 2019).

### 7.4.3.2. Community boards allow organizations to interact with and request support from City government

NYC community boards represent up to 250,000 people and provide important forums for residents to make their needs known. They should be the first port of call for projects needing government funding or approval (Kivelson 2001). By attending community board meetings an organization can get a sense of what issues are important to local residents and businesses, gain community support, and at times interact with government officials such as City Council members.

South Bronx community board representatives participated in the visioning sessions for the Haven Project master plan and supplied a letter of support for the original funding application. However, while NYRP's community engagement manager attended South Bronx community board meetings regularly, the NYRP did not always make presentations or provide project updates (B. Hogan 2020, pers. comm. June 25). The meetings could have been a venue for the NYRP to gather community support for the Haven Project funds recovery campaign, and a way to publicize updates and highlight failings in City government. In retrospect, Hogan acknowledged that another benefit of having multiple organizations working together to retrieve the Haven funds would have been more people available to attend community board meetings, so that every meeting could include a campaign representative:

I wish that we had been at more community board meetings, and I wish that we had fought to be on the agenda. I definitely wish that we had made sure that we were speaking at least once a quarter and doing an update, and even if the update was the same, we were still doing that same update (B. Hogan 2020, pers. comm. June 25).

Although the NYRP did reach out to the community board when project funding was withheld by the city, Hogan realized that "we started that too late" (B. Hogan 2018, pers. comm. October 25).

**7.4.3.3. Friends of the High Line and Friends of Bushwick Inlet Park both gained and maintained the support of City Council**

Friends of the High Line did its first comprehensive outreach to civic, community and business groups in April 2001, to muster public turnout for the City Council's High Line hearing. This formed the core group of supporters that have remained engaged with the project to this day. The hearing was held in the Council Chamber in Washington DC, and was attended by supporters from organizations such as the Municipal Art Society, the American Institute of Architects, the Architectural League, the Alliance for the Arts and the American Planning Association:

> Someone once told me that Friends of the High Line functions more like a political campaign than a non-profit, mobilizing a lot of people to get behind something in very little time (David & Hammond 2011, p. 60).

By gaining the support of local elected officials and the Manhattan Borough President, Friends of the High Line sought a broad-based City Council resolution to support the adaptive reuse of the High Line while it pursued a legal strategy to block the elevated railroad's demolition. The supportive resolution from the City Council saw the project gain one part of City government in their favour. Not as powerful as the Mayor's Office, but a significant ally.

2001 was also the year Michael Bloomberg ran for mayor. At a breakfast hosted by the preservation group Landmark West, David publicly asked Bloomberg if he would support the High Line, to which he responded "Yes, it's a no-brainer" (Hyden & Sheckels 2016, p. 167). Friends of the High Line was able to get a signed letter from the Bloomberg mayoral campaign stating that he was running for NYC mayor, that he supported the High Line, and requested no action be taken to threaten its development (David & Hammond 2011). Later, the High Line was included in a whitepaper published on the Bloomberg campaign website outlining its vision for NYC parks.

The City Council was also pivotal for Bushwick Inlet Park's development. In 2002 the Council formally passed the 197-a plans developed by the community to inform land development in Williamsburg and Greenpoint, which included recommendations for increased green and open space. In 2005 the Department of City Planning and the City

Council established a Waterfront Rezoning Agreement to provide the community with affordable housing units and park space (Hill 2013).

The Friends of Bushwick Inlet Park are a very politically engaged organization. Four times a year they hold cabinet meetings which brings together an assortment of City officials including City Council members, senators, members of Congress, Assembly members and representatives from the NYC Departments of Environmental Conservation, Parks and Planning:

> It's good that we do this. It keeps a schedule of information and accountability happening (K. Thompson 2019, pers. comm., 2 October).

### 7.4.3.4. A campaign that gains the support of the City Council is well positioned to gain favour with the Mayor's Office

NYC has 51 council districts, each with a representative elected by residents every four years. The City Council votes on all local laws and the city budgets, reviews land-use matters, oversees all City programs and agencies and sets the annual real-estate tax rate. The City Council represents the smallest unit of government, and their district offices are useful places for constituents to access city services and gain information about city agencies (Kivelson 2001). The City Council is a powerful ally for groups seeking open green-space developments in their communities.

A new park in NYC will need the support of the Mayor's Office to go ahead as it will ultimately become city property and be available for public use. To improve the chances of gaining support, buy in from the City Council and the borough president can help. The Haven Project's original application had the support of these government entities and in 2016 the project was awarded US$2 million from City Council Speaker Melissa Mark-Viverito and council member Rafael Salamanca, and US$750K from Bronx Borough President Ruben Diaz. However, once the funding mishap was made by the NYC Mayor's Office, local government did not make its resolution a priority:

> We have the council member and other local government on board, but this isn't in their top three priorities, it should be, but it's not (B. Hogan 2018, pers. comm. October 25).

A major loss to the NYRP's political campaign to retrieve the Haven funds came with the change of leadership in the NYCDOT and the City Council. In 2016, soon after the Haven funds were awarded, Constance Moran, the NYCDOT Bronx commissioner and supporter of the Haven Project, retired (Wirsing 2017) and her replacement, Nivardo Lopez, did not see the project and its political challenges as a high priority (B. Hogan 2018, pers. comm. October 25). Then in 2017 Melissa Mark-Viverito, the speaker of the NYC Council and the council member for the 8th district (which includes the South Bronx), left office (Neuman 2017). These changes in local leadership created a vacuum for Haven Project support:

> You've got to remember, we lost our main City department figure, we lost our council
> member, and we also lost our speaker (B. Hogan 2018, pers. comm. October 25).

Further loss of leadership would come from within the NYRP when Bethany Hogan left the organization in January 2019. Six months later Deborah Marton, the NYRP's executive director, also left the organization.

### 7.4.3.5. Recommendation: Maintain support from local government

Community boards act as incubators and engagement cornerstones for NYC green space advocates. They support delivery of community ideas to the decision-makers of the City Council and the Mayor's Office. As seen in the campaigns for the High Line and Bushwick Inlet Park, community board meetings are venues where green-space advocates can present ideas and gather support. Regular presentations at community board meetings can help build public momentum for green-space campaigns, and once a project goes into development all designs will need to be presented at these meetings and approved by the community board.

Members of the City Council are often accessible to the public at community board meetings. Community boards provide a mechanism for increased accountability of the City Council, whereby they are able to provide an account of their decision-making processes.

When the Haven campaign lost the support of the City Council, it lost visibility and its means of transmission to the NYC Mayor's Office. By not regularly providing project updates to the South Bronx community board, the NYRP lost a significant support base, as well as access to a vital public forum, and a means of communication to higher

government. As previously explained, the Haven Project suffered from bad timing, with the loss of supportive leadership from both the City Council and within the NYRP itself. For this reason, cultivating a broader set of local political supporters may have been of benefit as other figures may have helped fill the political support vacuum the campaign experienced.

Gaining support and forming partnerships with local government can help align the needs of the community and policy makers. For example, the Logan Square neighbourhood in Chicago needed an additional 40 hectares/99 acres of open space to meet the minimum standards of parkland (High Line Network 2019b). The City of Chicago proposed converting the former elevated Bloomingdale Line into a park, which galvanized the community to form Friends of the Bloomingdale Trail, and an alliance formed between the city, park organizations, and community groups to create an innovative park space (Sinha 2014).

Returning to climate change adaptation, while this is a global challenge it will be necessary across local, regional, national and international scales (Adger, Arnell & Tompkins 2005). Specific actions and adaptation planning will need to be undertaken locally (Lorenz et al. 2017), and for this reason local government plays a powerful role (Hurlimann & March 2012; Measham et al. 2011).

### 7.4.4. Planning studies

To influence changes to NYC's physical landscape, community-driven projects can formalize their proposals into documents that can be used for urban planning considerations. In NYC, this is done by developing 197-a plans and economic feasibility reports.

#### 7.4.4.1. Create 197-a plans to inform the city's development roadmap

Section 197-a of the City Charter authorizes plans for the improvement of the city, its boroughs and its communities. Adopted 197-a plans provide guidance for future city agency actions. They help create a shared vision for a community, promote consensus

building, encourage dialogue between communities and city agencies and shift city policy. 197-a plans can be sponsored by community boards, borough boards, borough presidents, the Department of City Planning (DCP), the City Planning Commission and the mayor. Sponsors of adopted 197-a Plans must monitor the implementation of plan recommendations in conjunction with the DCP (DCP 2008). Neighbourhood or civic groups within the larger community may draft a 197-a plan, but they must be approved, sponsored, and submitted by a community board, borough board or borough president (DCP 2020).

The development of the Bushwick Inlet Park was greatly served by the community's development of a 197-a plan. This began in 1996 and entailed a six-year collaborative planning process between residents, community organizations and Brooklyn's CB1 (Hill 2013). The Williamsburg 197-a plan (DCP 2002) called for a series of revisions to the neighbourhood's zoning that would decrease heavy manufacturing uses, increase low density residential areas and develop contiguous waterfront open space. The plan was formally passed by City Council and adopted by the DCP in 2002. Later that year, CB1 Chairman Vincent Abate formed the Rezoning Task Force in response to the city's plan to rezone the area, with a goal to guide and inform the rezoning process in conjunction with the stated needs and objectives of the 197-a plan.

In 2003, the Task Force completed its first project, *Formal Response to Draft Scope of Work for an Environmental Impact Statement*. A central focus of the *Formal Response* was the inclusion of public space and parks within the proposed zoning area, and requested that developers be required to guarantee contiguous development of public walkways and connections between park spaces. When the district rezoning was passed by DCP and City Council in May 2005 it included: a five-acre parkland site; a US$14-million pledge to acquire the three-acre MTA site; a two-acre site adjacent to the Barge Park ball field plus a US$7.5 million fund for its 2010 operating budget; and a provision requiring that all developed shore walk site deeds be mandatorily forfeited to the city after completion (Hill 2013).

**7.4.4.2. Economic feasibility studies assess the viability, costs and benefits of a project before financial resources are allocated**

With the help of the Design Trust for Public Space, Friends of the High Line developed "Reclaiming the High Line" (David 2002), a planning study which would later act as a roadmap for the High Line's transformation. This study summarized the conclusions of the Design Trust for Public Space's forum on the High Line, and was a major step toward understanding the concerns of interested parties. It lay out the position of state and local government, assessing development issues and outlining next steps. For its introduction, the planning study utilized the High Line section from the Bloomberg campaign's white paper on parks:

> Today, on the West Side of Manhattan, we have an opportunity to create a great, new public promenade on top of an out-of-use elevated rail viaduct called the High Line. This would provide much-needed green space for residents and visitors, and it would attract new businesses and residents, strengthening our economy (David 2002, p. 4).

As this was signed off by Bloomberg, the study began with an introduction from the Mayor and ended with an essay from Betsy Barlow Rogers, the cofounder of the Central Park Conservancy, bringing considerable political weight to the document.

Friends of the High Line also produced an economic feasibility study to further their case with city government. This resulted from a meeting with NYC Deputy Mayor for Economic Development, Dan Doctoroff, after which the Friends of the High Line's lobbyist, Jim Capalino, explained the study was non-negotiable (David & Hammond 2011, p. 45):

> Let me tell you what Dan just said to you. Dan just said you need to commission an economic feasibility study. And respectfully, guys, you don't have a choice. If you don't do it, the High Line isn't going to happen… This is going to cost you a lot of money. I know you don't have the money, but you are going to have to find it.

The group hired John Alschuler, who had done the economic feasibility study for the Mayor's Olympic bid. He developed an effective economic argument for the High Line—parks increase the value of nearby real estate, which then increases the property taxes collected by the city.

Economic feasibility studies enable organizations to assess the viability, cost and benefits of projects before financial resources are allocated, and while not infallible, can provide an independent project assessment that enhances project credibility (El-Sharkawy 2005). The

High Line study set out to answer the following question: over a 20-year period, will the High Line generate more direct revenue to the city from property taxes than it costs to build (David & Hammond 2011, p. 46)? The study involved a district-wide assessment of existing property values and tax revenues, and calculations of the value that would be added to these properties by the presence of a park. This was based on the economic effects of other parks in Manhattan. This added value was determined based on proximity to the park, the extra walls with windows that could face the High Line, and the establishment of a marketable neighbourhood identity. The study calculated that the High Line would cost US$65 million to build, but would create US$140 million in incremental tax revenue for the city over a 20-year period (Doctoroff 2017).

In April 2002, the Mayor's Office announced it would consider the High Line's economic study alongside the structural integrity assessment made by private group Turner Construction. In September 2002, the High Line economic feasibility study was presented to the Mayor's Office. It included a simple overview of the zoning mechanism that would allow property owners to sell their unusable development rights above the High Line. The study was well received and the project gained the support of the Bloomberg administration.

### 7.4.4.3. Planning and economic studies inform zoning negotiations

Over the years much of NYC has been rezoned from industrial manufacturing areas to mixed residential ones, and often in these newly zoned areas communities want to see more green spaces. The timing of rezoning can have massive impacts on the price of land required for green spaces, with the price tag of an industrial site being a fraction of one zoned for residential or commercial purposes (Curran 2007). When rezoning an area, the city may get push back from residents wary of new high rises and rising rents. However, if industrial areas aren't rezoned nearby residents face the risk of these areas being used for waste management, power plants or storage facilities. During the rezoning negotiations surrounding the High Line and Bushwick Inlet Park the communities of Chelsea and Williamsburg, respectively, were able to come to an agreement with the city which provided residents with new open space, considerable compensation for property owners and increased taxes for the city.

Initially, some of the most daunting opponents of the High Line project were the 20 or so property owners who backed its demolition. When the High Line was built a series of easements for it to run over private property were obtained, and the air rights associated with that property belonged to each owner. In 1989 these people organized as the Chelsea Property Owners; they had bought their land cheaply in a manufacturing area, and were anticipating rezoning that would allow for residential developments and increased land prices. The aim of Chelsea Property Owners was to force the High Line's owner-manager, CSX Transportation, to tear it down so they could develop their land (David & Hammond 2011; Halle & Tiso 2014; Littke, Locke & Haas 2016). Some community members were also in favour of tearing down the structure as they saw it as a blight in the neighbourhood as parts had become decrepit and dangerous. It blocked access to the river and was holding up economic development.

Other residents were worried that the preservation of the High Line would lead to high-rises. In 1999 a community-led rezoning bill had passed which successfully down-zoned most of Chelsea between Seventh and Tenth Avenues, restricting building-heights to seven stories. The zoning changes implemented CB4's 197-a plan, which was developed in consultation with the DCP. Ed Kirkland, then-Chairman of CB4, told *The New York Times* (Garbarine 1999):

> The thrust of the rezoning is to protect the old housing stock, maintain the historic character and scale of the neighbourhood and discourage displacement.

Kirkland was justifiably concerned that the high rises that didn't get built because of the High Line's preservation would be added to the height allowances of other buildings in the area (Finn 2012). In NYC, zoning mechanisms can allow the development rights above historic buildings to be sold to other sites, reducing the pressure on real estate development (NYC DCP 2015). This is essentially how the city saved Grand Central Terminal and the historic theatres of Times Square, and would also be part of the economic justification of the High Line.

In 2003, the Bloomberg Administration set out to rezone West Chelsea, between 13<sup>th</sup> and 16<sup>th</sup> Streets, with the High Line at its centre. The rezoning plan would allow the property owners to sell their development rights, and they were asked to stop their litigation against

the city. In 2004, with the promise of a US$50-million city investment in the High Line and other incentives to satisfy local businesses, the property owners withdrew their opposition to the city's plans to develop its first mid-air park (Vitello 2005).

In June 2005, the STB issued a CITU, and the CSX donated the High Line to the city, allowing it to be railbanked. The elevated structure was now able to receive city funds. The final City Council hearing for the rezoning took place on June 15, 2005, where several competing agendas were presented, which were all addressed. City Planning and the Department of Housing Preservation and Development (HDP) pushed to ensure the incentives for developers included affordable housing in new buildings; preservationists were promised a study for a new historic district; the 32BJ Union that represents porters, doormen, and maintenance workers established an agreement with the city that any new buildings would need to be unionized; and the property owners were given permission to sell their development rights to sites along Tenth and Eleventh Avenues, with height restrictions kept low in the Chelsea Historic District, but increased at the north and south ends (CityLand 2005; David & Hammond 2011; NYC DCP 2013, 2015).

### 7.4.4.4. The balancing act between rezoning and land affordability

As discussed previously, the CB1 communities of Williamsburg and Greenpoint began advocating for increased green space in the 1990s, and from 1996 to 2002 formalized these requests through the development and submission of 197-a documents. In a report published by the Office of the New York State Comptroller in 2004, CB1 was one of the most industrialized areas of the city, as well as one of the poorest, with 35% of the population living below the poverty line and 33% receiving some kind of public assistance (Hevesi 2004).

As a result of increased rents pushing artists out of their SoHo lofts in the late 1970s and early 1980s, people began to look for industrial spaces to convert into homes and studios in the rest of the city—Williamsburg was one of these places (Shkuda 2016). This influx of bohemian residents and the growth in converted warehouses resulted in rapid gentrification, with a 67% increase in median rents from 1990 to 2000 (Hill 2013). To take advantage of this opportunity for increased real estate taxes the city moved to rezone the area, converting manufacturing zones into mixed use residential zones. In 2005, 175

blocks in Williamsburg and Greenpoint were rezoned to allow the construction of large condominiums on the water's edge, and in a move to appease the community the city committed to building Bushwick Inlet Park.

However, because the city purchased the land for the park after rezoning it, the price of the project skyrocketed past the original estimates of US$60-US$90 million made by the Bloomberg Administration. The city ultimately spent over US$367 million on land acquisition, and a further US$26 million on developing football fields and a community center (Cobb 2019; Remnick 2016). This is more than the entire cost to build the High Line in Manhattan.

The city's poor land acquisition strategy and slow response in providing Williamsburg and Greenpoint communities with the green spaces they had been advocating for since the 1990s cost the city millions of dollars. For example, in 2007, as a result of lawsuits from property owners to the city's claim of eminent domain, land for the park that cost US$5 million in 1999 was purchased for US$96.4 million in 2007. For two industrial properties with a combined value of US$20 million before rezoning, the city was forced by law to purchase for US$28.7 million (Campo 2013b). Sometimes it pays to listen to the people.

### 7.4.4.5. Recommendation: Develop planning studies to further your case with the Mayor's Office

Conducting studies to support the case green space projects helps prove their viability and highlight potential positive side effects such as job creation, tax revenues, economic activity, and environmental benefits, and demonstrates that there are valid justifications to invest in their development (Park & Kim 2019).

To make the case for the Underline, a 16-kilometer/10-mile linear park under Miami's Metrorail, an economic impact study was developed by Friends of The Underline. The study indicated that 1,000+ jobs and US$170 million in economic output would be created during construction, plus 400+ ongoing park operation jobs and $50 million in annual economic after completion. Residential real estate appreciation would also increase 25% of its value (High Line Network 2019b). Phase 1, the first half mile, of the Underline has now been completed thanks to a mix of private and public funding bodies, including the

City of Miami, the US Department of Transportation and the State of Florida (The Underline 2021).

Without formal planning studies the ability of an organization to influence NYC decision makers diminishes and a project becomes easier to dismiss. As part of the Haven Project funding application, NYRP did develop a pre-design for the initial planning and testing of the phase 1 concept, but "definitely nothing that you could take to an architect and build" (B. Hogan 2020, pers. comm. June 25). NYRP worked with a surveyor to map out the underlying utilities, measure the surrounding water depth and identify the footprint available for structural development.

NYRP's proposed 132nd Street pier revitalization for phase 1 of the Haven Project is located on a Significant Maritime and Industrial Area (SMIA). SMIAs were designated in the 1992 Comprehensive Waterfront Plan by the DCP to protect and encourage concentrated working waterfront uses. They are characterized by clusters of industrial firms and water-dependent businesses (NYC DCP 2011). Given the non-residential nature of the area, the city would not see an increase in real estate taxes from phase 1 of the Haven Project, but nor would they have to sacrifice waterfront luxury apartments to public space. Further, as NYCDOT owned the land for the pier, there would be no purchases required by the city for the project. Nonetheless, the NYCDOT did not cooperate, and at time of writing the dilapidated pier remained on 132nd Street with no development plans under proposal:

> We could never figure out the logic train, because [the city] already owns this. It's a blight. It's not doing anything and it won't do anything. [The city] just kind of wants to pretend it doesn't exist, and we couldn't understand why. You know, the entire footprint of the Haven Project was very complicated because there were parts that were owned by the city, parts that were owned by the state, there were parts that definitely needed to be signed off by landowners, and access points requiring some support from businesses… the pier itself was actually the easiest part, and I never understood what was keeping them from just letting us use it (B. Hogan 2020, pers. comm. June 25).

This lack of transparency highlights that for the Haven project there was very little mutual understanding and co-intelligence developed between NYRP and the NYC decision makers. In the cases of the High Line and Bushwick Inlet Park, both are located in areas

that have been gentrifying for decades, which motivated the city to invest in green spaces and change zoning to increase residential high rise. In both cases considerable negotiation was required with residents and property owners before the projects could go ahead, and these negotiations were greatly aided by planning and economic feasibility studies.

### 7.4.5. Key reasons why the Haven Project campaign failed

In summary, the advocacy campaigns of Friends of the High Line and Friends of Bushwick Inlet Park demonstrate that committed and strategic NYC residents can attain new community parks. Drawing on lessons from these two case studies, it can be summarised that NYRP Haven Project campaign may have failed partly for the following reasons:

- It lacked a project-specific entity to unify communities and organizations under one banner, distribute the workload, and free itself from acting under the obligations of existing political and funding ties
- The NYRP was constrained in the creative activism it could conduct. This impacted press coverage
- While the Haven Project proposal had gained local government support, project presence and advocacy efforts were minimal at community board meetings. Simultaneously, the project lost City Council support due to leadership change
- Finally, while the NYRP had conducted an in-depth community engagement process to inform the design of the master plan, this document did not carry the weight of 197-a plans or economic feasibility studies. As such it did not influence formal planning decisions in Mott Haven

Taking the findings of Chapter 6 into consideration, we can also ask how the Haven Project campaign and others like it could benefit from employing PPGIS?

**7.4.6. How could PPGIS have assisted NYRP's 'Release the funds' campaign?**

As discussed in Section 7.5.1., NYRP did not form an issue specific campaign which made it challenging to unify communities and organizations under one banner, distribute the workload, and free itself from acting under the obligations of existing political and funding ties. By extension of this limitation, NYRP's 'Release the funds' campaign also lacked a central web presence, relying instead on emails sent from its own and community partner's subscription databases with instructions to call 311 or contact local government representatives (see Section 7.1.3.). NYRP's campaign also failed to get coverage from the major New York press (see Section 7.5.2.3.), and lost the support of local government such as the South Bronx City Council district member (see Section 7.5.3.4.). NYRP also lacked formal planning studies and economic impact statements to help further their case with the NYC Mayor's Office (see Section 7.5.4.4.).

While the use of PPGIS for an advocacy campaign is by no means a silver bullet, there are some strategies that could have aided NYRP's efforts to unify community supporters, gain press coverage and seek local government buy in.

**7.4.6.1. PPGIS to track and publicize environmental justice campaigns**

Researchers have identified community mapping projects as important contributors to the field of environmental justice and PPGIS (Prado 2021). Community mapping projects have influenced land use planning processes by distilling relevant public information, identifying the key environmental risks and goods to prioritize in zoning, addressing community concerns through data collection, establishing relationships between community members and government representatives, and sharing gathered PPGIS information with the public online (Haklay & Francis 2017; Prado 2021).

An example of a PPGIS campaign comes from the origin story of my technology partner Mapseed (see Section 5.3.2.2.), whose founder Jacob Caggiano created the open source platform to help a community of residents and stakeholders monitor the clean-up of toxic waste in Seattle's Duwamish River. Caggiano's goal was to bring together residents and stakeholders in addressing the area's most pressing environmental health concerns using open data and the stories of those most affected by the watershed restoration effort:

The community has been trying to get the Duwamish River cleaned up for decades. It's a Superfund site, so that means that the Environmental Protection Agency, the federal government, has declared the pollution to be at the point where they are requiring that those responsible parties for the pollution do a clean-up… There was no map of the river, there was no community resource for where the pollution was and how they were going to monitor it. So, I went to a 'Code for America' event and I just started pitching this idea like "Hey, we have this river, it's polluted and is being cleaned up. It's a huge decision. It'll impact generations of people who fish there or swim or recreate, and effects industries like Boeing and all these other people." I didn't know what I was building, I just knew I wanted to map this river. And so, I met some volunteers, Luke and Trevor and other people and I would do these weekly Hack nights. And once a week, we'd sit at a cafe for about three to five hours and just try to build this prototype. So that was a project called 'Hey Duwamish', say hello to the river… It was based on a community vision of tracking a river and raising awareness and just getting interested in clean-ups. Since then, we've done other projects for environmental and community causes as well (J. Caggiano's 2020, pers. comm. December 1).

The 'Hey Duwamish' PPGIS website publicly shared data sets which were previously inaccessible by the general public, such as:

- The Environmental Protection Agency Superfund Clean-up plan (dredging, capping, enhanced natural recovery, monitored natural recovery)
- Zoning and land use (all categories including, manufacturing, residential, heavy / medium / light industry, retail, airport, underused, etc.)
- Georgetown community vision from six planning documents dating back to 1977
- Historic river path including the thousands year old tide flat and estuarine marshland
- Air quality measurements, violation sites, permitted pollution sites

NYRP had also gathered numerous data sets for the preparation of the Haven Project Master Plan, which equally could have contributed to a compelling public PPGIS campaign website.

### 7.4.6.2. Using PPGIS to communicate the community needs driving the Haven Project to gain support from the community and press

NYRP could have developed a PPGIS website that used geo-spatial data layers to communicate and publicise the environmental, social and well-being needs of the South Bronx community. Data set could include the South Bronx health, demographic and environmental metrics gathered by NYRP and its project partners[15] for the Haven Project Master Plan proposal, including:

- Environmental data: tree and grass coverage, pollution levels ($PM_{2.5}$), walking distance to recreational spaces measuring 6 acres or more, and flooding that occurred during Superstorm Sandy

- Health data: percentage of the population who self-reported exercise in the previous 30 days, percentage of the population that is overweight, asthma rates

- Demographics data: percentage of the population living below the poverty line, percentage of the population younger than 18 and 65 or older, and percentage of the population having attained only a high-school education or less.

To bring this data to life and engage potential campaign supporters and the press on the human need behind it, PPGIS storytelling techniques could also have been utilised.

### 7.4.6.3. PPGIS storytelling to provide context to geo-spatial data and encourage campaign calls to action

As a result of my partnership with Mapseed I was introduced to PPGIS storytelling techniques that allow users to scroll through explanatory text on a map interface and trigger geo-spatial data sets to load, zoom in, zoom out, and present key locations.

To communicate background information of the Haven Master Plan and present calls to action to potential community supporters, as well as providing a means to contribute geo-

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[15] NYRP and The Spatial Information Design Lab, now the Center for Spatial Research, at Columbia University had collated and visualized many of these data sets but they weren't used by the 'release the funds' campaign, see http://spatialinformationdesignlab.org/project_sites/the-haven-project/

tagged comments and photographs, an interactive PPGIS campaign site could have been developed. Speaking with Bethany Hogan, NYPR's Head of Government Affairs, about what features a PPGIS campaign website would need to have, she highlighted the need for press, the ability for the community to communicate in messages or photos how bad the blight of the South Bronx waterfront was, and the ability to share these messages with the New York press:

> The problem is, people just don't really know how bad it is, people just haven't been there, so they don't know how bad it is. It's horrifying that in a city like New York that has experienced the kind of wealth that we have, there are places in the world that still look like this… I love the idea of looking at a map and seeing little [photo] thumbnails, like a combination of 311 and Google Street View[16]. My goal is anything that can help us get press. So, it needs to be something that gets us 1000 comments, or pictures, messages from actual people living there who are saying "This is unacceptable." And then that could go to, say, City Lab or the New York Post or Gothamist. That product would be really, really valuable (B. Hogan 2018, pers. comm. August 31).

A simple storyboard was later discussed with Hogan (see Figure 42) that could be used to gather campaign support and raise awareness about the underlying environmental justice shortcomings experienced by the South Bronx. The storyboard demonstrated the following key functions:

1. **Landing page:** The campaign loads with all Master Plan locations highlighted. The 'take action' button will take the user to the form to sign the campaign.
2. **Project info:** Users can select map markers for Master Plan project phase information
3. **Zooming story telling:** As the user scrolls down the right pane the story telling of the campaign begins and the map zooms in and out of project sites. The right panel displays text and images to explain the significance of each marker.

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[16] Google Street View is a technology featured in Google Maps and Google Earth that provides interactive panoramas from positions along many streets in the world. It was launched in 2007 in several cities in the United States, and has since expanded to include cities and rural areas worldwide

4. **Phase 1:** The Phase 1 of the Haven Master Plan is introduced, followed by other key project phases

5. **Sign campaign:** After all project info has been shared and the current challenges explained, the user is invited to sign the campaign, contribute geo-tagged comments/photos, and add their demographic information.

6. **Calls to Action:** Once the campaign is signed the user is presented with information for other calls to action, such as links to contact their local representative, call 311 and highlight the unsafe and dilapidated condition of the existing East 132 Street Pier, or find out when their next community board meeting is so they can turn up and support the 'release the funds' campaign.

However, due to funding limitations, political restrictions, and NYRP's somewhat restrictive relationships with elected NYC officials the discussed PPGIS campaign website was not developed:

> Our logic is that we should not do the press route unless we feel like we have to, because that could theoretically be a risk of alienating elected officials…it might end up looking like they're not getting the job done (B. Hogan 2018, pers. comm. August 31).

For the Haven Project campaign, NYRP could have utilised PPGIS surveys to gather and digitize concerns of the South Bronx community in a way that was easily shared with the greater public and decision makers. This could have included geo-tagged photographs of sites that pose risks to community health and well-being, as well as geo-tagged comments outlining individuals' experiences in these environments. Publicly shared PPGIS geo-spatial data sets could have helped communicate the risks the community faces from air pollutants, traffic flows, economic inequality and climate change. PPGIS could also have been used to capture the ideas contributed by the South Bronx during NYRP's community engagement for the Haven Project Master Plan, which could have improved NYRP's ability to capture support from press and local government.

### 7.4.6.4. Using publicly accessible PPGIS to share community needs with the press and local government

As seen in NYRP's community engagement processes with the South Bronx community, people were willing to contribute comments on problem areas and opportunities in the Mott Haven/Port Morris South Bronx neighbourhoods (see Figure 5 for mapped locations) as well as ideas for programming, amenities and safety concerns (see Section 5.2.4. for comment categories). NYRP never made these community comments available to the public, nor did they share them with local government representatives. This was a missed opportunity to clearly articulate community needs and ideas, and hold local government representatives accountable to the funding decisions made concerning the granting and withholding of the Haven Project funds.

The NYRP PPGIS prototype was designed to digitally capture and share community data, with the intent that future Haven Project community engagement for the design of project phases 2, 3, 4 and 5 would be made available to public at large via a PPGIS website.

In section 8.2.4. I will discuss how PPGIS can be used to make NYC green-space governance and planning processes more inclusive. Currently PPGIS is being used by the New York City Council to gather ideas and comments for participatory budgeting projects (ideas.pbnyc.org). This functionality could be extended to allow residents to vote on participatory budgeting projects, which would allow for increased participation of digitally capable residents who aren't able to attend participatory budgeting meetings.

While the comparative cases considered in this chapter have helped to identify some of the failures and shortcomings of NYRP's Haven Project campaign, to develop a more complete understanding of what went wrong we need to also consider the governance context in which the Haven Project was operating. In Section 4.3. I introduced the government mechanisms available to New Yorkers to shape their green spaces. I will now continue this discussion with an analysis of NYC formal community engagement mechanisms in deliberative system terms.

Figure 42 PPGIS storyboard discussed for NYRP's 'Release the funds' campaign
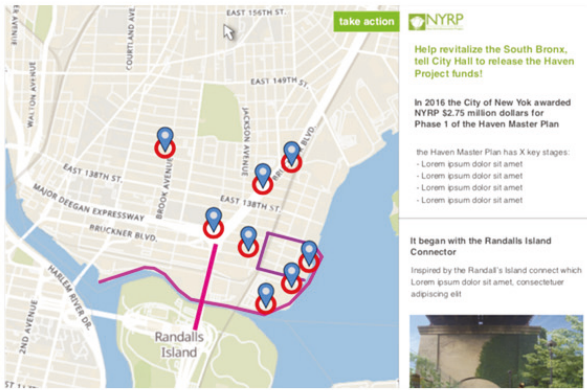


**1. Landing page:** Master Plan locations highlighted, 'take action' button directs users to the campaign form.
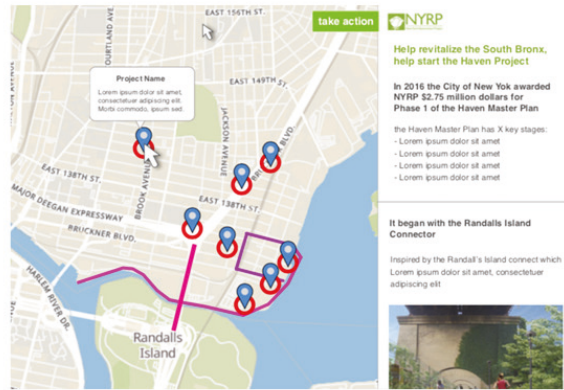
**2. Project info:** Users can select site markers for Master Plan project phase information.
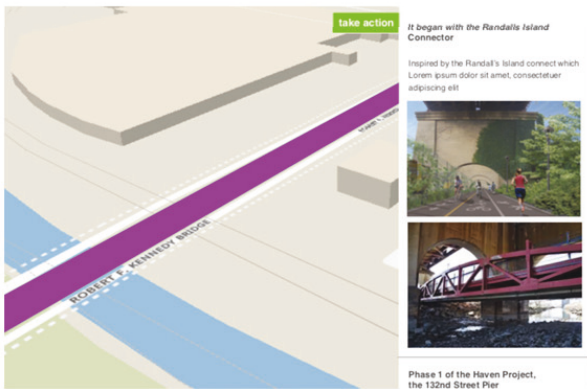
**3. Zooming story telling:** As the user scrolls, the map zooms in and out of project sites.
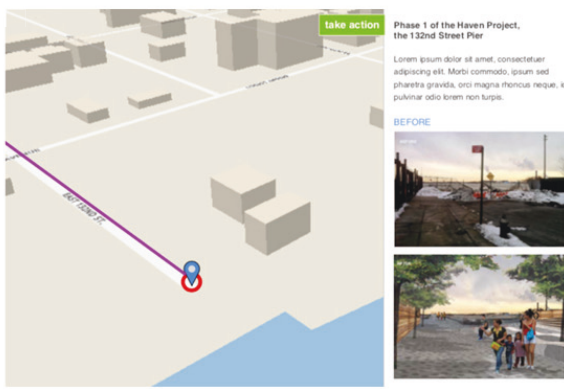
**4. Phase 1**: The Phase 1 of the Haven Master Plan is introduced, followed by other key project phases.
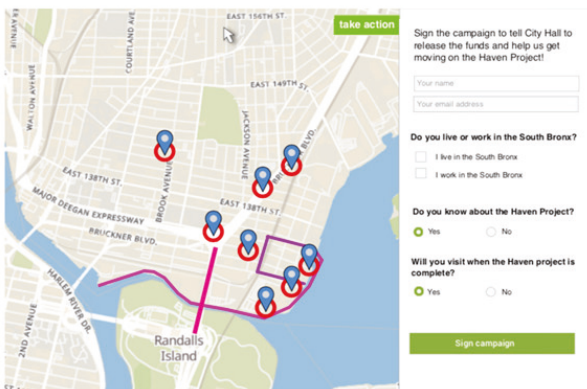
**5. Sign campaign**: After all project info has been shared the user is invited to sign the campaign, contribute geo-tagged comments/photos, and demographic information.
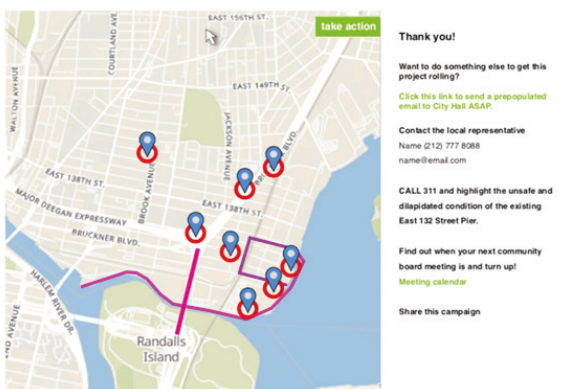
**6. Calls to Action:** Once the campaign is signed the user is presented with other calls to action, such as to contact their local representative, call 311, or find out when their next community board meeting is.

# 8. Deliberative recommendations for NYC's formal community engagement mechanisms

The institutions evaluated in this thesis do not embody principles of deliberative democracy to a great extent, and share the common features of siloed, top-down governance. While NYC's formal community engagement mechanisms may engage in dialogue which is intended as a means to discuss and exchange ideas, they do not necessarily foster deliberation which is intended to weigh options, make choices, and seek common ground—an important distinction for scholars of public discourse (Sullivan et al. 2017). However, this does not preclude these mechanisms from contributing to a deliberative system.

We have established that community participation is important for the design and maintenance of urban green spaces, which in turn help a city adapt to climate change. In terms of community engagement for the planning of green spaces, NYC does provide its residents with formal avenues to get their ideas and concerns for green space heard, however there is limited direct communication with, or accountability of, decision makers.

Further, representation of residents and discourses that surround urban green spaces are not prioritized in these formal engagement mechanisms (see Section 4.3).

The primary access NYC residents have to green-space decision makers are through community boards, borough presidents, and the City Council, the latter being the representative body with greatest authority. Residents do not have direct access to decision makers at NYC agencies and rely on community boards, council members or 311 complaints to transmit their ideas or concerns regarding green-space service delivery.

Formal community engagement mechanisms for NYC parks and gardens are intended to connect to the decision-makers of empowered space, and deliberative democratic theory can help in the assessment of these decision-making processes. Deliberative systems allow us to reconsider the interaction and influence between public space and empowered space (Dryzek 2012) and how democratic innovations that seek the input of the community can impact the broader political system (Ercan, Hendriks & Boswell 2017; Niemeyer 2014; Warren 2007). Stevenson and Dryzek's (2014) have provided a framework to help describe, analyse and evaluate democratic deliberative systems (see Section 3.3). In this chapter, I'll focus on the following components of a Stevenson and Dryzek's deliberative system to discuss NYC formal community engagement mechanisms:

1. Public space: informal or formal meeting places where ideas and critiques are generated such as cafes, bars and online forums, or more formal spaces such as public hearings, meetings, debates or news media activity.

2. Empowered space: where collective decisions get made by institutions, such as those of government, executive committees or courts

3. Transmission: the means by which public space influences empowered space. This may take the form of arguments, providing information, sharing personal stories, rhetoric or cultural changes that influence decision makers, such as environmental movements

4. Accountability: how the empowered space justifies its decisions and actions to the public, for example when government and elected officials provide an account of their actions to their electorate or constituents

The core claim of deliberative democracy is that "those affected by a collective decision have the right, opportunity and capacity to participate (or be represented) in consequential deliberation about the content of that decision (Dryzek & Stevenson 2014)." New Yorkers are represented by their elected officials and community boards in green-space decision-making procedures, but they do not necessarily have the opportunity to directly participate themselves. As with many participatory mechanisms, those provided by NYC do not currently ensure the representation of demographics and discourses, and given the pace and demands of living in NYC, residents who participate are generally those who have the time and resources to do so. For this reason, I will also examine the inclusivity of NYC formal community engagement mechanisms. Inclusion is what makes deliberation democratic, and refers to the inclusion of multiple voices, interests and concerns in decision making (Parkinson & Mansbridge 2012).

Community participation has shaped NYC green spaces by revitalizing zones of urban blight, advocating for garden rights and forming organizations that help to maintain and develop park programming (see Chapter 4). I will now examine these aspects of participation, along with the press and formal mechanisms for community engagement, through the lens of the deliberative system terms listed above. I will then present ideas on how to improve NYC's formal community engagement mechanisms by incorporating the successful strategies of democratic innovations, including minipublics, discourse representation, and community cabinet meetings. I will also outline how PPGIS could be used to make NYC's green-space governance more deliberative, and answer my fourth and fifth research questions, "what deliberative systemic impacts do NYC's formal community engagement mechanism have?" and "what strategies from international democratic initiatives could make NYC's formal community engagement mechanisms more deliberative?"

## 8.1. Examining NYC's formal community engagement mechanisms through a deliberative systems lens

To identify strategies to improve NYC's formal community engagement mechanisms for green spaces I will begin with the informal components of public space, i.e. community garden groups.  I will then discuss two informal mechanisms for transmission of community needs to empowered space—activism and the press—before turning to my primary focus i.e. NYC's formal components of public and empowered space—community board meetings, public hearings and scoping sessions. For this discussion, I use the term "formal" to refer to activities run by the NYC government, and "informal" to refer to non-governmental activities (see Figure 43 for a diagram of these formal mechanisms as a simple deliberative system). Throughout this chapter I will highlight potential strategies for PPGIS to increase the deliberative democratic potential community garden and park engagement.

**Empowered Space**
where collective decisions get made by institutions

NYC Mayor's Office

The City Council

Department of City Planning

NYC Parks

NYRP

**Transmission**
the means by which public space influences empowered space

**Accountability**
how the empowered space justifies its decisions and actions to the public sphere

Activism

Press coverage

Participatory Budgeting Voting

NYC Parks Outreach Coordinator

Community BoardDistrict Manager

Public Hearings

City Elections

Community BoardDistrict Manager

Participatory Budgeting District Committees

NYCParks Commissioners

**Public Space**
Informal or formal meeting places where ideas and critiques are generated

NYC Parks Scoping Sessions

Community Garden Group Meetings

Community Board Meetings

Participatory Budgeting Neighborhood Assemblies

Figure 43 The formal mechanisms of NYC's green space governance as a simple deliberative system

### 8.1.1. NYC community garden groups, informal contributors to public space

Advocates for NYC community gardens and parks conduct their activities in public space. They generate ideas and strategies at informal and formal meeting places, contribute to public debates and generate news media activity. As discussed in Chapter 4, NYC green-space advocates have seen numerous successes, as demonstrated by the protection and preservation of city parks and hundreds of community gardens.

NYC community gardens are venues for activities in NYC's public space, wherein residents can self-organize and deliberate on the design and features of their local green spaces. In section 4.2. I discussed three predominant management approaches to NYC community gardens, which have varying democratic deliberative qualities. The GreenThumb Gardens of NYC Parks provide the greatest autonomy to gardeners, who decide among themselves on any changes they'd like to make to the gardens' features and structures, and as long as they follow the city's rules. The Trust for Public Land (TPL) gardeners are given freedom to run their spaces as they please, however they must organize representatives to participate in board meetings for the borough-wide land trust. In a sense, TPL has transferred the responsibility of managing a public green space to gardeners, which requires them to engage in bureaucratic, organizational and citywide collaboration challenges that are otherwise the responsibility of municipalities (Eizenberg 2012). In NYRP's management approach, community gardeners are encouraged to help design neighbourhood green spaces and form groups to maintain them, however they are not allowed to make independent decisions or investments into these spaces. This can cause a catch 22 for discouraged community gardeners and NYRP's fundraising efforts, as gardener Monti eloquently surmised, "investment happens when there's interest, but it's hard to get interest when there's no investment" (M. Lawson 2018, pers. comm., 4 December). NYRP is working to improve their communication with gardeners around expectations for managing green spaces, as well as working out approaches to improve collaboration:

> I think that there has to be a balance, and we can learn to strike that balance. I've been working with our team to have this mental shift of collaboration with garden members, where we're no longer maintaining this philosophy that community members maintain their garden beds, but that the community members are active partners in maintaining and supporting the garden in general, and that our [operations] team, continues to be the backbone (A. Cabrera-Marus 2020, pers. comm., 1 December).

As a whole, community gardens are a positive contributor to the public space of NYC green-space governance, wherein organized residents have direct lines of transmission to the decision makers, the empowered space, of the gardens, e.g. NYC Parks' GreenThumb program or the NYRP. In the case of TPL, gardeners are the decision makers. In terms of accountability, while the NYRP may be delayed in its response to gardeners' requests, it

does endeavour to address them. It acknowledges the need to improve communication with gardeners along with better expectation setting (A. Cabrera-Marus 2020, pers. comm., 1 December).

In regards to the representativeness of NYRP's community engagement practices, as discussed in section 5.1., NYRP does make efforts to include a wide range of stakeholders, though this does not ensure their community engagement participants are representative of a neighbourhood. NYRP does not use techniques such as stratified random sampling to ensure inclusivity in the engagement processes. This, combined with the demands of life in NYC, can result in small community turnout (A. Cabrera-Marus 2017, pers. comm., 13 October).

## 8.1.2. Activism as a transmission mechanism

In Chapters 4 and 7 we learned that the residents of NYC have shaped their local green spaces through protest, advocacy, grassroots organizations, fundraising and political lobbying. In response, NYC created new parks, provided community gardens with legal protection and formed government agencies for the service delivery surrounding green spaces.

Activism provides a means for members of the public to amplify their needs to empowered space. While common methods of activism—rhetoric, heckling, partisan campaigning and protest—are non-deliberative in nature, their ability to increase public attention for neglected viewpoints, and thus increase inclusivity, make them positive components of a deliberative system and, as such, useful transmission mechanisms (Cross 2019; Dryzek 2011; Mansbridge et al. 2012a).

Activists are persons highly engaged with certain issues who often take part in multiple conversations across multiple spaces of a deliberative system. Mendonça (2016) argues that although this mode of articulation may seem simple, certain activists become connectors that cross back and forth between informal and formal settings of discussion on a topic, working as inducers of connectivity. These actors can become well known in policy communities, often regarded as individuals whose positions cannot be ignored:

In representing perspectives, interests, and discourses, they are strengthening views that could remain forgotten in the neglected corners of the system (Mendonça 2016, p. 185).

Mendonça (2016) goes on to argue that activists can challenge the technocratic reduction of politics, reinforce the importance of participation of those affected by an issue and strengthen a public culture that values enduring civic participation. However, it should be noted that while activists can be positive components of a deliberative system, they are not necessarily, and may not make much headway in sparking a more deliberative system, in the sense of deliberative democracy.

In section 7.3. we learned that the High Line and Bushwick Inlet Park both benefited from extensive community activism. In the case of the latter, 20 years of battles against the city were needed to get the green space that is there today, and these battles will continue until the total promised park land is delivered to the community. Friends of the High Line and Friends of Bushwick Inlet Park are just two of many green space advocacy groups working in NYC today, but demonstrate that activism can be an effective means of transmission to empowered space.

## 8.1.3. The press as a transmission mechanism and amplifier

In a complex society, communication between citizens and elected representatives has three key channels: face-to-face, online social networks and traditional mass media (Parkinson 2012). The media is an important mechanism to amplify activist demands and help their transmission to decision makers in a deliberative system.

Chambers argued that the "most significant and important contributor to the promotion of a critical audience is the media (Chambers 2009, p. 341)." The media frames, shapes, and packages information and can influence the shaping of public opinion (Habermas 2006). The media can also be used to call elites to account. If regulation is designed to encourage media coverage of informed citizenship, debate formats, equal time and access and public affairs content, its positive contributions to a deliberative system will increase (Chambers 2009; Mendonça 2016).

The media itself is not democratically deliberative. Some argue it is market-oriented, avoids deliberation (Gutmann & Thompson 2009), and does not provide diversity of perspectives (Street 2010). The reach of the media is fragmented due to audience targeting, and while news media does involve a lot of "talk", there are limited spaces for talking together, and even less for reasoning together (Parkinson 2012).

While these are valid criticisms of the media, they do not preclude it from contributing positively to a deliberative system, and it has been said that "a deliberative system cannot operate democratically without the media (Mendonça 2016, p. 183)". The media does not provide a perfect transmission of ideas to empowered space given news agencies can distort information to align with their own world views and agendas. However, the media framing issues does not in itself present an issue to a deliberative system, as "All information, even face-to-face information, is framed (Chambers 2009, p. 341)."

In NYC, newspapers and magazines have helped to raise awareness and call decision-makers to account. As discussed in Section 7.5.2.1., Friends of Bushwick Inlet Park used a variety of protest styles to draw media and ultimately political attention to their cause, including sleep ins, mock funerals and an inlet occupation via kayak. The press came out in support of Friends of the High Line numerous times, and *The New York Times* featured their project milestones as front-page news. Press coverage of these campaigns helped to pressure the city and attracted supporters. The NYC media has helped to amplify the transmission of green-space advocates for over a century, and continues to do so today.

### 8.1.4. Formal components of public space with limited transmission and accountability: community board meetings, public hearings, scoping sessions and participatory budgeting

Community board meetings, public hearings and scoping sessions are government mechanisms that provide NYC residents with the ability to publicly state their concerns. However, there are no mandates that require the city to formally address these concerns, or any guarantees that the city agency responsible for the related service delivery will receive or act on them. The 311 service was designed to ensure that all registered

complaints receive a response from the city, but as this is a database and not an activity of public space I will not discuss it here, although I acknowledge that it is a positive evolution towards improving the transmission of complaints and making the city more accountable to them.

### 8.1.4.1. Community boards

Community boards act as a transmission mechanism by providing the Mayor with budget priorities and recommendations for projects, programs and activities that meet district needs. Community boards contribute to the decisions of empowered space by monitoring city service delivery in their district, such as policing, sanitation and parks, and are the first to vote on Uniform Land Use Review Procedures (ULURP).

Community boards provide an element of accountability to green-space decision making. This is inasmuch as NYC Parks must present to and gain approval from affected community boards for all park proposals. However, only community board members can vote in this approval process. For this reason, although the public can present opinions and influence voting outcomes, community board meetings are not venues for public deliberation.

Airing an issue at a community board meeting does not mean it will gain an audience with the decision makers of empowered space. Nor are these decision makers obliged to address any aired concerns. Community boards have no direct authority over city agency representatives (Berg 2007), so have no power over service delivery.

Community board meetings are venues for residents to gather and mobilize opposition to specific land-use projects, which can force developers or the city to modify projects or negotiate with community boards. Community boards can also construct their own advisory masterplans through the 197-a planning process (see Section 7.5.4.1.). However, these can take many years to develop (DCP 2020). Once approved by the City Planning Commission and adopted by the City Council, 197-a plans guide future actions of City agencies in the areas addressed in the plans (DCP 2020).

### 8.1.4.2. Public hearings

Public hearings provide a means for NYC residents to give testimony for the city's consideration in land use projects. However, the public are unable to call or set the agenda for public hearings, nor is there a requirement for public testimony to be formally addressed. Public hearings are not a place for deliberation, but do act as a transmission mechanism for public ideas to empowered space.

NYRP's Bethany Hogan, explains that hearings are an important mechanism for creating accountability and communication with city government, but they are not vehicles for the public to raise issues for discussion in empowered spaces:

> They are a really important tool in getting a wider spectrum of voices heard and for both elected officials and civilians alike to hold other parts of the government accountable. That said, they are by no means perfect. I've been to many hearings where the elected officials who were supposed to be present only stayed for a little bit or left after they asked a question. Outside of hearings related to zoning and other very clearly defined processes, most committee hearing topics are decided by their members. Those decisions are generally guided by what they hear from constituents but there isn't really a direct process by which an individual can call for a certain hearing topic and that can be a bit of an obstacle sometimes (B. Hogan 2018, pers. comm. November 11).

Public hearings are often well attended at the community board and borough level, but once they reach the level of the Department of City Planning, attendance of the public and community board members drops. Andy Toledo of the CEC explains:

> For example, what we'll see is the community board will have their public hearing, and on a rezoning project you'll probably get, if it's a very highly contested rezoning, you're probably going to get upwards of 75 to 150 people attend that public hearing. Those 75 to 150 people will then go to the borough president's public hearing, and you'll probably get a large group of folks. But then once it goes to the Department of City Planning public hearing attendance drops. You'll probably get the district manager, some board members and maybe 15 to 20 to 50 community members attend that public hearing. And then when it goes to the City Council attendance drops even more, because what you tend to find is that if the application is already approved at the Department of City Planning level, it's going to be more than likely that the City Council is going to probably approve it… There's been a lot of discussion about the ULURP process, about taking power away from the city

Council because the City Council members have a lot of power when they vote on that. Supported attendance just drops by people who think, "it's already a done deal, they're gonna vote for it, it's over already" (A. Toledo 2021, pers. comm., January 23).

Attendance at the Department of City Planning Public Hearings is also diminished due to schedule conflicts with people's work commitments:

> When [the Department of City Planning] have their public hearings on a rezoning, it's usually nine o'clock in the morning, 10 o'clock in the morning. So, if people go to work, if you're a community board member, you're not going to skip your job to go to a public hearing. So there's been some talks about incentivizing or providing a stipend to those committee board members to attend some of these public hearings on the Department of City Planning variance hearings, Board of Standards and Appeals hearings, so that the community board voices are heard throughout the process (A. Toledo 2021, pers. comm., January 23).

When conducted by a community board, the timing of public hearings will have some impact on project proposals. However, once completed any community board votes or recommendations can be reversed by a simple majority vote of the City Planning Commission. Similarly, community boards must be consulted on specific budgetary matters, and provide community comment through a set of public hearings and meetings, but again this consultation is purely advisory.

For these reasons, while community board meetings and public hearings provide a means of transmission for community ideas to empowered space, they provide limited accountability.

### 8.1.4.3. NYC Parks scoping sessions

Scoping sessions, also known as community input meetings, are conducted by NYC Parks to gain feedback from stakeholders and the community on park redesign, re-building and creation. The types of questions participants are asked at these meetings include "how do you arrive at the park?", "what do you do when you go to the park?" and "what would you like to do that you can't do now? (NYC Parks 2021)".

**Bushwick Inlet Park**
Visioning Session for the next
phase of the park – 50 Kent

**Date:** Monday, June 4th, 2018,
6:00 p.m.

**Location:** 86 Kent Ave, Brooklyn NY
11249 (meeting will take place in the
building)

Join NYC Parks to share your ideas!

Want to learn more? Want to get involved?
Can't make the meeting?

Contact and send suggestions to:
BKspecialevents@parks.nyc.gov
(718) 965-8907
www.nyc.gov/parks

To find out how these scoping sessions were run for capital (infrastructure) projects, I interviewed Delancey Nelson, an outreach coordinator for Partnerships for Parks, which is a joint program between the City Parks Foundation and NYC Parks. The City Parks Foundation is an independent, not-for-profit organization that raises money to provide a broad range of programs in 750 parks across NYC. Founded in 1989, the Foundation is one of the oldest and largest citywide parks organizations in the country. Partnerships for Parks is a public-private partnership that supports the activity of 60,000 park volunteers yearly, as well as providing grants, workshops and other opportunities that NYC Parks, as a government agency, is unable to do (D. Nelson 2019, pers. comm. October 17).

This private-public relationship is typical in NYC, as many city agencies that are pivotal to service delivery rely on non-governmental organizations for funding support, e.g. the Fund for Public Health. These relationships extend the empowered space of NYC beyond government agencies, with these funding bodies gaining influence in public program design and decision making. This raises questions of accountability, as agencies that receive private funding are beholden to those private entities, perhaps more so than to the public.

As an outreach coordinator, one of Delancey's priorities is to inform and bring community members together for scoping sessions. Partnerships for Parks work with community boards and community partners to "get the word out" about upcoming community input

meetings. This may involve going door-to-door to local businesses, distributing posters and flyers in print and online and posting on NYC Park's and supporting organizations' websites.

When scoping sessions are held for park developments, the community is informed about the capital project process, project restraints, timing and "then they're given the opportunity to present any ideas that they might have for the space itself" (D. Nelson 2019, pers. comm. October 17). Much like NYRP's facilitated public meetings for the development of the Haven Project master plan (see Chapter 4), scoping sessions run by Partnerships for Parks involve presentations by project representatives followed by discussions at assigned breakout tables of eight to 10 people. These facilitated table discussions are designed to generate ideas, and the top ones are reported back to the group and documented for the park designers:

> A representative from each of the tables reports back on their top five things that they came up [with], which can be everything from safety, to wanting to have a place to have a library reading time, or a place to just sit and relax, all sorts of things. So then everyone's aware of all the [tables'] top five ideas, and then all those pieces of paper are given to the designers, who are in the room having these discussions with everyone, and they can look back on those design ideas and concerns and discussions throughout our design process (D. Nelson 2019, pers. comm. October 17).

NYC Parks scoping sessions are activities of public space to gather and generate ideas, and act as a transmission mechanism to get those ideas to empowered space. However, while all designs for public parks must be approved by affected community boards, NYC Parks is under no obligation to explain final design decisions in terms of community contributions from scoping sessions, and thus are not required to provide accountability.

While Partnership for Parks does make efforts to invite numerous community members and organizations to their scoping sessions, and encourages participants to speak freely, much like the NYRP's facilitated meetings this community engagement approach has not been designed to facilitate authentic deliberation as understood by deliberative democracy practitioners. Participants are not taught additional skills or educated to increase their openness to diverse views (Fishkin 2009), with shifts in perspective that characterize

authentic deliberation being a low priority, if one at all (Dryzek 2012). The process is driven by idea gathering as opposed to deliberation, negotiation or preference changing.

While scoping sessions are admirable efforts by NYC to improve community engagement in city green spaces, the outreach coordinators for Partnerships for Parks are stretched thin. For the entire Borough of Brooklyn, which has over 2.5 million residents, there are three outreach coordinators. Delancey alone is responsible for Brooklyn Community Boards 1, 2, 4, 5, 8, & 9:

> In Brooklyn there's three of us, and we each cover six different community boards, which is a very large territory. And so it can sometimes be difficult to really, really help community members as much as we could, and the potential for errors is big (D. Nelson 2019, pers. comm. October 17).

Further, while NYC Parks invites the community to contribute to park developments and renovations, community members are not provided with the mechanisms to call their own community scoping sessions, nor are these sessions designed for deliberation. NYC Parks does not engage in practices that ensure participants in scoping sessions are demographically representative of an impacted community, nor that the discourses of social and environmental activists are present. This results in those with the time, interest and resources being the ones able to attend. As pointed out by the NYRP's community engagement manager:

> You have families that are working two jobs, and they don't really have the time to focus energy on what things are going to be like in the future. Like, if I'm worried about feeding my kids, and I have two jobs, I'm not thinking about, hey, we should plant a tree over here so that we can improve the well-being of the city in 10 years from now (C. Reynoso 2017, pers. comm., October 6).

In summary, NYC Parks scoping sessions are activities of public space that act as a transmission mechanism to get community ideas to empowered spaces, but they lack accountability and inclusivity.

### 8.1.4.4. Participatory Budgeting in NYC (PBNYC), an excellent initiative to build on

PBNYC is a mechanism of public space that provides transmission and accountability in NYC's deliberative system. A goal of PBNYC is to expand civic engagement, as outlined in their 2019 Rule Book (NYC Council 2019b, p. 2):

> Engage more people in politics and in their communities, particularly marginalized groups, including, but not limited to: young people, people of colour, immigrants, low-income people, the formerly incarcerated and others.

According to a press release from Council Speaker Mark-Viverito's office, the PBNYC voter demographics from the 2014-2015 cycle indicate some success in meeting this engagement goal: nearly 60% of voters identified as people of colour; 10% were under 18; 30% reported an annual household income of US$25,000 or below; 25% were born outside of the United States; 25% reported a barrier to voting in regular elections, with 10% reporting they were not U.S. citizens; and 63% identified as female. In their 2014-2015 Participatory Budgeting Report, the Urban Justice Center and PBNYC detailed another telling statistic: 51% of Participatory Budgeting voters were not part of a community group or organization, meaning not present on community boards, parent teacher associations, neighbourhood civic associations, etc. (O'Connor 2015). By empowering residents to design, vote on and develop their own capital projects, PBNYC is a powerful mechanism for transmission. Add to this PBNYC's transparent reporting on which projects are funded and by how much, and you get a democratic initiative with accountability.

However, speaking to Benjamin Solotaire, participatory budgeting director and community organizer for NYC Council District 33, PBNYC is still facing inclusivity challenges:

> The one complaint or criticism I generally hear from people is that it does not reach the edges, the people who aren't involved. It reaches the PTAs and non-profits heavily, and to an extent it reaches the public housing because they are somewhat organized as well. But, you know, secular, English as a second language, non-citizens, just immigrants in general, it's a little bit harder to get there… It takes a lot of outreach, and it doesn't always get there (B. Solotaire 2020, pers. comm., December 5).

It should be noted the shortcomings of PBNYC may not be from a lack of solutions, but from a lack of political will. Although the de Blasio Administration formed the Civic Engagement Commission (CEC) in 2018 to run PBNYC, many fear this was a politically symbolic move rather than an authentic shift in community participation. When Mayor de Blasio's released his US$95.3 billion preliminary budget proposal for fiscal year 2021, no funding had been allocated to the participatory budgeting program (Khurshid 2020), which needs the full support of the Mayor and city agencies to deliver PBNYC projects in a timely manner and strengthen trust in government:

> Running PB at a small scale, at a City Council district level is very hard. Now imagine it at a citywide level. We need the full support of the mayor, the full support of the city agencies, to really get outreach and get folks in the process… One of the biggest pet peeves that we've heard from folks who have done PB at the City Council level is that the voters will vote for a particular project, but then it'll sit on the shelf at the city agency level for two, three years. So, having a mayor that's gonna support PB, but also tell the agencies that if the community votes for a particular project in their community, that it be done expeditiously, that it's not "you voted in 2021, and now your project is going to come to full fruition in 2026." Giving people real tangible action, and then seeing the end results in a very timely fashion. I think that will really encourage and really get people to trust City government (A. Toledo 2021, pers. comm., January 23).

Returning to deliberative democracy's obstacles of institutionalisation (Dean, Boswell & Smith 2020) discussed in Section 2.3.2., NYC's formal community engagement mechanisms suffer from 'the power of the commissioner' in that the public does not have control over who has the right to participate, the design of the mechanism or their agenda, and NYC decision makers are not accountable to their outcomes; while community board meetings occur monthly and participatory budgeting programmes have been running annually in non-covid-19 years since 2011, they suffer disconnection from everyday politics in that they are not connected to the everyday work of public authorities reducing their impact on policymakers who are responding to complex agendas and an ever-shifting political landscape; and finally they lack legitimation capacity, given the small numbers of participants that take part.

NYC is making efforts to improve the opportunities in public space available to residents to assist the transmission of their needs and ideas to empowered space. NYC is working to increase the inclusivity and accountability of its green-space governance, but there are gaps that could still be addressed. To summarize the above, these are:

- community board meetings and public hearings provide a means of transmission for community ideas to empowered space, they provide limited accountability
- NYC Parks scoping sessions are activities of public space that act as a transmission mechanism to get community ideas to empowered spaces, but they lack accountability and inclusivity
- PBNYC is still facing inclusivity challenges
- NYC residents have no direct access to City agency decision makers

In the next section I look at improving existing government mechanisms for community engagement in green-space planning, specifically: increasing community and discourse inclusivity in PBNYC by taking it to where the people are; increasing inclusivity and accountability of NYC Parks scoping sessions by incorporating strategies from the democratic initiatives of minipublics and Tuscan Law no. 69; and by utilizing the community board and the borough board governance infrastructure to make decision-makers directly accessible to the public through community cabinet meetings.

## 8.2. Improving the inclusivity, transmission and accountability of NYC's formal community engagement mechanisms

NYC government is one of the oldest in the United States, and its institutions continue to evolve. The municipal Charter of New York City first formed as a consolidation of laws in 1898, and was revised in 1898, 1901, 1938, 1963, 1975 and 2019 (Ballotpedia 2020). Improving NYC's formal community engagement mechanisms requires working with this complex and unique institution:

> New York City is a world of its own, and things that work in other cities don't work in New York and things that work in New York don't work in other cities. It's a nation state in our city state. It really is. (D. Seliger 2020, pers. comm., December 5)

Deliberative systems are difficult to evaluate (see Section 3.3.1.) because their deliberative democratic qualities are distributed across settings and over time, without defined organizational or temporal boundaries (Boswell & Corbett 2017), and with contributing elements that may not be deliberative at all (Chambers 2012; Mansbridge et al. 2012a). While it is beyond the scope of this dissertation to evaluate NYC's green space governance as a deliberative system, key contributing elements that aid community participation in green space decisions can be analysed in deliberative systems terms.

In the previous section I discussed the formal mechanisms of NYC green-space public participation and identified some gaps in the potential deliberative system, which can be expressed as:

- **Lack of inclusivity of NYC Parks scoping sessions and PB NYC**

- Lack of accountability of community board meetings, public hearings and NYC Parks scoping sessions

- Lack of direct transmission of community needs to the decision makers of City agencies

In this section I make recommendations to address these gaps by drawing on international deliberative democratic initiatives. I developed these recommendations initially through desk research and a literature review, looking for policy innovations that had been implemented in cities of developed countries to increase inclusion, transmission and accountability. To evaluate their applicability to NYC I had discussions and semi-structured interviews with individuals who work for NYC agencies. These included Benjamin Solotaire, participatory budgeting director and community organizer for NYC Council District 33; Terri Matthews, director of *Town+Gown:NYC*, a citywide built environment research program at NYC Department of Design and Construction; Dave Seliger, senior advisor for service design and delivery at NYC HPD; Shawn Campbell, District Manager of Brooklyn Community Board 14; and Andy Toledo of NYC's Civic Engagement Commission.

By no means are these recommendations exhaustive nor are they silver bullets to make NYC's formal engagement mechanisms inclusive and accountable. They draw on successful international democratic initiatives so as to inform the first steps of improvement and reform. Drawing logic from deliberative systems thinking and its critiques on democratic innovation (Dean, Boswell & Smith 2020), these systems-oriented recommendations aim to assist transmission between different democratic spaces (Dryzek 2012), embed new democratic initiatives within existing networks to remedy a functional deficit, and do not expect to realise the full array of necessary democratic functions (Mansbridge et al. 2012a; Parkinson 2006).

## 8.2.1. Increase inclusivity and accountability of NYC Parks scoping sessions

Many New Yorkers are invited to NYC Parks scoping sessions but getting people to turn up to public meetings is challenging. This results in participants being those who have the time, resources and, of course, the interest to attend:

People have childcare requirements, or they work different hours, or, you know, they just want to get home and have a nice meal with their family. We're competing against a million other things (B. Hogan 2019, pers. comm. December 3).

Currently there are no legislative requirements for NYC Parks to account for their design decisions, and no way for people not at scoping sessions to know what was said:

I would like the operations that go behind these decisions to [in any case] mirror the public consultation that they purport to display. They have these really high standards when it comes to what kind of feedback they need to get and how many community sessions they need to host and how many schools they need to visit, and all of this. There's always some kind of planning session that people are expected to participate in, which is a real drain on people's time, especially when the outcomes so infrequently live up to the expectation that was set by that. I would love to see the mechanics that actually play in the background be anywhere close to the types of depth of transparency that is presented externally. I'd like any kind of insight into why these decisions get made, how they get made, who makes them, what the process is in general (B. Hogan 2019, pers. comm. December 3).

To increase the inclusivity and accountability of NYC Parks scoping sessions strategies can be taken from the democratic innovations of minipublics and Tuscan Law no. 69, which I will now discuss.

### 8.2.1.1. Minipublics

As introduced in Section 1.4., minipublics are a gathering of individuals who are demographically representative of the larger population, brought together to learn and deliberate on a topic in order to inform public opinion and decision making (Dryzek 2011). To make minipublics representative of a population, random sampling is the preferred recruitment method, which is then stratified on the basis of age, sex, education, ethnicity, income, etc. Most designers of minipublics avoid self-selection of participants as it disproportionately attracts politically active, highly educated, high income and older participants (Dryzek 2011). For assemblies above 20 people, participants are divided into smaller deliberating groups. To ensure dialogue is civil and inclusive deliberation is normally supported by a facilitator. Typically, participants will be provided with information about the issue at hand, and have access experts and advocates.

Minipublics provide environments for informed discussion and preference reflection, and include presentations and discussion with experts and decision makers. While the outcomes of minipublics are generally non-binding, there is an onus on empowered space to account for final decisions after receiving recommendations from a minipublic, especially when these processes are covered by the press.

Introducing minipublics for climate adaptation governance has been raised at the NYC Council. In February 2020, Archie Kinnane, a journalist who was involved with Extinction Rebellion NYC[17], spoke about the potential for citizens assemblies, a form of minipublic, to help the city's de-carbonization efforts for climate adaptation by re-engaging people into the democratic process and restoring faith in government (Kinnane 2020). NYC Parks scoping sessions could be made more inclusive and authentic by using minipublic approaches to participant selection, education on a topic and deliberation. Inclusivity at scoping sessions informed by minipublics could be further improved by including pertinent discourses surrounding an issue.

To increase the accountability of decision-makers who receive the recommendations from engagement processes such as scoping sessions, legislation could be enacted to require city agencies, such as the NYC Parks, to make a public statement/report outlining how the community recommendations will be incorporated into future decisions, and if not why not. This could take the form of public statements made by NYC Parks on their website describing how scoping sessions informed final park designs. An example of how such a legislation could be devised and enacted can be seen by Tuscan Law no.69.

### 8.2.1.2. Increased accountability through Tuscan Law no.69

Accountability is the requirement of elected representatives to provide public justifications for their policy choices (Setälä & Schiller 2009), and is in addition to the accountability that comes into the spotlight during election campaigns. The accountability of elected

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[17] 'Extinction Rebellion is a global nonviolent movement to compel the world's governments to address the climate and ecological emergency'. Citizen assemblies are one of the movement's recommendations for improving climate governance.

representatives is necessary in order to maintain a link between public opinion and collective decisions (Strøm 2000).

Currently, New Yorkers cannot set agendas for participatory processes, and although green-space ideas and concerns are submitted through initiatives like scoping sessions there are no mandates requiring government departments to act on submitted ideas or explain why they did not. NYC agencies do make efforts to account for their decisions through their websites, annual reports, press releases, interviews with the press, etc. but these are arbitrary. To increase the accountability of decision makers upon receiving the ideas and recommendations of scoping sessions, repurposing aspects of Tuscan Law no. 69 could help.

At the end of 2007 the Region of Tuscany in Italy passed Law no. 69, defining "Rules on the Promotion of Participation in the Formulation of Regional and Local Policies." The legal provision's goal was to promote citizen engagement in local and regional decision making. It achieved this by incorporating features derived from deliberative theory. Lewanski (2011) provides a detailed overview of the law's design and implementation in what he calls the "Tuscany laboratory."

The design of Law no. 69 was itself a participatory process involving local authorities, professionals, activists, organizations and interest groups, as well as academics and Tuscan residents. Beginning in January 2006, the participatory design process defined the goals, content and features of the Law through a discussion informed by deliberative democracy theory and influenced by democratic innovations such as participatory budgeting. The design phase concluded with a 21st Century Town Meeting in November 2006, wherein the Region's president committed to including in the Law participants' recommendations (Freschi & Raffini 2008).

Law no. 69 introduced two mechanisms to support participatory processes, one aimed at large infrastructure projects that have a significant environmental or social impact on the region, and another for increasing citizen engagement in local policies and decision making. The latter was made available to local authorities, residents above the age of 16, schools and businesses, providing them with a means to propose participatory initiatives and then have them funded. The Law provides methodological, logistical and financial

support to aid enacted participatory processes and explicitly requires these processes to be managed by a facilitator. A variety of inclusive deliberative methods—such as town meetings, world cafés and citizen assemblies—have been funded as a result. Law no. 69 emphasizes the need to disseminate information to all participants before, during and after an engagement process, and local authorities must ensure access to all relevant information (Participedia 2020b). The Law does not prescribe how participants should be recruited, although stratified random sampling has most commonly been used (Lewanski 2011).

Law no. 69 does not impose participatory processes on local decision-makers, but as mentioned above, offers financial incentives and methodological support to administrations seeking to engage their citizens by participatory means. To gain support local authorities are required to sign an agreement declaring they voluntarily accept the principles and procedures of the Law, that they will use public participation regularly in their decision-making processes, and will take into serious consideration the results of the participation process. If authorities find the outcomes of the participation processes less than acceptable they can override them only by publicly providing reasons for their rejection or deferral. Through this legislation administrations are obliged to account for their decisions (Ciancaglini 2009). To increase accountability further, the independent authority that oversees the financing and support of initiatives requests administrations to include ongoing feedback of the outcomes to participants, as well as to the community at large. Between 2007 and 2012 the authority received 220 requests, 116 of which were funded, at a cost of €3.6 million. Of the beneficiaries, 91 were local administrations, 14 were schools and 11 were citizen-led processes. Topics included urban renewal projects, land-use planning, participatory budgeting, and social, economic and environmental policies (Lewanski 2011). Law no. 69 included a "sunset clause" that required its operation to be reviewed in 2012, at which time, and after intense debate in the Tuscan Parliament, the law was amended and replaced with Regional Law no. 46/2013. The new law built on its predecessor and included mandating participatory processes for public works costing over €50 million (Thompson 2019).

To ensure that citizen engagement through deliberative procedures is effective, increased accountability and improved transmission from representative institutions is needed

(Bächtiger et al. 2018; Gastil & Levine 2005). Tuscan Law no. 69 helped strengthen transmission of ideas from the public to decision makers, as well as increase the accountability of those decision makers back to the public. This was achieved by: promoting participation as a regular form of administration and government; creating new forms of communication and exchange between institutions and society; valuing the skills and knowledge existing in society; bringing attention to low represented interests; and expanding the procedures of monitoring and evaluation (Participedia 2020b).

To improve NYC's engagement mechanisms cues can be taken from Law no. 69 by providing financial and methodological support to city agencies looking to run community engagement initiatives, such as NYC Park's scoping sessions, and holding these agencies accountable to their results by requiring public statements outlining their reasoning to accept, reject or defer community recommendations.

Supporting governmental and nongovernmental organizations with funding and methodological guidance to run democratic deliberative community engagement processes would help to ensure that all affected voices surrounding a green-space project were heard, and that the accountability of decision makers was increased. To further improve the inclusivity of such democratic innovations, discourse representation can help.

### 8.2.2. Increase community and discourse representation at NYC Council's Participatory Budgeting (PBNYC)

A well-functioning democratic deliberative system must actively promote and facilitate inclusion and equal opportunity to participate in its system. To recap, inclusion is what makes deliberative democratic process democratic, and refers to the inclusion of multiple voices, interests and concerns in decision making (Parkinson & Mansbridge 2012). This is essentially the idea that all those affected by a decision should have the opportunity to partake in the making of that decision (Manin 1987). For this reason, democratic initiatives such as PBNYC aspire to include participants demographically representative of the communities affected by project outcomes.

Dryzek & Niemeyer (2008) make the case that representing discourses is an integral aspect of deliberative democracy, especially when the deliberative participation of all affected by a collective decision is not feasible. Deliberative legitimacy is found when all those subject to a decision participate in deliberation about its content (Cohen 1989). However, given the challenges of organizing participation for all affected, other solutions need to be found so that "deliberation of all" legitimately yields to the "deliberation of some" (Manin 1987). Discursive representation can assist in addressing this key challenge of scaling representation in deliberative democracy. The number of discourses that need representation for an issue is generally much smaller than the number of representatives in standard legislatures, so it goes to reason that forming a small issue-specific deliberating group that contains representatives of all relevant discourses would be attainable by municipalities (Dryzek & Niemeyer 2008).

### 8.2.2.1. Discursive representation

A discourse can be understood as a set of categories and concepts embodying specific assumptions, judgments, contentions, dispositions and capabilities. Discourses enable as well as constrain thought, speech, and action. Discourses embody some aspect of common sense and acceptable knowledge, and may wield power by recognizing some interests as valid while repressing others (Dryzek 2011). The rhetoric and exerted pressure of NGOs and networks of political activists are informal mechanisms of discursive representation, which could be formalized through connection with minipublics to help deliberate complex and controversial policy issues.

Dryzek & Niemeyer argue (2008) that discursive representation can help policy making be respectful of individual autonomy by representing the diverse aspects of individuals, assisting in scaling the representation of deliberative democracy, and providing democratic validation for the activities of NGOs and activists. Subjectivity is multifaceted, as "most of us will fashion a complex subjectivity from participation in many different discourses (Harré & Gillett 1994, p. 25)", allowing for fluid positions and the possibility for reflection that is central to deliberative and democratic interaction. The fact that any individual may engage with multiple discourses makes the representation of these discourses important, "Otherwise, the individual in his or her entirety is not represented (Dryzek & Niemeyer 2008, p. 483)."

Modern day political authority is increasingly dispersed into informal networks of governmental and nongovernmental actors (Rhodes 1997) which have no defined associated populace. Ensuring these networks aren't dominated by a single discourse can help make them more accountable and democratic. For example, ensuring that urban planning networks are not dominated by economistic discourses to the exclusion of social justice discourses.

NGOs and activists calling for social and environmental justice, sustainable development, etc. can be thought of as representatives of particular discourses, who through their activism and media attention demand that governmental institutions justify their decisions in light of these discourses.

Including advocacy organisations as expert testimony or witnesses in the development processes of PB NYC's ideas, and taking idea submission and voting opportunities to where representatives of these discourses are already assembled, could increase discourse representation, although there is still no guarantee that this would achieve inclusiveness.

### 8.2.2.2. Go to where the people are

Although PBNYC is now officially part of the NYC Council, participation by Council Districts is still a voluntary process, and there is no funding allocated by the city to support its execution:

> A lot of the council members take [PB] up because they're asked to by constituents, and they usually think it's a good idea, but they don't put the resources behind it. It's an intensive process…For a lot of Council offices, it's just something that a staff member was asked to do on top of their job… So it's never really gotten the support from the Council that it needs as far as funding and commitment, and it certainly doesn't get the support from the council members in that process, so we don't have translation services, we can't buy food for meetings (B. Solotaire 2020, pers. comm., December 5).

Given that NYC faces fiscal challenges due to the social and economic impact of Covid-19, increasing community representation by making it easier for people to participate by providing food, transport, translation services, childcare, etc. may not be a realistic goal. Another effective approach to increase community and discourse representation in PBNYC is by going to where the people are, e.g. attending meetings of NYCHA residents[18], religious groups and other community organizations:

> I've learned over the years certainly that it's more successful if you go to the community. You have to go out and go to their meetings, not having meetings that you expect them to come to. Because people, you know, they are busy, they have busy lives and all that… (B. Solotaire 2020, pers. comm., December 5).

By also attending meetings of social and environmental justice organizations, council members leading PBNYC initiatives could increase the representation of discourses in NYC. These organizations could be included based on their geographic location, the

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[18] Most NYCHA campuses have resident associations that are dedicated to improving the quality of life in their campuses. They are usually the first point of contact for any potential project, and they work with NYCHA management at every level. Apart from the elected positions on a resident association board, NYCHA residents have other ways of organizing to pursue various issues of interest, such as Youth Leadership Councils, the Senior Champions program, and resident green committees (NYC Planning & NYCHA 2020).

length of time they have been active, and the size of their community membership. Some of the organizations in NYC that could be invited to represent green-space discourses include social and environmental advocacy organizations such as South Bronx Unite, El Puente, NYC Community Garden Coalition, North Brooklyn Parks Alliance, New Yorkers for Parks, as well as "Friends" of parks groups. This would help ensure that deliberations over PBNYC green-space projects included discussions on environmental justice, property development and gentrification impacts, which are areas of concern for many of the organizations listed above.

"Going to where the people are" is a strategy that can also help PBNYC's outreach efforts to raise awareness and encourage participation in the submission of ideas and project voting processes, which is now available online. In 2018, 67% of PB votes were cast on paper, with the remaining 33% cast online (NYC Council 2019c). This may be indicative of the digital divide still present in NYC, where 1 in 6 households have no means of access to the internet, that is, no dial-up, broadband, satellite or cellular data plans. Households that lack internet access are most prevalent in neighbourhoods with higher rates of poverty, with 38% of low-income households (earning below US$20,000 annually) without internet access (CCC 2020). PBNYC is now adapting to budget cuts and Covid-19 social distancing requirements, which may see more of their process move online. This will shift the nature of the public space offered by PBNYC, and challenge participants' ability to deliberate. Says Gilman on this digital shift in PB:

> It is not enough that citizens simply receive more information. Rather, the ways in which they interact with it and how it is conveyed also matter… Communicating via online tools provides varied ways for how citizens process information, leading to changes in dialogue and deliberation that must be considered (Gilman 2016, p. 115).

PBNYC is an excellent example of a deliberative initiative making efforts to scale community participation in land-use planning, and while not perfect, it continues to grow and evolve. Increasing participation in PBNYC also educates more residents on the political and budgetary considerations of government projects, and hopefully encourages greater engagement:

> We've always felt that the more people that we get to do participatory budgeting, once folks get more aware of how the budget in the City of New York works, then they will then

start attending some of these budget hearings at the community board level, they'll start attending some of these borough consultation meetings. We always envision that there'll be a trickle-down effect, and really open the eyes of people to the fact that there are these budget processes that they can get involved in (A. Toledo 2021, pers. comm., January 23).

By going to where the people are already meeting, PBNYC can encourage the inclusion of a broader community and set of discourses. However, improving representation at neighbourhood assemblies may still require increased funding. Growing funds for community engagement will continue to be a challenge for NYC, especially as it recovers from the loss of revenue caused by the Covid-19 pandemic. In fiscal year 2021 NY State faced a US$14.5 billion budget gap (Ferré-Sadurní & McKinley 2020), and NYC's property tax revenues are projected to decline by US$2.5 billion in 2022 (Rubinstein & McKinley 2021).

For this reason, it is desirable to develop a mechanism that increases transmission and accountability of NYC agencies that are responsible for service delivery to residents without requiring major shifts in government infrastructure or budget expenditure. To meet this challenge, utilizing district service cabinet meetings to create community cabinet meetings could work.

### 8.2.3. PPGIS could assist NYC's formal engagement mechanism by acting as a form of transmission and accountability between public and empowered space

PPGIS could help improve the inclusivity of NYC Parks scoping sessions and PB NYC, and the direct transmission of community needs to the decision makers of New York City agencies. However, it should be noted that given the challenges of assessing deliberative systems (see Section 2.3.2.), understanding how PPGIS can help make a governance system or its formal community engagement mechanisms more deliberative is also impacted by these assessment challenges

Through randomly selected, demographically representative web surveys, PPGIS could help NYC agencies 'go to where the people are'. As summarised in the recommendation of Section 6.2., NYC could use deliberative discussion focus groups to establish the

landscape of community concerns on a given green space planning decision, establish the vocabulary and categories used by the public for these concerns, and explore what geo-spatial data sets the community would like to inform their discussions. With these findings, NYC Parks of PB NYC could develop a PPGIS survey and create geo-spatial data sets, then review/refine these designs with further deliberative discussion focus groups. The developed PPGIS web-survey could them be used for street canvassing, in-person community engagement events, and sent out to the public at large, or to a randomly stratified sample of the public, depending on project needs.

Transmission of these gathered community inputs to decision makers and the accountability of those decision makers could be fostered by making the PPGIS project information and updates publicly available, developing a public facing dashboard for the granular exploration of community comments, and requiring decision makers to publicly demonstrate how the comments directly impacted the project design and implementation.

The NYRP PPGIS prototype, Village Vanguard, was developed to make it easier for local communities to contribute to the design decisions of their local green-spaces, both through aiding in-person facilitation of engagement initiatives and through broadly distributed PPGIS web-surveys. PPGIS at its core is a tool to foster community engagement in planning decisions, and through its use of geo-spatial data sets, PPGIS can help communicate the history, development and key contributors to urban green space projects, as well as gather geo-tagged community comments.

As discussed in Section 7.5.6.1., community mapping projects are important contributors to the field of environmental justice (Prado 2021) having influenced land use planning processes by distilling relevant public information, identifying key environmental risks and goods, addressing community concerns through data collection, establishing relationships between community members and government representatives, and sharing gathered PPGIS information with the public online (Haklay & Francis 2017; Prado 2021). Looking forward, PPGIS could help formalise the transmission between public and empowered space by drawing on these capabilities.

**8.2.4. Create community cabinet meetings to make decision-makers directly accessible to the public**

Increasing community engagement in NYC faces obstacles, especially given the social and fiscal challenges NYC faces as a result of Covid-19. In the case of PBNYC, in September 2020 City Council support for the program was suspended indefinitely after the previous March vote was cancelled. This compacted already dire funding cuts to PBNYC, which resulted in a major dip in district participation:

> Now with Covid, we had 32 Council Members last year that did [participatory budgeting], now that it's not part of the Council, now that it's been suspended by the Council, we have three. So, 29 Council Members decided, "oh, I don't have to do it this year, phew." So that's a telling factor. And the city was supposed to do it as a citywide process, and then suspended it as well, due to the pandemic. The Speaker's Office and the central staff, they did have three people on staff that were there to help the council members and the districts to work, and they provided about US$80,000 worth of funding for technology and printing materials. So, there was some support by the city, by the Council, that they stopped … The council member will chip in some money, but they don't have the support. There were three people called, PB managers or coordinators in the central staff, and they don't even have those titles. They're just now managers… I was like, "What are you doing now?". "Like, we don't know" (B. Solotaire 2020, pers. comm., December 5).

NYC agencies are hesitant to increase community engagement as many already find it challenging and confronting:

> It's just really tough for agency people to really deal with the public, and people in New York City get really angry at just about everything. It's really awful to be in public meetings. It's like you need combat pay (T. Matthews 2020, pers. comm. December 5).

Other studies have also found that local government agencies are hesitant to increase community engagement due to cost, time effort, and in some cases a disruption to time-constrained planning processes (Jankowski et al. 2021; Kahila, Kyttä & Geerzman 2018).

NYC agencies can be hard to engage, even for those who work in other agencies (T. Matthews 2020, pers. comm. December 5). For the NYRP's Haven Project, the NYCDOT went silent at a critical junction, and became completely uncontactable. The challenges

faced by the NYRP inspired me to look for an alternative means of engagement with public officials that was accountable:

> We're sitting in the very middle of a spectrum. The spectrum is grassroots mobilization, and the other end is closed door conversations with elected officials and agencies directly. We've done both... I think what we're really struggling with is, what's the middle ground? …I really feel like we need something that's also kind of in between (B. Hogan 2018, pers. comm. August 31).

When developing recommendations and initiatives to improve the transmission and accountability of NYC governance it was pointed out to me that they must be realistic of resource limitations and utilize existing political infrastructure where possible:

> It's really important not to replace or repeat what's already done by community boards. Those require huge commitments from citizens both to run and, honestly, even just attend. I've been in many that lasted the whole evening just to see a five-minute presentation (B. Hogan 2020, pers. comm., December 5).

District service cabinet meetings (DSCM) could provide the political infrastructure for developing district community cabinet meetings that provide NYC residents and organizations with direct access to city agency decision makers, increasing transmission and accountability. I will now explain what these existing meetings are, and how inspiration from an Australian democratic innovation could help augment them.

### 8.2.4.1. District service cabinet meetings

As previously discussed, community boards play an advisory role to city budget and land-use planning, and although the role of the community district manager is to pass resident concerns onto the relevant city agencies, New Yorkers are not able to request direct engagement with decision-makers at these agencies. As seen in Chapter 7, the public have limited sway in community board meetings; they can request to speak for a maximum of two minutes, and if the previous agenda items run overtime, this request is postponed to future meetings. Members of the public do not vote on issues raised at community board meetings, this being reserved for community board members, who are appointed by the borough president and the district City Council member.

Each community board has its own district manager whose main responsibility is to receive and resolve complaints from community residents. The district manager and their staff are hired by a community board to implement procedures to improve the delivery of city services to the district (Queens Community Board 1 2014). Community district managers deliver the concerns of their community to NYC agencies through district service cabinet meetings. These monthly cabinet meetings provide an opportunity for agency officials to share information about district issues, and for the community board district managers to raise service delivery issues. The district service cabinet meetings include: the district manager, chairperson of the community board, all city agency officials with authority for the district, the district's City Council members, and a representative of the Department of City Planning (Queens Community Board 3 2020). District service cabinet meetings are not subject to the New York State Open Meetings law and therefore do not need to be open to the public, although it is a City Charter requirement that a public record of these meetings be maintained (NYC 2020b). Although some districts will hold district service cabinet meetings monthly, others hold them sporadically, if ever (B. Solotaire 2020, pers. comm., December 5).

I am proposing that these district service cabinet meetings be used as a basis for monthly district community cabinet meetings, inspired by the community cabinet meetings held in Australia. Community cabinet meetings have been held on a state (and for a time on the federal) level in Australia since 1998. I'll provide an overview of their history now.

### 8.2.4.2. Queensland's community cabinet meetings

Community cabinet meetings were first used in the Australian state of Queensland in 1998 as a mechanism to encourage greater community engagement in policy making. In the preceding years, Australians had experienced a heightened cynicism of the political process and the major political parties. The election success of the One Nation party reflected a growing discontent amongst rural voters, revealed a populist distrust of governments and a belief that politicians were not listening to the people (McCann 2012; Williams & Chin 1998).

The Queensland community cabinet meetings were developed with the aim of rebuilding the relationship of executive government with local communities based on the ideas of

social capital and "government by discussion" (McCann 2012). Community cabinet meetings have been conducted in regional centres across Queensland and were, according to State Premier Peter Beattie, "designed to bridge the gap between the government and the people (cited in Reddel & Woolcock 2004)".

Community cabinets meetings are unlike formal government cabinet meetings, which are closed forums for ministers to debate the broader ramifications of government policy decisions. Community cabinet meetings are deliberately open, aim to improve community awareness of government policies and processes, and invite public feedback on the local implications of policy decisions. While formal cabinet meeting documents, discussions and decisions are strictly confidential to allow for open and frank discussion amongst ministers, community cabinet meetings are public forums in which transcripts are prepared and made publicly accessible online.

Community cabinet meetings are conducted monthly, and typically have three parts. The first part is an informal public forum, led by the state premier, in which participants can ask cabinet ministers questions about government policy and impact on local communities (Lewis & Marsh 2012). This is followed by 10-minute tabled meetings with ministers and their staff, allowing attendees to lodge a complaint, make a comment or seek information (McCann 2012). In the final session, formal deputations can meet privately with relevant ministers for 10 minutes. These final meetings require an advance booking with written submissions to enable ministerial staff to provide their ministers with briefing notes on the matter at hand. After the community cabinet meetings, participants receive follow-up letters and a newsletter outlining the key issues discussed (Lewis & Marsh 2012).

Benefits of the Queensland community cabinet meeting model include offering citizens unusually direct, relevant and unmediated access to the government and its decision-makers, as well as providing governments with direct exposure to community sentiment and concerns about local consequences of policy decisions (Bishop 2004).

Community cabinet meetings are still a feature of Queensland's political landscape (Queensland Governemnt 2019), and have continued to be held regularly since 1998 (although at the time of writing had been paused because of Covid-19). A 1999 survey of community cabinet meeting participants in Queensland found a high level of satisfaction

with the process, especially with the opportunity to discuss issues with ministers and officials. Participants also reported an improved understanding of government decision-making processes, and felt that they had been listened to even if they did not get the results they were seeking (McCann 2012).

Since the Queensland initiative, all Australian states and territories have introduced some form of community cabinet or regional cabinet meeting program, and in January 2008 the first federal community cabinet meeting was held. While federal community cabinet meetings were held regularly under the administration of the Australian Labor Party, the last recorded federal community cabinet occurred in June 2012 (Participedia 2020a), having not been utilized under the national leadership of the Australian Liberal Party, which took office in 2013. This may not be a bad thing as community cabinet meetings have been observed to work more effectively on for state or local level of politics, rather than national ones. Researchers who reviewed specific policy debates about housing affordability and disability services within the context of federal community cabinets concluded that the government largely used the forums "as a means of legitimizing or promoting decisions that had already been taken," and forum discussions made little difference to policy decision-making (Marsh, Lewis & Fawcett 2007). Other political scientists observed that while community cabinets have worked well at the state and territory level where policy debates are generally about local issues, federal community cabinets were more "a symbol of the government getting out of Canberra (Brett 2008)".

### 8.2.4.3. Creating district and borough community cabinet meetings

NYC's current district service cabinet meetings (DSCM) could be used as a basis for monthly district community cabinet meetings (DCCM), with minimal investment. Inspired by the Australian model, these meetings could also have three parts: an informal public forum like a town hall, attended by the same city agencies and district staff of DSCM, led by the district manager, in which participants can ask questions about government policy and its local impact. This would be followed by public 10-minute tabled-meetings with city agency representatives, providing attendees with a direct transmission channel to make comments or seek information. In the third part, individuals or groups could meet privately with any member of the district service cabinet for 10 minutes, although these meetings would require an advanced appointment with written submissions to inform discussion.

After the DCCM, participants could receive follow-up letters or emails on their issue, the community board website could publish meeting transcripts and social media channels could update the public with what topics were discussed, providing all residents with increased accountability.

Currently in NYC, service cabinet meetings are also held on the borough level, and while these meetings are open to the public, like community board meetings they are not venues for public discussion. Borough service cabinet meetings (BSCM) are composed of the borough president, who serves as chairperson, community board district managers for that borough (see Figure 44 for a map of community districts), and representatives from each City agency that delivers services to that borough, i.e. borough commissioners (see Appendix 8 for NYC's Organizational Chart). The borough service cabinet meetings coordinate service delivery and discuss inter-agency problems that impede the delivery of these services.



Brooklyn
Queens
Manhattan
The Bronx
Staten Island
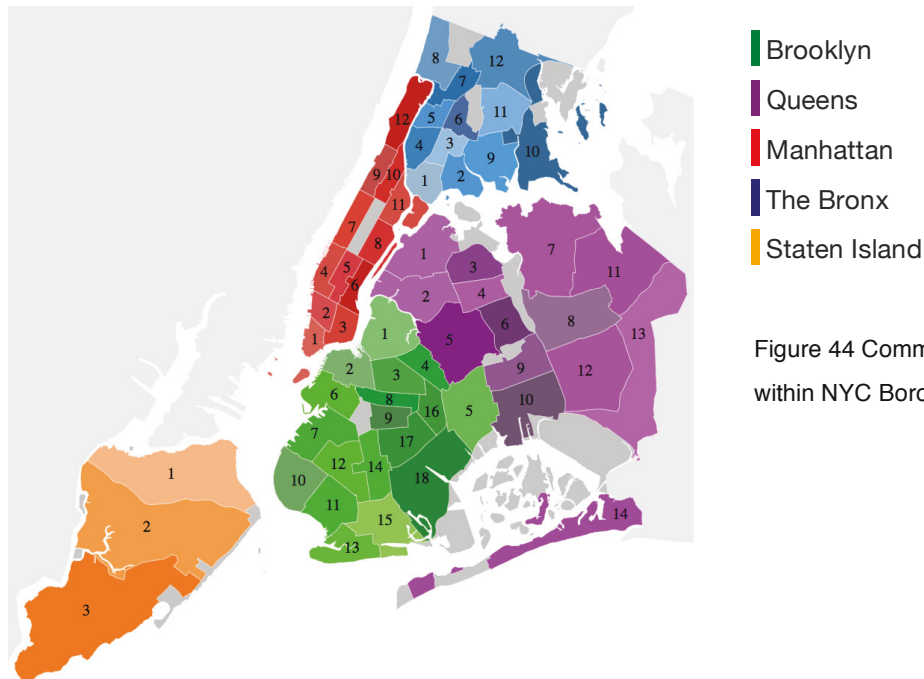
Figure 44 Community districts within NYC Boroughs

I propose that the infrastructure of BSCM could be utilized for monthly Borough community cabinet meetings (BCCM). I discussed these ideas with Terri Matthews, Director of *Town+Gown:NYC*, a citywide built environment research program at NYC Department of Design and Construction:

> If it's about being heard at the community district level by agency people whose job it is to focus on that district, to me that's not a bad idea. It's another monthly meeting that's supposed to be an exchange...That would be a good idea, if it doesn't cost any more money, because everybody has to show up to meetings anyway. But the objective is a little bit different, it's really to empower the community board to be a more effective advocate on behalf of their residents. It would actually help the community district managers help their constituents. And maybe putting the agencies who are very difficult to deal with, even when you're a sister agency, putting them on the spot, just a little bit, even if they only end up saying, "I'll have to get back to you," that's probably something…But it's got to be interwoven… Interweave it with the existing community board, and even the borough board structure… and look at it as empowering the community districts, and the boroughs, to be more effective against the agencies for their constituents…this way i can tell my district manager, and i can tell that agency person who has to show up—you get two bites of the same apple, and that's not a bad thing, and it's public, which it has to be, and the agencies have to be prepared to deal, and I don't think it's a bad thing (T. Matthews 2020, pers. comm. December 5).

BCCM would also help to hold the borough president accountable to the community boards that report to them, and give these community boards a louder voice in policy making:

> At the end of the day, when you look at the organizational map of New York City bureaucracy, you have the borough presidents and then you have community boards. So really, the borough presidents are the ones that are the enforcers of accountability at the community board level. And that's a major other piece that we've seen, that borough presidents not really taking that role very seriously. We've had borough presidents not really incorporate community boards centrally into their administration policy making (A. Toledo 2021, pers. comm., January 23).

Having city agencies and other key decision makers available on a borough level isn't a new idea. In 2017 and 2018 (Kashiwagi 2018; Keag 2017), Mayor de Blasio held "City Hall

in Your Borough," a week-long series of satellite office hours by the Mayor and senior administration officials in each of the five boroughs. Said De Blasio on the initiative:

> City Hall in Your Borough is an example of grassroots governing. It's our job to listen to New Yorkers, and there's no better way to do that than meeting them in their neighborhoods.

 As part of running the city from each borough, to "bring the government to the people" the Mayor held town halls, cabinet meetings, resource fairs, and events with borough presidents and elected officials.

This was not the first time borough city halls were used in NYC.

Mayor Lindsay proposed 35 local mayor's offices soon after his inauguration in 1966, which was opposed by the Board of Estimate. He later tried to set up five by executive order, but these were rejected by the City Council and the Board of Estimate, and refused financial support from the comptroller (Kaufman 1969). Opposition to the "little City Halls" came from a bipartisan majority of the City Council, as well as borough presidents, who feared they would duplicate their work (Knowles 1966). However, by 1967 Lindsey's Neighborhood City Halls existed in five low-income neighbourhoods, with their purpose primarily to handle citizen complaints and improve communication between citizens and City Hall. These organizations had small operating budgets, funded by private contributions as the City Council and Board of Estimate refused to fund them because they were seen as fronts for Lindsay's political campaigning (Fuchs 2010). By 1970, the concept of Neighborhood City Halls had been expanded into 48 Urban Action Task Force units throughout the city, who along with the heads of City agencies were required to submit weekly neighbourhood reports to the Mayor's Office to help avert crises (Kihss 1970; Washnis 1972). These Urban Action Task Force units were intended to coordinate service delivery at the neighbourhood level, but this was never achieved. They remained essentially complaint centres, and provided few services. Only six of the units were fully staffed and had formal neighbourhood councils with substantive authority, although Lindsay believed that decentralized neighbourhood government should be citywide (Fuchs 2010).

Some may argue that the current annual borough budget consultations between community district managers and executives of city agencies already meets this need for increased community access to decision makers at city agencies. The purpose of borough budget consultations is to provide community boards with information to assist them in drafting their statements of district needs and budget priorities for the upcoming fiscal year (NYC 2020c). Borough budget consultations typically have three parts: 1) agencies present the budget shifts for the next fiscal year compared to the current fiscal year, 2) community boards ask about specific program funding, 3) community boards submit questions on district-specific budget requests, which agencies respond to in writing. However, while some borough budget consultations are attended by members of the community, there is no allocated time for public commentary, "It's really an opportunity for the commissioners, for the head of the agencies to talk with the community boards about budget priorities" (A. Toledo 2021, pers. comm., January 23).

By incorporating the structure of Australian community cabinet meetings and the goals of deliberative democracy to create NYC district and borough community cabinet meetings, informed and respectful discussion could be fostered, residents could feel heard, and NYC agencies could be held accountable for their neighbourhood and borough service delivery. Further, by providing residents with access to agencies on multiple levels of government they are given the opportunity to amplify their ideas, with a greater chance of transmission to the mayor.

Given that borough presidents have more political weight than community board district managers, and get reports from their district subordinates, if the community is able to raise an issue on the community board level and again on the borough board level, a city agency is more likely to have to address it (T. Matthews 2020, pers. comm. December 5). This makes a case for implementing both district and borough community cabinet meetings, as Terri Matthews of NYC DDC advises, "if you're going to do one you should do the other, otherwise it's like one hand clapping."

Both DSCM and BSCM could be complimented with online meeting options, for those unable to physically attend, allowing residents to reserve 10-minute online meetings in the third part of the community cabinet meetings, as well as allowing people to listen to the public discussion in the first sessions, and even submit questions. This may not increase

participation in discussions, but would allow "online office hours", so to speak, for city agencies. In the case of community board meetings that have been taking place online due to Covid-19, it has been observed that "they get more attendance, but less participation" (B. Solotaire 2020, pers. comm., December 5).

Speaking with Dave Seliger, senior advisor for service design and delivery at NYC HPD, the benefits of online access to community cabinet meetings was in line with some thinking he had already done on this topic:

> We were thinking about it more from a service delivery perspective—you have all these different agencies that offer services in distinct locations throughout a borough, why isn't there a consolidated government service delivery facility that's centrally located, that's easy to just show up? So, we're talking about it from that perspective, but the same thing could be true for the engagement perspective, like a "community relations hub" for lack of a better word... So, I wonder if there's a blended model here between something physical that's permanent and something that's online, as opposed to one monthly meeting that if you miss it [you miss out] … like an office hours, some cities do office hours with the mayor… The issue of community meetings is like a horse that's been beaten to death in New York City, and there's no way you would get political traction to do something in that vein. Having a slightly different tactic or route I feel like it is more likely to be successful (D. Seliger 2020, pers comm., December 5).

Providing direct access for the public to decision makers in a form of office hours isn't a completely foreign idea in U.S. politics. As highlighted in *The West Wing*, a popular TV series depicting the life of senior White House staff, Chief of Staff Leo McGarry had a policy to make staff available to marginalized groups based on President Andrew Jackson's block of cheese:

> Andrew Jackson in the main foyer of the White House had a two-ton block of cheese. It was there for any and all who were hungry. It was there for the voiceless, the faceless… President Andrew Jackson wanted the White House to belong to the people, so from time to time, he opened his doors to those who wished an audience...It is in the spirit of Andrew Jackson that I, from time to time, ask senior staff to have face-to-face meetings with those people representing organizations who have a difficult time getting our attention... I know the more jaded among you see this as something rather beneath you. But I assure you that

listening to the voices of passionate Americans is beneath no one, and surely not the people's servants.

In the spirit of Andrew Jackson, Leo McGarry designates one day for certain senior staff members to take appointments with people or groups that wouldn't ordinarily be able to get the ear of the White House. The West Wing was a very popular show, and the Obama Administration in both sincerity and jest for three years hosted the Big Block of Cheese Day, a day-long online question and answer session to give Americans the opportunity to chat with White House staff, members of Congress and senior cabinet members. Throughout the day, the White House invited Americans to ask questions using the hashtag #BigBlockOfCheeseDay on Twitter, Facebook, Instagram and Tumblr. Answers were provided by First Lady Michelle Obama, Vice President Joe Biden, House Minority Leader Nancy Pelosi and many more in a list that included over 40 names (White 2016).

### 8.2.4.4. Utilizing District and Borough Community Cabinet Meetings to educate community board members and the public on land use planning

By gathering district and community board managers, city agencies, and the general public together on a regular basis DCCM and BCCM could help the Department of City Planning and borough presidents fulfil their charter-mandated obligation to provide land use trainings and workshops to the community board:

> The Department of City Planning and the borough presidents' offices are charter mandated to provide land-use training and workshops to the community board. What has happened in the last couple of years is that many borough presidents have not adhered to that rule, and what you've also seen is that there's been really a lack of leadership from City Hall on mandating borough presidents to provide that… When we spoke with district managers about that land use piece we were very shocked that there were district managers and specifically certain boroughs that had not had a land use workshop on "what is a rezoning?", "what is a variance?" (A. Toledo 2021, pers. comm., January 23).

An example can again be taken from Australian politics, where in the State of New South Wales through the 1970s and 1980s the Australian Labor Party ran evening classes and tutorials on policy, ideas and campaigning at the Henry Lawson College. These activities were open to all Party members to broaden their participation and skills in Party affairs (Bracks, Faulkner & Carr 2010).

In the case of NYC community boards, a lack of training on land use by the Department of City Planning and the borough presidents has reduced the voice and capacity of these boards to impact rezoning and development in their neighbourhoods:

> Those two major entities in the last 15 to 20 years have really done a disservice to community boards, by not keeping community boards very well educated and not really keeping community boards as part of a major voice... What we've heard and what we've seen is that community boards have just really been pushed to the side (A. Toledo 2021, pers. comm., January 23).

The CEC, in response to the conversations they conducted with all of NYC's community board district managers, have been developing infrastructure for training and workshops on land use as well as parliamentary rules and procedures. Many community boards felt they needed a better understanding of parliamentary rules and procedures, as their meetings were very disorganized. To address this need in August 2020 the CEC partnered with the Parliamentarians of Metro New York to run three workshops with community boards covering how to do motions and amendments, nominations and elections, and how to prepare minutes (A. Toledo 2021, pers. comm., January 23).

### 8.2.4.5. A note on power dynamics between community boards, borough presidents, the City Council, the NYC Mayor's Office and city agencies

To introduce DCCM and BCCM would require the City Charter to be amended, but as previously mentioned the charter has been revised multiple times, most recently in 2019 (Ballotpedia 2020). In 2019 NYC voters approved all charter revision ballot questions with at least a 70% approval, although only 13% of active registered voters in the city participated. Revisions included the implementation of ranked-choice voting for municipal primary and special elections beginning in 2021, changes to the agency that investigates police misconduct, lobbying and campaign restrictions for elected officials, guaranteed budgets provisions for the public advocate and borough presidents, and an increase in the time community boards and borough officials have to review ULURP applications (Lewis 2019).

It is important to note that while my recommendations for community cabinet meetings on the council district and borough level would require a charter revision, it is not my intent to change the current powers of the community board, borough president or City Council

members. The desired outcome of implementing such an initiative is to provide a formal mechanism for increased transmission and accountability between public space and empowered space, which in this case would mean empowering community boards to fulfil their intended purpose. Creating these community cabinet meetings in NYC would require at a minimum the support of community district managers and city agencies.

Given we are living in a period of increased concern for health and well-being, meaningful engagement for urban governance and increased urban green spaces may be more important than ever:

> I hope that an increased focus on public health and safety will also drive a more productive dialogue about public utility and social justice, with a more diverse set of viewpoints driving decision making and more accountability. We need to eliminate a culture of important decisions happening behind closed doors and I hope that the current environment ultimately facilitates that in some way (B. Hogan 2020, pers. comm., December 5).

### 8.2.5. Using PPGIS to make NYC green-space governance and climate adaptation planning more inclusive

There is a need for meaningful information and effective public processes at the local level to build awareness, capacity, and agency for urban planning and climate change adaptation solutions. Given a lot of scientific and urban planning data is hard to understand and not salient to local communities there is a need for better approaches to help communities and local agencies make sense of emerging information on climate change, become more informed on local impacts and policy responses, and feed into planning processes (Sheppard et al. 2011). Processes that build awareness and capacity for urban planning and climate change adaptation solutions at the community level require them to be engaging and accessible, with understandable information for the public, stakeholders and decision makers (Kollmuss & Agyeman 2002; Moser & Dilling 2006; Nicholson-Cole 2005). PPGIS can help to make urban planning and climate change information more understandable, can layer qualitative and quantitative data sets, and

through the use of visual tools can foster engagement, learning and public interaction with the planning process.

Looking forward PPGIS could help community participation in NYC's *Planning Together* initiative. Proposed by NYC Council Speaker Corey Johnson in December 2020, *Planning Together* outlines a 10-year comprehensive planning cycle designed to encourage equitable, just, and sustainable growth by meaningfully connecting the city's budget, land use and strategic planning processes to help correct neighbourhood disparities, support equitable growth and create a more resilient and inclusive city (Johnson 2020). Part of this plan is to engage all neighbourhoods in an ongoing land use planning process. While the proposal calls for "the creation of new diverse and representative decision-making bodies" and mentions public meetings and public charrettes, it does not provide details on how these would be created or executed. The report does include in its roadmap that community boards would submit their statements of district needs in the first year of the 10-year cycle in the form of a survey of qualitative and quantitative data. A PPGIS web survey could help community boards gather qualitative and quantitative data from residents, businesses and other stakeholders, especially as it relates to the needs of open space, affordable housing and climate change resiliency.

PPGIS is being used by PBNYC as a means for residents to submit and make comments on capital project ideas (ideas.pbnyc.org). The current PPGIS functionality could be extended to allow residents to vote on PBNYC projects. While this would not replace the need to engage residents in person at facilitated community meetings, it would allow for increased participation of digitally capable residents who aren't able to attend these meetings. Similarly, PPGIS could be used to scale community participation in NYC Parks scoping sessions, by providing a digital means for residents to submit and discuss ideas. The CEC is currently working with Decidim (decidim.org), an open-source digital platform designed to facilitate participatory democracy in cities and organizations. Decidim will be used as a basis for CEC's citywide engagement model once the Covid-19 suspension of PBNYC is lifted (A. Toledo 2021, pers. comm., January 23).

As discussed in Section 5.3, for researchers interested in using PPGIS to scale meaningful community engagement, benefits can be found by co-designing web-surveys with representatives of the intended audience. This can be done by using focus groups to

establish local concerns and vocabulary, developing a PPGIS survey from these findings and reviewing it with a focus group before sending the survey out to the public at large. To create transparency and accountability PPGIS survey data should be made publicly available in a format that facilitates understanding and exploration, and ultimately it should be publicly demonstrated how the survey directly impacted the project it was created for.

Looking ahead, NYC is facing social and economic challenges in the face of Covid-19. In-person community engagement has become even more challenging in a pandemic, increasing the need for accessible digital solutions.

### 8.2.6. Summary of recommendations to improve NYC's green-space governance

Distilling the above, my recommendations to improve the inclusivity, transmission and accountability of NYC's green-space governance are as follows (also presented in Table 2):

- Increase the inclusive, authentic and consequential deliberation of NYC Parks scoping sessions by adopting a minipublic approach, i.e. use random stratified sampling to recruit participants; provide participants with access to information, expert testimony and advocates about the issue at hand; provide a facilitator to support participant deliberation to ensure civil and inclusive dialogue; have participants develop and deliver recommendations to decision makers.
- Increase the discourse representation of PBNYC and scoping sessions by inviting social and environmental justice advocates to present expert and advocate testimony to participants. Further increase community and discourse representation of PBNYC by holding satellite neighbourhood assembly meetings where people are already gathering, e.g. meetings of NYCHA Residents, religious groups and other community organizations.
- Mandate that NYC Parks and other agencies provide public statements explaining how they will incorporate the outcomes of scoping sessions and other participatory initiatives, publicly providing reasons for the acceptance, rejection or deferral of community recommendations, as seen in Tuscan Law no. 69.

- Also in line with Tuscan from Law no. 69, the city should provide financial and methodological support to agencies looking to run minipublics, PBNYC or other participatory initiatives.
- Use existing district service cabinet meeting infrastructure to create monthly district community cabinet meetings to make decision-makers at city agencies directly accessible to the public. Similarly, use the existing infrastructure of borough service cabinet meetings to create monthly borough community cabinet meetings, essentially providing residents with a regular form of "City Hall in Your Borough." Provide digital access to both of these monthly meetings to increase attendance.
- Utilizing district and borough community cabinet meetings to educate community board members and the public on land use planning, budgets and other governmental processes.
- Use PPGIS to increase community participation in green-space planning by making geo-spatial data easier to understand and contribute to, and ensure the accessibility of PPGS web-surveys co-designing them with representatives of its intended audience. Make PPGIS survey data publicly available, and demonstrate how the web-survey directly impacted the design outcomes of the project it was created for.

| Deliberative democratic initiative | NYC implementation | Improvements to NYC's green space deliberative system |
|---|---|---|
| Minipublics | Use random stratified sampling to recruit participants; provide participants with access to information, expert testimony and advocates about the issue at hand; provide a facilitator to support participant deliberation to ensure civil and inclusive dialogue; have participants develop and deliver recommendations to decision makers. | Increase the inclusive, authentic and consequential deliberation of NYC Parks scoping sessions |
| Discourse representation | Invite social and environmental justice advocates to present expert testimony to PB NYC participants; hold satellite neighbourhood assembly meetings where community organizations are already gathered | Increase the discourse representation of PBNYC and NYC Parks scoping sessions |
| Tuscan Law no. 69. | Mandate that NYC agencies provide public statements explaining how they will/will not incorporate the outcomes of participatory initiatives; City to provide financial and methodological support to agencies looking to run participatory initiatives. | Increase accountability of NYC Parks scoping sessions |
| District Community Cabinet Meetings | Use existing District Service Cabinet Meeting infrastructure to create monthly meetings with the public; use these meetings to educate community board members and the public on governmental processes. | Increase accountability and transmission by making decision-makers at city agencies directly accessible to the public |
| PPGIS | Co-design PPGS web-surveys with representatives of its intended audience; Make PPGIS survey data publicly available, and demonstrate how the web-survey directly impacted the design outcomes of the project it was created for. | Increase inclusivity and accessibility of green space planning projects by making geo-spatial data easier to understand and contribute to; increase accountability of land-use decisions. |

Table 2 Summary of recommendations to improve NYC's green space governance

# 9. Conclusion

My research motivations has been to co-design tools and processes that can increase community engagement in urban green-space planning, to help strengthen democracy and to help cities adapt to the already impactful effects of climate change. My two research goals were to explore how PPGIS can facilitate and increase community engagement in the design of NYC parks and community gardens, and identify how NYC's formal community engagement mechanisms could be made more inclusive and accountable to green space advocates.

The NYRP was approached to be my research partner as they are an organization that is actively engaging local residents for the design of NYC community gardens and parks, and were designing a renovation of open spaces in Mott Haven and Port Morris in the South Bronx, called the Haven Project.

My work with the NYRP began with the co-design of a PPGIS tool (see section 5.3) to assist and augment their existing community engagement practices, informed by the processes used to develop the initial Haven Project master plan and the design of their community gardens, as outlined in Sections 5.2. and 5.1., respectfully. Given the Haven Project is a five-phase development plan, with the NYRP committed to engaging the local community and organizations for the design of each phase, it was originally anticipated that the PPGIS prototype would be used for these engagements.

The PPGIS prototype was built with a team in Madrid (see Section 5.3.2), and tested on three of the NYRP's community garden redesign projects. As fate would have it, Village Vanguard would not be used for its originally intended project because the City of New York withheld the US$3 million of funding awarded for phase 1 of the Haven Project (see Section 7.4.).

I was able to answer my first research question by testing the PPGIS prototype on NYRP community garden redesign projects. I answered my second research question by investigating ways to improve PPGIS web-surveys through participatory design and deliberative discussion focus groups (see Section 6.1.4.). Nonetheless, the unexpected stop on Haven Project funding by NYC was a major limitation on my research. The complete breakdown in communication with the NYC Mayor's Office and the city agencies instrumental in withholding the awarded funds, and their subsequently lack of accountability, spurred the second area of my research with the NYRP: investigating why the campaign seeking to release the city funds failed, and how NYC green-space governance can improve for the community and organizations seeking inclusive and consequential input on the planning of their local green spaces. I'll now summarize the answers to my research findings, my original contribution to knowledge, the limitations to my research and how my findings could be generalized and applied to other cities.

# 9.1. Research findings

My research set out to explore how community engagement in NYC green spaces could be improved to help adapt to climate change. I approached this by first narrowing in on how PPGIS could improve public participation in community gardens, and gradually expanded my focus to the deliberativeness of NYC's formal engagement mechanisms.

My first research question starts with a small-scale project to co-design a PPGIS prototype, with the intent to use this prototype on bigger projects. This work took an action research approach and involved the participatory design of a PPGIS tool to help NYRP's community engagement practices, initially for community gardens and later for the Haven Project. From the success and failures of this exercise I researched strategies from traditional survey development to improve the design of PPGIS web-surveys, and arrived at recommendations that answer my second research question. In the wake of NYC indefinitely stalling the Haven Project funds and the subsequent NYRP campaign to release these funds, my focus then expanded to investigate how green-space advocates were able to successfully campaign for new NYC green-spaces. Through a comparative case study of the High Line, Bushwick Inlet park and the Haven Project I was able to identify strategies to help future community-led green-space endeavours, and answer my third research question. Finally, to examine the governance network that NYRP was operating in, and make recommendations on how to improve its inclusivity and accountability, I expanded my focus to take in NYC's formal community engagement mechanisms.

### 9.1.1. How can PPGIS help facilitate community engagement processes for NYC green-space stewards like the NYRP?

For my first research question, I took an action research approach to improve my research partner's workflows, i.e. NYRP's community engagement practices. As described in Section 5.1., NYRP's community engagement is very much an in-person process, and in the case of their community garden design projects their initial engagement takes place in the garden itself. The goal of the PPGIS prototype was not to replace NYRP's collaborative engagement approach, but to assist and augment it.

By conducting interviews with NYRP staff and community members who used the PPGIS prototype, my findings highlight the benefits of using PPGIS to aid facilitation and the discussion of collected ideas. After being used for the community engagement meetings of three community garden design projects, my interviews revealed that the prototype helped NYRP facilitators manage discussions and gather comments that they felt may not have been collected otherwise. As discussed in Section 5.4.1.1., by having the PPGIS prototype available on tablets at meetings, outside schools and at the gardens themselves, NYRP was able to gather multiple comments at once, in parallel to community discussion. Facilitators were also able to use the PPGIS prototype to manage participants with "louder voices". The PPGIS prototype provided shyer participants a means to contribute their ideas anonymously to the discussion and the project as a whole, and assisted those who needed comments translated.

The digital collection and real-time reporting of community comments with embedded geo-spatial data on garden projects helped NYRP document meetings and made it easier to share captured ideas with the public and other stakeholders. This functionality of PPGIS removed the need for NYRP to convert hand-written notes, a process in participatory mapping that can result in errors being introduced. (Brown, Weber, Zanon, & de Bie, 2012). This also addressed the project goals to tackle the typical "Post-It Notes galore" approach to community workshops, and created a repository of community comments accessible to all NYRP teams and stakeholders, which the NYRP felt would help future fundraising efforts.

When the NYRP community engagement team presented garden design proposals back to the community, the digitized comments helped to explain why certain decisions were made and what community requests they were in response to. When the NYRP community engagement team needed to report to the NYRP capital team on what was heard at garden redesign meetings it was easy to copy and paste comments from the prototype straight into their reports.

In summary, the co-designed PPGIS prototype helped NYRP facilitate community discussions, gather comments from multiple people simultaneously at meetings in gardens, outside schools, as well as at indoor venues, and provided a mechanism for community members unable to meet in person to submit ideas. The publicly accessible dashboard of submitted comments also helped the NYRP share and report on submitted community engagement events, both internally and to project stakeholders.

Despite the successes of the PPGIS prototype, there was still room for improvement, which was the focus of the second research question.

## 9.1.2. How can participatory design of PPGIS help increase community engagement in green-space planning decisions?

In response to the prototype feedback, my second research question sort recommendations for decision makers looking to increase the accessibility and relevance of PPGIS web-surveys. Drawing on research that explores traditional survey development with focus groups, and building on PPGIS studies that use focus groups to understand a project's range of landscape values, as well as studies that conduct user testing with older individuals, my research points to an opportunity to use PPGIS focus groups, specifically deliberative discussion focus groups, to develop and refine PPGIS web-surveys so as to improve their interface design and survey questions. Here I would like to acknowledge that surveys by themselves are not deliberative by nature, and so additional engagement would be needed to achieve deliberative democratic engagement.

In Section 6.1.1. I discussed that focus groups using participatory mapping are increasingly being used as a basis for public participation and collaboration to collectively

define place meanings and attachments (Brown & Reed 2009; Cheng & Mattor 2010; Davenport & Anderson 2005). While such focus-group PPGIS data may not be appropriate for primary decision support because they are only a small sample of the population, they are useful to identify the range of public values, which can then be used to inform large-scale surveys (Brown et al. 2014; Carver et al. 2009).

My research on the use of focus groups in survey design in Section 6.1.3 demonstrates that they can help to develop survey questions by establishing known information about a topic as well as gain new insights (Nassar-McMillan & Borders 2002). With these insights researchers can develop meaningful survey questions to gather input from larger community samples (Krueger 2014). Focus groups can help develop the language that is appropriate to engage a community (Stewart & Shamdasani 2014), help refine and generate survey questions, and assist in the preliminary test of a survey instrument (Morgan 1996; Nassar-McMillan & Borders 2002).

Section 6.1.2. demonstrates how facilitated PPGIS sessions with older adults can be an effective way to improve the design and usability of PPGIS instruments (Gottwald, Laatikainen & Kyttä 2016; Ouimet et al. 2004), increasing social equality of access (Meng & Malczewski 2010). PPGIS focus groups provide an opportunity to improve the visual design of PPGIS map interfaces to make it easier to engage typically hard-to-reach groups such as the elderly, while ensuring all participants are provided with a user-friendly and readily understood mechanism for engaging in planning processes. By using techniques from traditional survey development (Krueger 2014; Nassar-McMillan & Borders 2002; O'Brien 1993), I propose PPGIS focus groups could be used to test PPGIS survey instruments, refine survey items and improve the usability of interfaces.

While there are studies that compare community workshops to PPGIS survey methods (Brown et al. 2014; Gardevärn 2017; Jankowski et al. 2016), little has been reported on using PPGIS focus groups to develop large-scale PPGIS web-surveys. My recommendation for future researchers is to use PPGIS focus groups to co-design PPGIS surveys as a means to improve their visual and language design, making them more accessible overall.

To align with the principles of deliberative democracy I recommend the combination of PPGIS with a specific type of focus group, i.e. deliberative discussion focus groups. Which educate and inform participants about the topic of interest prior to discussion, to help improve the data quality through informed opinions. Two key additions to the typical focus group format that transforms it to a deliberative discussion focus group are 1) an educational presentation prior to the group discussion and 2) the addition of an expert co-moderator.  Toward the end of the deliberative discussion focus groups, the moderator asks for participants' final opinions about the topic of interest, and how their opinions may or may not have changed from the group experience (Rothwell, Anderson & Botkin 2016).

Based on the above research, and informed by the discussion in Section 6.2. on improving accountability for decisions informed by community engagement, I have the following recommendations for urban planners looking to develop accessible and accountable PPGIS community engagement initiatives:

1. Use deliberative discussion focus groups which include drawing on paper or digital maps to establish the landscape of project concerns, establish the vocabulary and categories used by the public for these concerns, and explore what geo-spatial data sets the community would like to inform their discussions.
2. With these findings, develop a PPGIS survey and create geo-spatial data sets, then review/refine these designs with a deliberative discussion focus group.
3. Use the developed PPGIS tool for street canvassing, and in-person community engagement events.
4. Send the PPGIS survey out to the public at large, and/or to a randomly stratified sample of the public, depending on project needs.
5. Make project information and updates publicly available.
6. Develop a public facing dashboard for the granular exploration of community comments.
7. Publicly demonstrate how the comments directly impacted the project design and implementation.

While I had hoped to use the above recommendations in the field, and expand NYRP's community engagement for the design of the five phases of the Haven Project, the

indefinite stalling of this initiative required my work to adapt. For this reason, my research expanded its focus to investigate why NYRP's advocacy campaign to release City funds failed, and how NYC green-space governance could be improved in terms of a deliberative system.

### 9.1.3. What can be learned from successful advocacy campaigns for NYC parks and community gardens

In Chapter 7, I developed a comparative case study on the advocacy campaigns for the High Line and Bushwick Inlet Park, and NYRP's failed Haven Project campaign to identify recommendations for future green-space advocates. These recommendations can be summarized as follows: form a dedicated group or organization for your campaign; utilize creative activism to attract press and raise awareness; gain and maintain the support of local government; develop planning studies to inform and negotiate with city agencies.

These findings align with many of those recently published in the High Line Networks' Best Practices Toolkit (2019), and reveal shortcomings in NYRP's advocacy campaign to release their awarded City project funds. As outlined in Section 7.5, NYRP's campaign failed where others succeeded because they lacked a project-specific organization that could unify communities and organizations under one banner, distribute the workload, and free the NYRP from acting under the obligations of existing political and funding ties. NYRP was also constrained in the creative activism they could conduct, which impacted the press coverage they could attract. And while NYRP had gained the support of local government for their project proposal, when it came time to advocate for the release of the funds awarded by the city they lacked momentum for community support, and simultaneously due to a change of leadership the project lost the support of the city Council. Finally, while the NYRP had conducted an in-depth community engagement process to inform the design of the project plan, this document did not carry the weight of official planning documents or economic feasibility studies, so did not have any influence in formal land use planning procedures.

To understand the political landscape that NYC green-space advocates must operate in, and to identify areas where it could be improved, I then took a deliberative systems lens to NYC's community engagement mechanisms.

### 9.1.4. What deliberative systemic impacts do NYC's formal community engagement mechanisms have?

In Chapter 4 I examined the influence of the public on the evolution, protection and maintenance of NYC green spaces. This discussion included the role of residents and grass roots organizations in the evolution and preservation of Central Park, the impact of New York communities and activists on the evolution of community gardens, and the formal government mechanisms available to NYC residents to shape their local green spaces.

As outlined in Section 4.3., the primary government mechanisms available for New Yorkers to shape their green spaces are community boards, public hearings and scoping sessions. While these mechanisms provide residents with formal avenues to get their ideas and concerns for green space heard, they have limited accountability from decision makers. For example: while public hearings are a means for NYC residents to provide testimony in land use proposals, the public are unable call or set the agenda for public hearings, nor is there a requirement for their testimony to be formally addressed; residents raising issues at community board meetings have no guarantee these issues will be communicated to decision makers; and while NYC Parks' scoping sessions are a venue to gather and generate ideas, NYC Parks are under no obligation to explain their final design decisions in terms of community contributions.

Further, demographic representation of residents and the diverse discourses that surround urban green spaces are not prioritized in these formal participatory mechanisms. This results in those with the time, interest and resources being those who attend.

In Chapter 8, I provide an analysis of NYC's community engagement mechanisms and make recommendations to improve this potential deliberative system, summarised in

Table 3. Within this system, the formal mechanisms for community participation in green-space governance are as follows:

1. Community boards act as a transmission mechanism by providing the Mayor with budget priorities and recommendations for projects, programs and activities to meet their district needs. Community boards contribute to the decisions of empowered space by monitoring City service delivery in their district, such as policing, sanitation, and parks, and are the first to vote on ULURP. Community boards provide an element of accountability to green-space decision making, in as much as NYC Parks must present to and gain approval from affected community boards for all park proposals. However, only community board members are allowed to vote in this approval process. For this reason, although the public can present their opinions and influence voting outcomes, community board meetings are not venues for public deliberation.

2. Public hearings provide a means for NYC residents to give testimony for the city's consideration in land use projects. However, the public are unable to call public hearings or set their agendas, nor is there a requirement for public testimony to be formally addressed. Public hearings are not a place for deliberation, but do act as a transmission mechanism for public ideas to empowered space.

3. NYC Parks scoping sessions are activities of public space to gather and generate ideas, and act as a transmission mechanism to get those ideas to empowered space. However, while all designs for public parks must be approved by impacted community boards, NYC Parks are under no obligation to explain their final design decisions in terms of community contributions from scoping sessions, and thus are not required to provide accountability.

4. PBNYC is a mechanism of public space that provides transmission and accountability in NYC's deliberative system. By empowering residents to design, vote on and develop their own capital projects, PBNYC is a powerful mechanism for transmission. PBNYC's transparent reporting around which projects are funded and by how much provides NYC with a democratic initiative with accountability. However, inclusivity could still be improved.

### 9.1.5. What strategies from international democratic initiatives could make NYC's community engagement mechanisms more deliberative?

NYC Parks scoping sessions and participatory budgeting are examples of NYC initiatives working to improve public space mechanisms to assist the transmission of residents' needs and ideas to empowered space, and to increase the inclusivity and accountability of its green-space governance, but there are gaps that could be addressed. In Section 8.2., developed from desk research, document research and interviews with a range of NYC government officials, I provide recommendations from deliberative democratic initiatives to improve NYC's governance, which I will now summarize.

As outlined in Section 8.2.2., while many people are invited to NYC Parks scoping sessions, getting people to turn up to public meetings is challenging. Further, there are no legislative requirements for NYC Parks to account for their design decisions, and no way for non-attendees to know what was said. To increase the inclusive, authentic and consequential deliberation of existing community engagement initiatives run by NYC Parks, approaches used by minipublics could be adopted, i.e. random stratified sampling to recruit participants, providing participants with access to information, expert testimony and advocates about the issue at hand, facilitating deliberation to ensure civil and inclusive dialogue, and delivering participant recommendations to decision makers. As seen in Tuscan Law no. 69 (see Section 8.2.1.2.), to increase government accountability, City agencies could be mandated to provide public statements explaining how they will incorporate the outcomes of participatory initiatives, publicly providing reasons for the acceptance, rejection or deferral of community recommendations. The City should also provide financial and methodological support to agencies looking to run participatory initiatives.

As presented in Section 8.2.1., PBNYC is still facing inclusivity challenges. To increase community and discourse representation in NYC's participatory budgeting, social and environmental justice advocates could be invited to present expert testimony to participants and hold satellite neighbourhood assembly meetings where people are already gathering, e.g. meetings of religious groups, the New York City Housing Authority (NYCHA) and other community organizations.

Currently, NYC residents do not have direct access to decision makers at NYC agencies. However, any strategy to improve the transmission and accountability of NYC governance needs to be realistic about government resources, so must utilize existing political infrastructure where possible (see Section 8.2.3.3.).

My recommendation is to use NYC's district service cabinet meetings to create monthly district community cabinet meetings to make decision-makers at City agencies directly accessible to the public. Similarly, use the existing infrastructure of borough service cabinet meetings to create monthly borough community cabinet meetings, essentially providing residents with a regular form "City Hall in Your Borough." Ideally, digital access would be provided to both of these monthly meetings to increase attendance.

These new district and borough community cabinet meetings could be utilized to educate community board members and the public on land use planning, budgets and other governmental processes, helping the Department of City Planning and borough presidents fulfil their charter-mandated obligations (A. Toledo 2021, pers. comm., January 23).

Finally, PPGIS could be used to increase community participation in green-space planning by making geo-spatial data easier to understand and contribute to, and ensure the accessibility of PPGS web-surveys by co-designing them with representatives of the intended audience. PPGIS survey data could be made publicly available, demonstrating how the outcomes of the PPGIS web-survey directly impacted the design of the project it was created for. Looking forward, PPGIS could help community participation in NYC's programs such as the *Planning Together* initiative.

Table 3 Summary of recommendations to improve NYC's green space governance

| Deliberative democratic initiative | NYC implementation | Improvements to NYC's green space deliberative system |
|---|---|---|
| Minipublics | Use random stratified sampling to recruit participants; provide participants with access to information, expert testimony and advocates about the issue at hand; provide a facilitator to support participant deliberation to ensure civil and inclusive dialogue; have participants develop and deliver recommendations to decision makers. | Increase the inclusive, authentic and consequential deliberation of NYC Parks scoping sessions |
| Discourse representation | Invite social and environmental justice advocates to present expert testimony to PB NYC participants; hold satellite neighbourhood assembly meetings where community organizations are already gathered | Increase the discourse representation of PBNYC and NYC Parks scoping sessions |
| Tuscan Law no. 69. | Mandate that NYC agencies provide public statements explaining how they will/will not incorporate the outcomes of participatory initiatives; City to provide financial and methodological support to agencies looking to run participatory initiatives. | Increase accountability of NYC Parks scoping sessions |
| District community cabinet meetings | Use existing district service cabinet meeting infrastructure to create monthly meetings with the public; use these meetings to educate community board members and the public on governmental processes. | Increase accountability and transmission by making decision-makers at City agencies directly accessible to the public |
| PPGIS | Co-design PPGS web-surveys with representatives of its intended audience; Make PPGIS survey data publicly available, and demonstrate how the web-survey directly impacted the design outcomes of the project it was created for. | Increase inclusivity and accessibility of green space planning projects by making geo-spatial data easier to understand and contribute to; increase accountability of land-use decisions. |

# 9.2. Original contribution to knowledge

This thesis has contributed to the knowledge of PPGIS as a beneficial tool for community engagement in urban green-space planning. In this case PPGIS proved to be an effective tool for green-space organizations to gather comments at community meetings, capture comments of those who cannot attend meetings and help facilitators direct contributions of shy and dominating meeting participants. This is the first known action research project to develop a PPGIS application for urban green space planning in NYC. This research's focus of co-designing a web-based tool for green space advocacy in NYC is also rare.

While there are studies that compare community workshops to PPGIS survey methods, there is little discussion on using PPGIS focus groups to develop large-scale PPGIS web-surveys. Although drawn from the literature of traditional survey design, an original contribution to PPGIS knowledge takes the form of a recommendation to use PPGIS focus groups to develop and refine PPGIS web-surveys so as to improve their language, interface design and overall relevance for their target audience. This co-design of PPGIS surveys can also be extended to asking PPGIS focus groups what geo-spatial data sets they would like to see included in PPGIS web-surveys to inform their understanding of a land use project.

This thesis expanded existing knowledge of green-space advocacy campaigns in NYC. The comparative case study approach drew on the success of other projects to identify the limitations of NYRP's advocacy campaign, and identify strategies for future green-space advocates. The detailed case study of the Haven project and what went wrong was given greater depth by applying a deliberative systems lens to the analysis.

My analysis contributes to understanding how deliberative systems thinking can be used to improve governance in practice, and is the first to apply this framework to NYC community engagement mechanisms. This approach has helped me to identify opportunities to improve the formal mechanisms available to residents to contribute to their local green-

space planning, specifically NYC Parks scoping sessions, NYC's Participatory Budgeting and District Service Cabinet Meetings.

The idea of using the Australian Community Cabinet Meetings to create District Community Cabinet Meetings in NYC is also an original contribution to knowledge, consolidated through interviews with representatives of NYC government.

In Section 9.5 I will briefly explore the transferability of the findings and recommendations of this dissertation, using my home town of Sydney as an example.

# 9.3. Research limitations

The research limitations for this dissertation arose from a change in project circumstance (discussed in Chapter 7), as well as my departure from NYC to return to live in Sydney. In addition, I had finite financial and time resources to conduct my research.

The indefinite stalling of the NYRP's Haven Project was the principal limitation placed on my research. As a result, my research was taken down another path, exploring what went wrong for NYRP's advocacy campaign, as well as the deliberative democratic shortcomings of NYC government. The co-designed PPGIS prototype was intended to be used for the five-phase plan at a range of community engagement meeting sizes. As this did not eventuate the only PPGIS testing was conducted on small community meetings of 9-12 people, outside schools and in gardens, as well as by those submitting comments remotely. The application was never tested at large engagement events. Due to financial limitations, the NYRP was unable to use a projector to show the application and mapping layers to community members in a large format, another feature designed to serve larger community meetings. While I was still able to ascertain that the PPGIS prototype aided in-person meetings both for the collection of ideas and the facilitation of discussion, I am yet to see if these benefits deliver at scale.

The testing of the NYRP PPGIS prototype was further limited due to geographic and financial constraints. While we were able to use the PPGIS prototype for three garden redesign projects, there was no funding available to create more instances of the application for other NYRP projects. During the testing period, I was no longer in NYC, having already relocated to Sydney and was only able to get feedback from NYRP and community participants through follow-up semi-structured interviews—not observe the use of the PPGIS tool in meetings. I was unable to integrate NYRP's feedback on the prototype's functionality due to financial constraints, which meant I was unable to test the improved PPGIS design in the field, thus gathering less data than I would have liked.

Another limitation of my research is the case-study sample size. For my analysis of NYC's green-space governance I used one organization's failed advocacy campaign and built a comparative case study with two other NYC green-space initiatives. Because of time limitations I was unable to include more cases, and I have been unable to present my findings to other NYC green-space advocacy groups to gather their feedback and relevant experiences. The research could be strengthened by discussing my findings with other NYC green-space advocacy groups, and other members of the High Line Network from across the United States.

Finally, the community interview participants who used the PPGIS prototype were sourced by the NYRP with only a small proportion of total testers being interviewed. This will have necessarily resulted in skewed sample distribution. Interviewed community participants were provided with some details about the purpose of the research prior to agreeing to be interviewed, and the interviews were roughly one hour long. This considerable time commitment may have affected the number and type of people available to participate.

# 9.4. Generalizability of findings

While every city requires bespoke policies to meet local needs, I would like to propose that some of the findings in this dissertation hold relevance for other world cities. To test generalizability of findings, this section explores how they could be applied in another urban context, my home city of Sydney. As I will discuss below, Sydney is already feeling the negative impacts of climate change, and like New York is implementing strategies to address them, including the expansion of green spaces and the running of community engagement initiatives to inform urban resilience strategies. However, these community sessions could be made more inclusive and representative, and in this section I will make recommendations based on my research findings to make Sydney's formal community engagement mechanisms more deliberative.

Sydney is a city in a developed democratic country, but has a smaller population than NYC and a different urban governance context. If the findings can be used to generate policy ideas for Sydney, then we can have some confidence that there is at least some generalizability to other large cities in developed democratic countries.

NYC is the most populous city in the United States and the most densely populated, with an estimated 2019 population of 8,336,817 distributed over 784 square kilometres/302.6 square miles (U.S. Census Bureau 2021). Sydney is the capital city of the state of New South Wales (NSW) and the most populous city in Australia and Oceania. It is made up of 658 suburbs spread across 33 local government areas, all administered by the state government.

Unlike NYC, the Mayor of Sydney only controls the City of Sydney—the local government area covering the Sydney central business district and surrounding inner city suburbs, an area covering 2,368.2 square kilometres. As of June 2019, the estimated resident population in the City of Sydney area was 246,343 people, around 4.6% of Greater Sydney's total population of 5,312,163 (The City of Sydney 2020). To strengthen the relevance of my findings for Sydney I'll discuss my recommendations with examples

applicable to the City of Sydney as well as to Greater Sydney. I'll begin by providing context around climate change already impacting Sydney.

### 9.4.1. Climate change impacts on Sydney

Heat waves are already having a negative impact in Sydney and this is expected to intensify (Bureau of Meteorology 2017; Mora et al. 2013; Perkins-Patrick, King & Hale 2017). January 2017 was the hottest January in Sydney on record (Bureau of Meteorology 2017), with the duration, frequency and intensity of extreme heat events having increased across large parts of Australia in general (CSIRO & Bureau of Meteorology 2016). Sydney is predicted to reach "climate departure" by 2038, at which point the average temperature of its coolest year from then on will still be warmer than the average temperature of its hottest year between 1960 and 2005 (Mora et al. 2013).

The City of Sydney would be a suitable testbed for this dissertation's research findings as it has an established democratic system of governance (MOADOPH 2017), is committed to increased citizen engagement in urban policy and planning (Resilient Sydney 2016) and needs to adapt to the risks and impacts of greater heat waves (Bureau of Meteorology 2017; IPCC 2001; Mora et al. 2013; OECD 2010; Perkins-Patrick, King & Hale 2017). The policies and initiatives of its Urban Forest Strategy (more on this below) indicate a need to engage the community in green-space planning (City of Sydney 2013b). The Greening Sydney Plan outlined in the City of Sydney Urban Forest Strategy (2013) focuses on six key policy initiatives: expanding the urban forest, creating greener streets, providing more parks and open space, ensuring greener outcomes for new developments on private land, establishing green linkages and wildlife corridors, empowering the community to assist in the greening of the city.

Sydney's green-space planning will coincide with massive new development projects, valued at AUD7.4 billion in 2015 (Cummins 2015). Considering the scale of these development plans and the critical challenges faced by climate change and heat waves, Sydney must strategically incorporate green-space planning and community engagement into urban adaptation strategies.

I'll now briefly review the core recommendations made at the end of Chapter 9 for applicability in the Sydney context.

## 9.4.2. Increase the inclusive, authentic and consequential deliberation of existing engagement processes

The City of Sydney does run numerous community engagement processes, as demonstrated by the Sustainable Sydney 2050 engagement activities, which included a survey, pop-up events, workshops and community sessions. I attended one of the twelve community sessions in November 2018, which involved participants being broken into randomly assigned groups and moved around various tabled discussions, where ideas were captured, not dissimilar to the NYC Parks scoping sessions. A facilitator was present during these discussions, and each table had a set topic to guide discussion and help generate ideas from the community on how they'd like Sydney to evolve by 2050. No information or expert testimony was presented to participants, although the Mayor of Sydney, Clover Moore, did make a short speech.

Drawing on the findings from Section 9.2., these community sessions could be made more inclusive and representative by incorporating approaches used by mini-publics, i.e. random stratified sampling to recruit participants, and providing participants with access to information, expert testimony and advocates for the issue at hand. To increase community and discourse representation, the City of Sydney could also hold community engagement sessions where people are already gathered, such as schools, community organization, parent teacher associations, etc. The City of Sydney could increase its discourse representation at participatory initiatives by including social and environmental advocacy organizations in community sessions to help inform the deliberation of policies and land use decisions.

In August 2019, the City of Sydney coordinated a citizen jury of 43 randomly selected and demographically matched community members including residents, students and workers. Over three months the jury developed recommendations on what concepts should be implemented in Sydney by 2050 to realize the community's vision for the city (City of

Sydney 2020). The fact that the City of Sydney is already doing citizen juries, a form of minipublic, is very encouraging. However, these have been one-off participatory exercises and there remains a need to institutionalise processes that involve minipublics in decision making.

### 9.4.3. Provide public statements explaining how decision makers will incorporate the outcomes of participatory initiatives

Both the City of Sydney and the NSW Department of Planning, Industry and Environment (NSWPIE) publicly report on the outcomes of their community engagement initiatives. For example, Planning for Sydney 2050 has a dedicated page on the City of Sydney website that includes progress updates, high-level community engagement insights, videos and downloadable reports on all community sessions, summits and workshops.

NSWPIE has a four-step online engagement process for its Parks for People program which is spending AU$50 million across Greater Sydney to create better access to open space (NSWPIE 2021). These steps are 1) establish what can and can't be done on the site of the park in question, 2) seek ideas and feedback from the community and key stakeholders to inform the development of a draft concept design, 3) present a draft concept design for community feedback, and 4) present a final plan and provide an online information session on how community input has helped shaped the design.

However, not all state departments are as forthcoming and transparent about their engagement outcomes or planning decisions. On April 10, 2021, the *Sydney Morning Herald* reported that plans for the Sydney Harbour Bridge's northern cycleway were being deliberately withheld from the public partly because the state government couldn't cope with the volume of expected feedback (Thompson 2021). Bureaucrats from the NSW Department of Transport said releasing new designs would have "real potential to generate premature and untimely discussion among the community." The designs had been shown to a select group of stakeholders, including North Sydney Council and local residents, who were sworn to secrecy. The Department of Transport refused a freedom-of-information request to see the designs, saying it could upset the consultation process by

public comment being received before that of the relevant stakeholders and exposing participating private entities.

The complete opaqueness of NSW Department of Transport's actions is quite disconcerting. Drawing on my recommendations for NYC from Tuscan Law no. 69., a way to bring greater transparency to Sydney's planning projects, NSW government departments could be mandated to provide public statements explaining how they will incorporate the outcomes of public consultation.

### 9.4.4. The state should provide financial and methodological support to government bodies, organizations or residents looking to run participatory initiatives

Given the above example of state government secrecy around bike path designs and a confessed lack of capability to manage a public feedback process, there would appear to be a need for financial and methodological support to individuals, organizations or government bodies to run participatory initiatives. As explored in Section in 9.2.2.3., this is a core mechanism of Tuscan Law no. 69. It is interesting to note that both the NYC Department of Transportation and the NSW Department of Transportation have demonstrated a lack of accountability to the public. This could be remedied with community-initiated deliberative democratic innovations.

The City of Sydney does provide grant schemes for the community. Two of these schemes that could be augmented to the support of participatory initiatives are community services grants and matching grants (City of Sydney 2021).

Community services grants aim to strengthen governance and accountability in community organisations and encourage participation in civic and community activity. Some of the expected program outcomes of community services grants are to increase participation in community and civic life and local decision making, increase community capacity to address local needs/opportunities, and to strengthen sense of belonging and connection to place.

Matching grants prioritise social projects that involve people who are experiencing disadvantage, and local civic activities and events. Expected program outcomes include increased community capacity and capability to address local needs and opportunities, increased participation in community and civic life.

### 9.4.5. Hold monthly Community Cabinet Meetings to make NSW state department decision makers directly accessible to the public

To provide residents of NSW direct access to decision makers, monthly community cabinet meetings could be reinstated. While all states in Australia have conducted community cabinet meetings, they are not regular events of the NSW engagement landscape.

Community cabinets were introduced by the NSW Labor government in 2007 by Premier Morris Iemma, and in 2011 the Coalition Government committed to regular Community Cabinets (McCann 2012). Each subsequent government has determined the structure, frequency and locations of the meetings, and there is currently no policy that governs NSW community cabinets (K. Cameron 2021, pers. comm., April 27). At the time of writing there was no information on the NSW Department of Premier and Cabinet's website about Community Cabinet Meetings, and limited public information about the procedures and scheduling of NSW Community Cabinet Meetings, which is necessary to effectively utilize this community engagement mechanism.

Further, by having no information about the procedures and scheduling of community cabinet meetings, the NSW government removes itself from any accountability to these practices, past and future.

I contacted the NSW Department of Premier and Cabinet regarding these meetings and their scheduling. The Partnerships and Engagement department informed me that the most recent community cabinet meeting took place in Narooma on 16 March 2020, and that due to the COVID-19 pandemic, none had taken place since. The forward program for community cabinet meetings was not available, and generally they are announced 4 weeks before they occur (K. Cameron 2021, pers. comm., April 27).

By instating monthly community cabinet meetings, individuals and organizations would have a regularly accessible mechanism to ask decision makers direct questions and have a better chance of holding them accountable for their policies. Returning to Sydney Harbour Bridge's secret cycleway designs, community cabinet meetings would allow Bicycle NSW, an advocacy body for bicycle riders in NSW, to speak directly to the NSW Minister for Transport and Roads about their bike path plans.

### 9.4.6. Use PPGIS to increase community participation in green-space planning

The City of Sydney recently commissioned a phone survey and an online survey to gauge public opinion on revising the green-space land use of an existing 18-hole golf course—Moore Park Golf Course. In August 2020, the city conducted a randomly selected, demographically representative phone survey of 402 households living within a 5-kilometre radius of the golf course. Of these, 77% supported creating more public parkland (City of Sydney 2021). In November 2020, a public consultation process that involved an online survey and promotional activities found that 50% of respondents supported a change to the golf course to create more parkland. There were two significant differences between the outcomes of the random phone survey and the online community consultation survey: 1) the online survey had more than double male respondents as women (67% men and 30% women), whereas the demographically matched sample had 50% of each, 2) many more respondents to the online survey used the Moore Park Golf Course facilities: 48% as opposed to 18% in the random sample.

This type of community engagement could be enriched by PPGIS, which would allow participants to indicate areas of parkland that they use regularly and why they value it, and what areas of proposed development they agreed with. PPGIS helps planners get a sense of where the areas of greatest land use disputes are, and which areas to focus their solutions. Future research with the City of Sydney could include using PPGIS for community engagement around green-space planning, both in small focus groups and web-surveys, to inform discussion and capture feedback in geo-spatial terms. To improve transparency and accountability around the decision making that is informed by this community engagement, the city could make the PPGIS survey data publicly available and

demonstrate how the web-survey directly impacted the design outcomes of the project it was created for.

As part of the 2050 Sustainable City planning initiative, The City of Sydney conducted a survey of over 5,000 people. Future engagement strategies for the 2050 plan could add PPGIS focus groups and PPGIS web surveys to include geo-spatial data in their survey results, as seen in the City of Helsinki's successful utilization of PPGIS to gather ideas from 3,745 residents who marked 32,989 map locations, to inform its 2050 master plan (Kahila-Tani et al. 2016). As discussed in Section 6.1., deliberative discussion focus groups using participatory mapping techniques can be used to identify the range of public values for land use projects, and collectively define place meanings and attachments, which can help to develop survey questions by establishing known information about a topic and gaining new insights (Brown et al. 2014; Carver et al. 2009).

An example of PPGIS community participation in Sydney's land use planning can be seen in mountain bike-trail planning by the NSW National Parks and Wildlife Service (NNPWS) to address the demand for more authorized mountain bike trails in both the national parks and adjacent tenures in Northern Sydney (Office of Environment Heritage NSW 2011; Warringah Council 2012). The study generated information about time, place, activities and relative popularity of locations, and was effective in engaging park visitors in a complex park planning process involving multi-scale and cross-tenure analysis. PPGIS was implemented using both a web application and with hardcopy maps in the field, plus participant information was gathered in the form of 29 survey questions to complement the spatial data. After reading background information and consenting to participate, participants were able to map locations they frequented, reasons they went there, and actions suggested to improve the tracks by dragging different markers onto pertinent locations on a Google map. The use of PPGIS allowed for the assessment of individual bike trails, which had been difficult to do previously with traditional text-based surveys, especially when tracks are known by multiple names (Office of Environment Heritage NSW 2011). The reasons for riding specific trails provided insight into features that attracted mountain bikers, and the multi-scale and cross-tenure analysis of markers informed future trail network planning (Wolf et al. 2015).

# 9.5. Recommendations for further research

The findings of this dissertation raise opportunities for future research into the use of PPGIS and deliberative democratic innovations in urban governance. The analysis of NYC green-space governance in terms of deliberative systems thinking also lends itself to wider applications, both in NYC and other cities.

Chapter 5 reviewed the testing of the co-designed PPGIS prototype in NYRP community garden design projects and found that the tool was useful for facilitating discussion and collecting ideas. Future research could develop PPGIS tools specifically for workshop and meeting facilitation, to help balance dominant and shyer community members, as well as inform discussion with geo-spatial data.

Chapter 6 explored the opportunity of using PPGIS focus groups to develop and refine PPGIS web surveys, and highlighted that little had been documented on this approach. Future research could use this method to develop PPGIS tools for community engagement on contentious land use planning issues, such as the creation of flood walls in urban areas. I was approached in late 2019 to contribute community engagement ideas for NYC's Red Hook Coastal Resiliency Project, which aimed at reducing flood risks due to coastal storm surge and sea-level rise along Red Hook's waterfront in Brooklyn, NYC, while also integrating with the community fabric and improving the long-term resiliency of the neighbourhood. Initial plans for raising the height of a network of roads had been received unfavourably by local residents, so a six-month community engagement process would be taking place to develop ideas that better integrated with the community. PPGIS focus groups and web-surveys would be an excellent strategy for this engagement, as the community discussion could benefit from informative geo-spatial data, and focus groups could help identify which data layers would be most useful to discussion. Given the initial push back from the community of government flood management plans, PPGIS web-surveys developed by PPGIS focus groups could ensure the community attachment to place and the terminology used to discuss the issues at hand were translated effectively into engagement tools.

Future green-space PPGIS projects in NYC could also be used to develop strategies for increased health and wellbeing. For example, by continuing the original research into the South Bronx conducted by the NYRP and their community partners, PPGIS could help measure the impacts of green spaces on resident health and well-being over time by integrating public health data sets with resident surveys. In addition, future research could explore the efficacy of online map-based discussion in expanding the methods and tools of deliberative democracy applied to green-space decision making. Examples of map-based discussion tools include Argumaps (Rinner & Bird 2009), MapChat (Hall & Leahy 2010) and Geodiscussion (Jankowski et al. 2017). Given the challenges of tracking the effects of PPGIS on land use decision-making because of the lag between participatory processes and the decision outcomes, future research could also examine how best to study and measure the long-term impacts of PPGIS. While this is a problem unlikely to solved by a single researcher, it is a worthy research cause.

As introduced in Chapter 8, future research into the use of deliberative democratic innovations in NYC's governance could include trials in community board districts of community cabinet meetings designed to foster inclusive, informed and consequential dialogue between the community and City agencies. More research is needed on how to empower community boards to effectively represent and serve their districts. Co-designing a democratic innovation with government agencies and community stakeholders based on community cabinet meetings could be a good place to start. Trials could also be conducted with NYC Parks to incorporate the processes of minipublics into scoping sessions for future park projects. This could help to ensure representative contributions from the community, and increase accountability from NYC Parks around their project designs. Future research could also explore on the political feasibility of implementing the recommendations listed in Table 3 in NYC.

The examination of NYC's formal community engagement mechanisms through a deliberative systems lens in Chapter 8 could be expanded to examine the "why", rather than just the "what", "who" and "how. In deliberative democracy and deliberative systems dialogue generally, the "why" questions are often the most instructive. Given that the comparative case studies used in this dissertation are representative of deliberative democracy philosophy, future research could include the comparison of a case study that

is demonstrably deliberative democracy in practice, so as to derive insights and further recommendations for NYC.

Given the difficulty of being able to evaluate deliberative systems, future research could be done on the cases explores in this dissertation, as well as NYC's governance as it pertains to green spaces and community engagement in decision making in general. This research could further explore the relationship between the parts and the whole of the deliberative system (Owen & Smith 2015), institutionalization (Escobar 2017), and the difficulties related to its empirical analysis (Ercan, Hendriks & Boswell 2017) due to a lack of defined organizational or temporal boundaries (Boswell & Corbett 2017).

The deliberative systems analysis of NYC green-space governance could readily be applied to other areas of service delivery, and could also be applied to other cities. Future research could look at additional city contexts for testing the NYC policy recommendations generated with deliberative systems thinking. This would include research to support the institutionalization of deliberative democratic innovations like mini-publics, citizen juries as well as PPGIS. The community engagement approaches and analysis explored in this dissertation have much wider application within urban governance research. Future research could also take a more systematic review of successful community-led green space projects, beyond those of NYC, to identify generalizable success factors.

# 9.6 Closing remarks

The primary research motivations of this dissertation were to help cities adapt to climate change and strengthen urban democracy by identifying ways to make community engagement processes more inclusive and accountable. While I have focussed on urban green space infrastructure to respond to the threats of heatwaves, storms and floods, there are numerous impacts that cities must prepare for.

At the end of 2019 there were 79.5 million forcibly displaced people worldwide (UNHCR 2020). By 2050, the climate crisis could displace 1.2 billion from countries unable to withstand ecological threats (Henley 2020). These countries are also among the world's least peaceful (IEP 2020).

Cities of wealthy developed countries will be better equipped to accommodate a growing population of international refugees and asylum seekers. However, many are experiencing increasing sentiments of white nationalism, racism and anti-immigrant extremism. In Australia, government policies have resulted in thousands of asylum seekers being held indefinitely in processing camps. This limbo has resulted in extreme psychological damage, with Amnesty International reporting these policies have resulted in children as young as 7 experiencing repeated incidents of suicide attempts, dousing themselves in petrol, and becoming catatonic. At least two people have killed themselves, and three others have died.

The humane treatment of refugees and the integration of migrant populations into developed cities will require knowledgeable and engaged citizens. As this dissertation has promoted, the informed, respectful and inclusive deliberation of citizens is necessary for healthy democracies. Effective democratic urban governance will be needed for many of the impacts of climate change, including the empathetic treatment of climate refugees, and it is my hope that future researchers and policy-makers utilize the democratic innovations of PPGIS and deliberative democracy to achieve this.

# Appendix

# Appendix 1 Semi-Structured Interviews

| Research Phase | Participant(s) | Title/Organization | Date(s) | Format |
|---|---|---|---|---|
| **Scoping interviews** | Lolita Jackson | Special Advisor to Senior Director of Climate Policy and Programs, NYC Mayor's Office | 27/07/2016 | Skype |
| | Sam Holleran | Participatory Design Fellow at Design Trust for Public Space | 01/08/2016 | Skype |
| | David Beasley | Communications Director, Participatory Budgeting Project | 13/10/2016 | Skype |
| | Chris Choi | Head of Global Digital Strategy, Global Communications and Marketing, 100 Resilient Cities | 27/10/2016 | Skype |
| | Julien Antelin | Chief of Staff of Pauline Veron, Assistant to the Mayor of Paris | 28/10/2016 | Skype |
| | Kate Henderson | Community Engagement Adviser, City of Melbourne | 22/11/2016 | Phone |
| | Petter Joelson | Project Coordinator at Digidem Lab Gothenburg, Sweden | 19/12/2016 | Skype |
| | Brent Jacobs | Research Director, Institute for Sustainable Futures Sydney, Australia | 18/01/2017 | In person |
| | William Paterson | Participatory Budgeting Researcher at the Paris Mayor's Office | 13/04/2017 | Skype |
| | Hollie Russon Gilman | Fellow in Technology and Public Policy and Author of Democracy Reinvented | 19/04/2017 | Phone |
| | Emma Bloomfield | Director of the High Line Network | 04/08/2017 | In person |
| | Mara Dawn Kravitz | Director of Partnerships, 596 Acres, Inc. | 15/08/2017 | Phone |
| | Dave Seliger | Founder and Director of Public School | 14/04/2017 | In person |
| | Kacie lyn kocher | Director of Organizational Design & Stakeholder Engagement, Civic Hall Labs | 26/04/2017 | In person |
| | Kyttä Marketta | Professor of Land Use Planning, Aalto University, Finland | 14/09/2017 | Skype |
| | Adam Richards | Project Manager at Camden High line | 02/21/2018 | Skype |
| | Carrie Lindsay | Coordinator Urban Design at Manningham Council, Melbourne, Australia | 27/02/2018 | In person |
| | Ian Hay | Social Planning Coordinator, City of Sydney | 03/04/2018 | In person |
| | Ana Traverso-Krejcarek | Manager of the High Line Network | 11/10/2018 | In person |
| **NYRP Stakeholder Interviews** | Bethany Hogan | Director of Government Affairs, NYRP | 27/07/2017 26/07/2018 30/08/2018 15/10/2018 26/10/2018 19/12/2018 | In person, email, zoom |
| | Annel Cabrera-Marus | Director of Community Engagement, NYRP | 25/10/2017 | In person |

| | | | | |
|---|---|---|---|---|
| | Monica Hernandez-Truitt | Director of Design, NYRP | 13/10/2017 | In person |
| | M. Hernandez-Truitt, A. Cabrera-Marus, F. Riganti | NYRP Stakeholders for UX Design review | 17/10/2017 | In person |
| | A. Cabrera-Marus, B. Hogan, C. Reynoso | NYRP Stakeholders to discuss prototype build at the Madrid MediaLab | 25/10/2017 | In person |
| | Charlie Reynoso | Regional Engagement Manager, NYRP | 06/10/2017 15/10/2018 | In person |
| | Filomena Riganti | Senior Project Manager, NYRP Capital Team | 01/11/2018 | In person |
| **PPGIS prototype feedback** | Monti Lawson | Participants of the NYRP Williams Street Community Garden renovation meetings | 04/12/2018 | Phone |
| | Parvoneh Shirgir | Participants of the NYRP Williams Street Community Garden renovation meetings | 13/12/2018 | Phone |
| | Donna Umana | Participants of the NYRP Williams Street Community Garden renovation meetings | 18/01/2019 | Skype |
| | C. Reynoso, E. Fenton | NYRP post-mortem of using PPGIS app | 22/01/2019 | Zoom |
| | Helen Rowe | Head of Innovation and Stragey, CoDesign Studio, Melbourne, Australia | 23/03/2018 | In person |
| | - | Senior Community Engagement Advisor, City of Sydney | 28/03/2018 | In person |
| | - | Urban Renewal & Place Management Specialist, City of Sydney | 28/03/2018 | In person |
| | - | Senior Urban Designer, City of Sydney | 28/03/2018 | In person |
| **Case study interviews** | Katherine Conkling Thompson | Co-leader of Friends of Bushwick Inlet Park | 2/10/2019, 01/12/2021 | Phone, Zoom |
| | Delancey Nelson | Brooklyn Outreach Coordinator, NYC Parks | 05/12/2019 | Zoom |
| | Ana C. Traverso-Krejcarek | Manager of the High Line Network | 24/10/2019 | In person |
| | Bethany Hogan | Director of Government Affairs, NYRP | 4/21/2020, 6/12/2020 | In person and via email |
| | Shawn Campbell | District Manager, BK Community Board 14 | 17/12/2020 | Zoom |
| | Andy Toledo | NYC Civic Engagement Commission | 23/01/2021 | Zoom |
| | Terri Matthews | Director of *Town+Gown:NYC*, NYC Department of Design and Construction | 12/04/2021 | Phone |
| | Dave Seliger | Senior Advisor for Service Design and Delivery at NYC Department of Housing and Preservation | 04/12/2020 | Zoom |

# Appendix 2

# Sample questions for scoping phase semi-structured interviews

1. What is your role at your organization and how long have you been there?
2. What do you see as the key challenges cities will face in the 21<sup>st</sup> century?
3. What do you consider crucial in making cities more resilient to the challenges of the 21<sup>st</sup> century, and what is your organizations role in that?
4. To achieve your objectives, what sort of involvement do you need from the community?
5. Who do you see as the audience you are trying to reach or engage?
6. What do you do to engage this audience?
7. What inputs are you seeking from the local community?
8. How have you shared your community engagement findings with your network?
9. What community engagement processes are you recommending for members of your network?
10. What data/information did you share with participants to inform their discussions?
11. What were your preparation processes to gather data/information to share with participants?
12. How were participants invited to the community meetings?
13. How were the site-specific ideas and feedback provided by participants documented/categorized?
14. What are the major challenges of running these community meetings?
15. How did the project benefit from community participation?
16. Were you under any regulatory requirements to include citizens in the project planning process?
17. Did you utilize any digital tools to manage communication and engagement with citizens?

# Appendix 3 NYRP Prototype Scrum Documentation

| SPRINT TARGETS | PROGRESS NOTES |
|---|---|
| **Sprint 1**<br>**November 7 – 8**<br><br>• Gather open data for Brooklyn<br><br>• Gather satellite data for Brooklyn<br><br>• Gather climate forecasts for Brooklyn<br><br>• Finalize UX<br><br>• Finalize survey<br><br>• Set up an instance of Mapseed for Village Vanguard | **November 7**<br>While we wait to hear back from the Decide Madrid Greene Corridor Project we will focus on the 2 NYRP projects, located in Brooklyn, NY. Some great NYC Open Data sets have already been identified to fit our needs, and Carles is processing satellite imagery for flooding and heat waves.<br><br>Trevor has set up an instance of Mapseed and has begun to customize it for the project, and my design. He has suggested for the menu icons that we use http://fontawesome.io/icons/ which will save us time and bring flexibility.<br><br>Tomorrow we will begin styling the data sets, experimenting how to best visualise them to clearly communicate the data.<br><br>**November 8**<br>Today we finalized the survey and the survey approach, which required some brainstorming and merging of existing Mapseed templates to new requirements.<br><br>We are undecided on whether to use the raster or the vector image for the heat map. We will use SVG icons instead of font icons as they are more appropriate for a map.<br><br>All data sets have been gathered for Brooklyn and the visualization approach has been discussed. We will experiment when we integrate the data in the second sprint. Some data may be used in the project page, e.g. average age of population, rather than a map layer as it is a better approach for succinct communication. |
| **Sprint 2**<br>**November 9 – 10**<br><br>• Integrate data<br><br>• Create Community partner map<br><br>• Customize Mapseed interface<br><br>• Set up survey<br><br>• Set up comment mapping | **November 9**<br>Today Carles and I did many experiments with colour for the urban heat data we have for Madrid and New York. The challenge is to express the range of heat for hot and cool maps, as well as bring attention to the cooling effects of parks. Right now, I am ending the day with a colour approach based on the Australian Government Bureau of Meteorology and a heat map produced by the National Climate Centre (www.bom.gov.au)<br><br>In regards to the dates we have downloaded data for, our goal is to depict a hot summer day and a cooler day. We are limited to a) days that satellite data is available, and b) days with minimal cloud cover.<br><br>Open data for Madrid and New York have now been gathered. Sonia and Mula will turn their focus to climate forecasts for these two regions. After this is complete, Mula will look for a case study in San Paolo appropriate for the app, and Sonia will turn to translation. My next key tasks are to work out how to do the map legend in a way that is suitable for mobile viewing. |

| | **November 10** |
|---|---|
| | We have decided to go with the heat map colours used by the Australian Government Bureau of Meteorology, and our data requires a range from 5°C to 50°C. |
| | We have chosen on a hypothetical green corridor project for the Decide Madrid project - the survey will be ready by Wednesday so our plan is to go to the project site and gather community comments. |
| | To get the interest of Decide Madrid in our project MediaLab-Prado posted on their website a call to the city to meet with workshop groups. |
| **Sprint 3**<br>**November 11 – 13**<br><br>• Major Milestone: All data and project information loaded for Williams Ave project<br><br>• Begin CSS styling of all available pages<br><br>• Write project overview for Sao Paulo<br><br>• Gather data for Sao Paulo | **November 11**<br>We started our third sprint today, with a key milestones of getting all data for the Williams Ave NYRP project loaded by Monday. This includes: Open data sets styled and loaded; Satellite data fully styled and loaded; Project page added; Project info written and translated; Climate forecasts written and translated; Community map created; Park polygon added. If this goes well we will quickly be able to load the Hull St project, given they share the same open data and climate risk data sets.<br><br>This sprint also includes translating the app, which will allow us to gather real comments on our Madrid project, the goal for the final sprint and the project we will present on Friday.<br><br>**November 13**<br>Today we added the NYRP project partners data layer, which includes nearby NYRP parks as well as organizations who want to be part of the garden programming.<br><br>The BETA version of the comment explorer is up, which lists the recommendations and concerns, both of which can be filtered by category. Next to develop is the "sticky" functionality as well and the Summary dashboard.<br><br>We will need to change the default base map to one that doesn't include roads and transportation, we will try Hydda.Full. CSS tweaks are yet to be done, this will be a primary task of tomorrow. Also, we need to get new project sites set up for Hull St and Madrid. |
| **Sprint 4**<br>**November 14 – 15**<br><br>• Make application edits<br><br>• Load translation of Williams project<br><br>• Set up and load data for Hull St and Madrid project<br><br>• Translate Hull Street and Madrid content | **November 14**<br>Today the team had their heads down working on the long list of sprint targets. Application edits included: Finalize Primary Navigation; Change default base map; Add images to Project info pages; Set project location to load on site load; Make CSS edits; Add legend info menu<br><br>**November 15**<br>Today we cloned the Williams project and rolled out instances for<br><br>• hull.mapseed.org<br>• manzanares.mapseed.org<br>• augusta.mapseed.org<br><br>The team had prepared the data sets and project overviews so were able to begin loading these immediately. Different cities have slightly different data layers due to a) availability and b) relevance, for example flooding is not an issue in Madrid. |

| | |
|---|---|
| • Gather data for Sao Paulo | Team leads were also asked to give a practice presentation to our project tutors in preparation for Friday. |
| **Sprint 5**<br>**November 16th - 17th**<br><br>• Load all project pages and geo-locations for all projects<br><br>• Load translations of Project Pages<br><br>• Translate Sao Paulo Project<br><br>• Load all partner maps<br><br>• Test all data layers<br><br>• Gather community input from Manzanares | **For Madrid and Augusta**<br><br>    • Set geolocations<br><br>    • Load English and Spanish/Portuguese project pages<br><br>    • Load data sets and adjust Legend and Map info panels<br><br>**For Brooklyn Projects:**<br><br>    • Add to "preferred language" survey question Bengali, Mandarin and Cantonese<br><br>    • Add correct Geo-location for Hull st "Map" menu<br><br>    • Load translated Hull St project info<br><br>**All projects:**<br><br>    • Remove "NaN" in comment summary when there are no values<br><br>    • Ensure Comment section is viewable in small breakpoints<br><br>    • Adjust legend panel CSS<br><br>    • Fix "Language" CSS when Spanish is selected<br><br>    • Adjust Comment headings<br><br>**Final To dos**<br><br>    • Create project site<br><br>    • Create export script for comments |

# Appendix 4

# Integrating the PPGIS prototype feedback into user design documents

To address some of the primary feedback issues I have made the following adjustments to the prototypes design:

1. Develop a NYRP landing page (Figures 40 and 41)

- This is the home page that can be reached via the NYRP logo as well as through the 'NYRP Green Spaces' navigation link.
- The overview panel loads automatically on page load and provides top level information on NYRP's green spaces.
- All NYRP green spaces are represented on the map. Two marker styles are used to indicate active redesign project as and static gardens.
- When user selects an active garden the project overview loads, along with a link to 'add your comments'.
- When an administrator is signed in they can edit garden pages as well as the landing page info panel. When user selects a static garden the garden overview loads, and the user is directed to NYRP.org and the garden Facebook page.

2. Refine the community survey (Figures 42 - 44)

- When the user elects to 'Add your comment' the web-survey for the relevant garden loads, along with the map view of the project site
- Instead of using the map marker to store the user's address their zip code is captured. This allows the marker to be used as a reflection of the comment, and if the user elects to make multiple comments they don't need to re-enter their demographic information

- To avoid scrolling which has been found to deter older users the survey is broken out over multiple pages

- Progress bar at the top of the survey indicates the user's location in the survey.

- For each comment to be entered a geo-spatial marker loads in the middle of the project site by default, user can move the marker to a specific location that reflects their comment or leave it as is

- All questions are optional

- If the user elects to submit another comment they are taken back to the final page of the survey, as all their demographic information is stored until they exit the survey.

3. Enhance the comment dashboard and admin functionality (Figures 45 - 49)

- The comments section loads with a summary dashboard of all comments from all active redesign projects, users can use the dropdown menu to see the comments from an individual park.

- A comment is either a recommendation or a concern, users can filter comments by category and "like" comments.

- Comments that are starred by administrators become "sticky" and stay at the top of the list.

- Comments that are starred by administrators become "sticky" and stay at the top of the list, and are then ordered by number of "likes", and reverse-chronological order.

- Administrators can delete comments

- Administrators can export comments, demographics and email addresses of participants

- Administrators have access to view, publish or delete unpublished community comments.
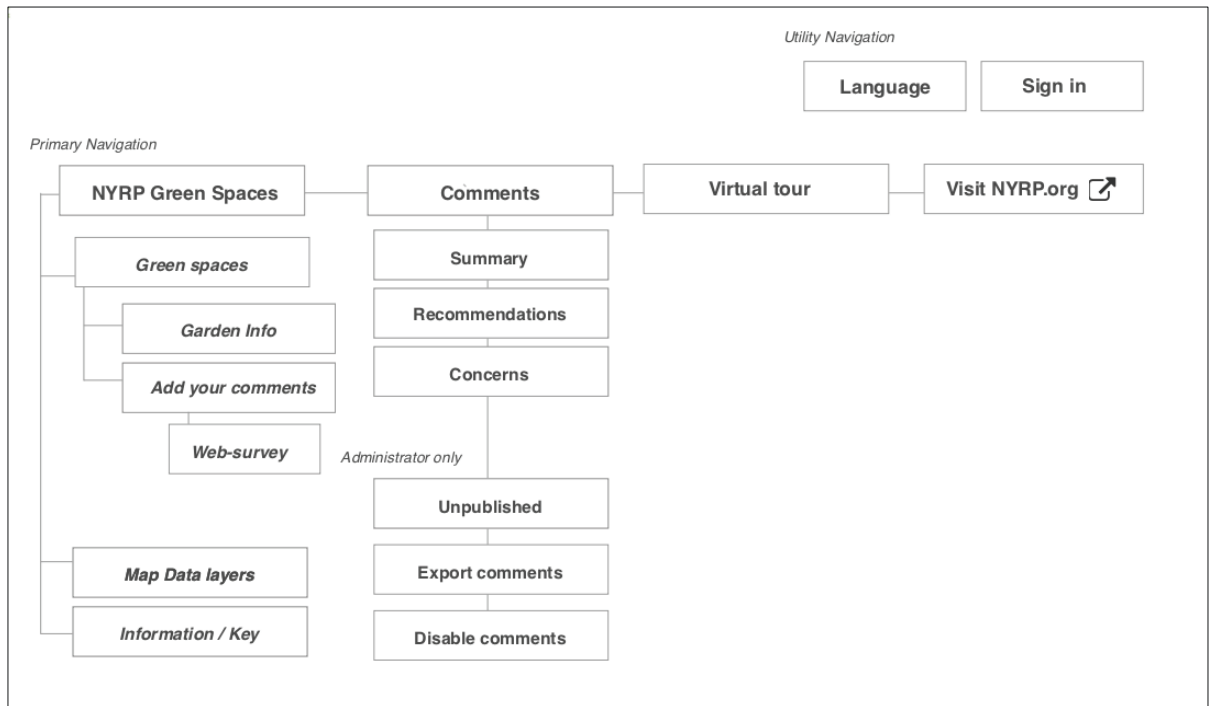
Figure 45 Revised Site Map, added are a NYRP landing page, an instructional virtual tour, and increased comment administration controls
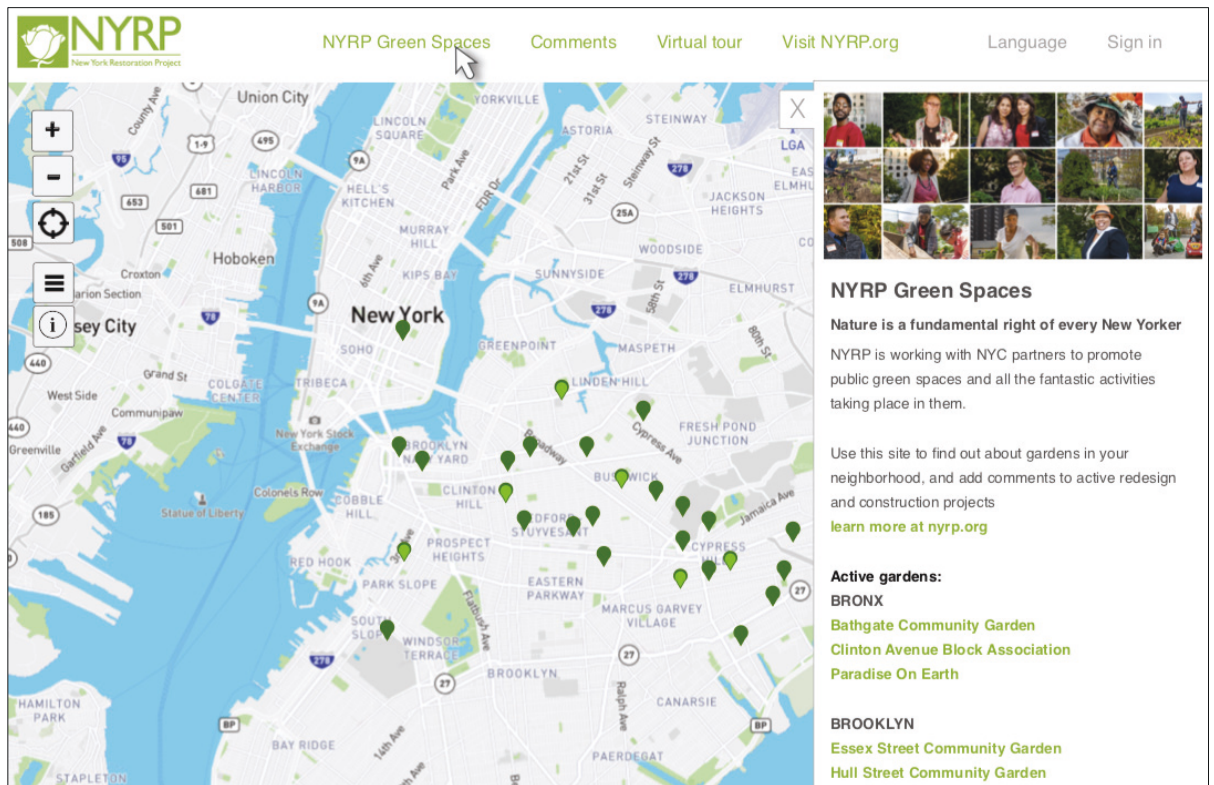


Figure 46 NYRP landing page, all green spaces are represented on the map, two marker styles are used to indicate active redesign project as and static gardens
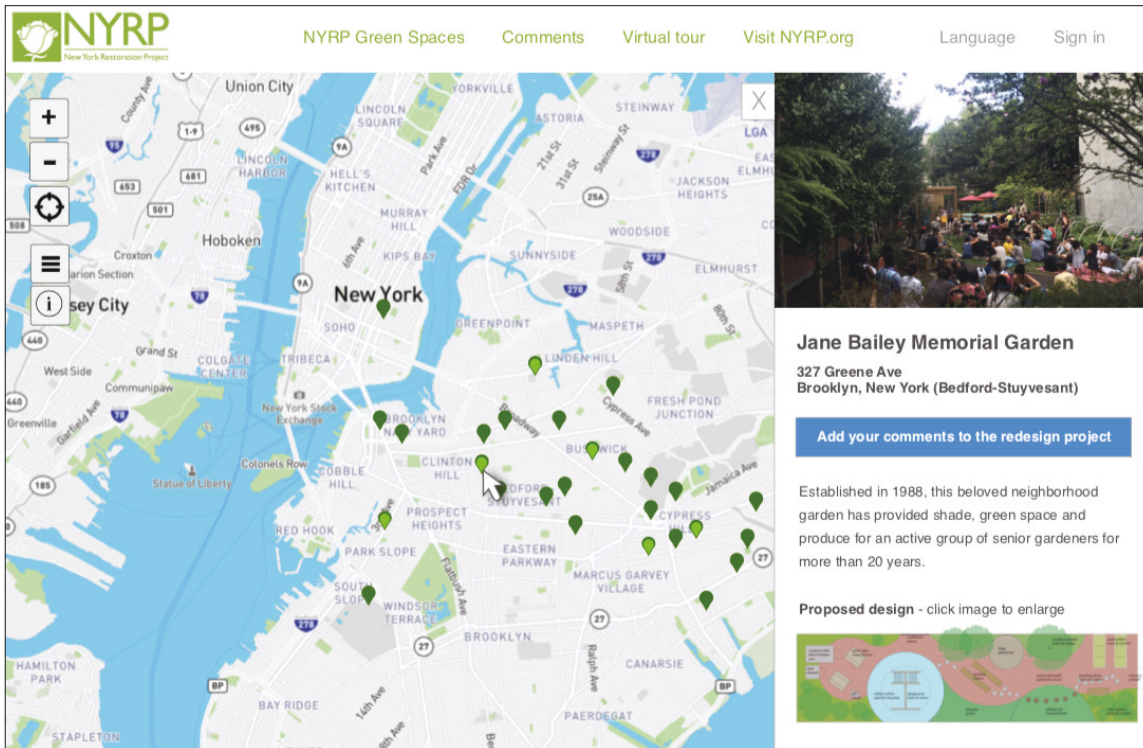
Figure 47 NYRP landing page, when user selects an active garden the project overview loads, along with a link to 'add your comments'
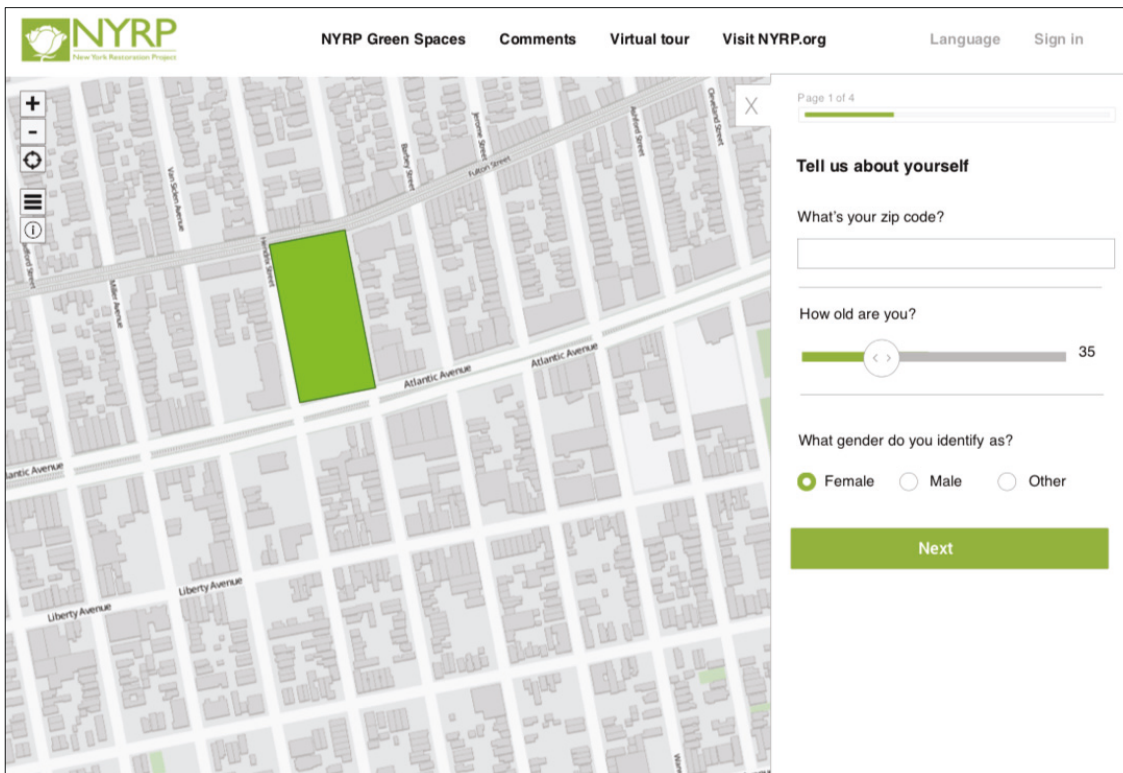


Figure 48 Community Survey, instead of using the map marker to store the user's address their zip code is captured
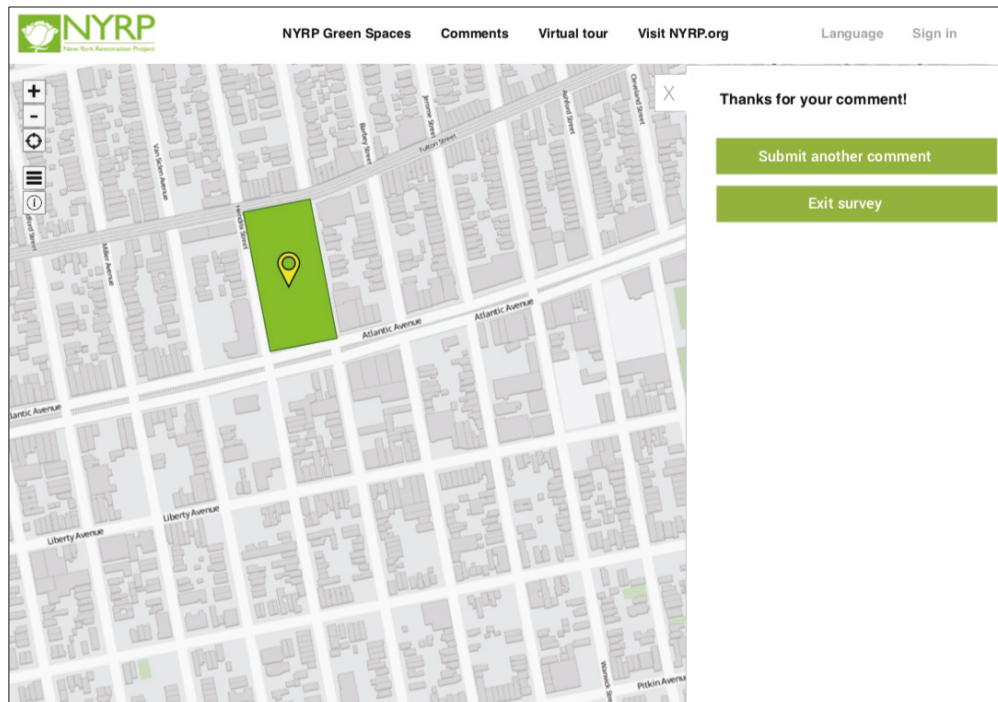
Figure 49 If the user elects to submit another comment they are taken back to the final page
of the survey, as all their demographic information is stored until they exit the survey
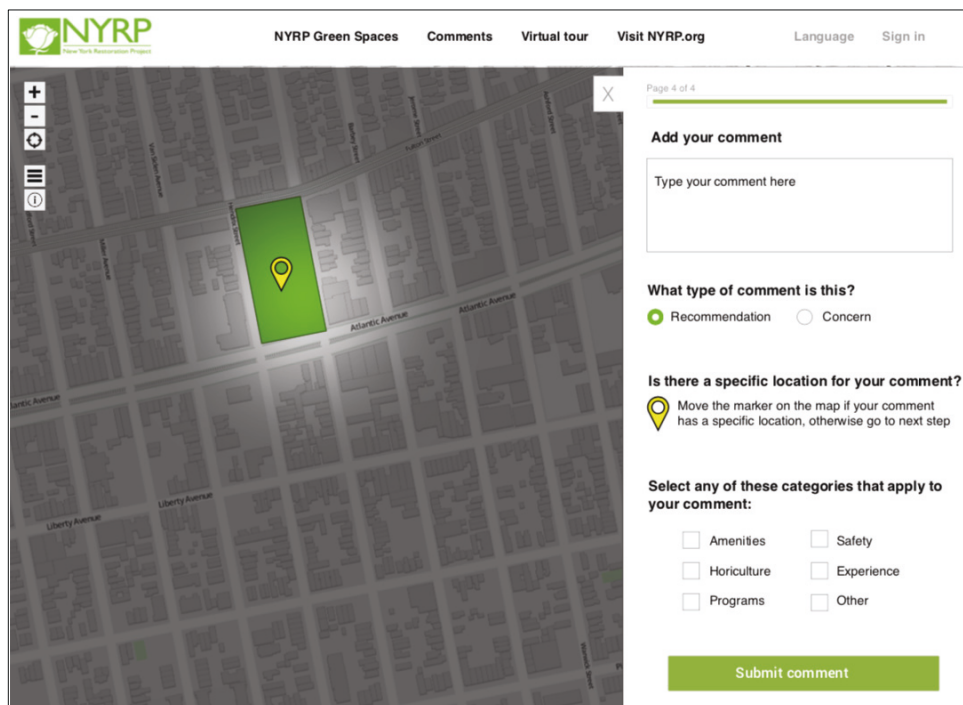


Figure 50 For each comment to be entered a geo-spatial marker loads in the middle of the
project site by default, user can move the marker to a specific location that reflects their
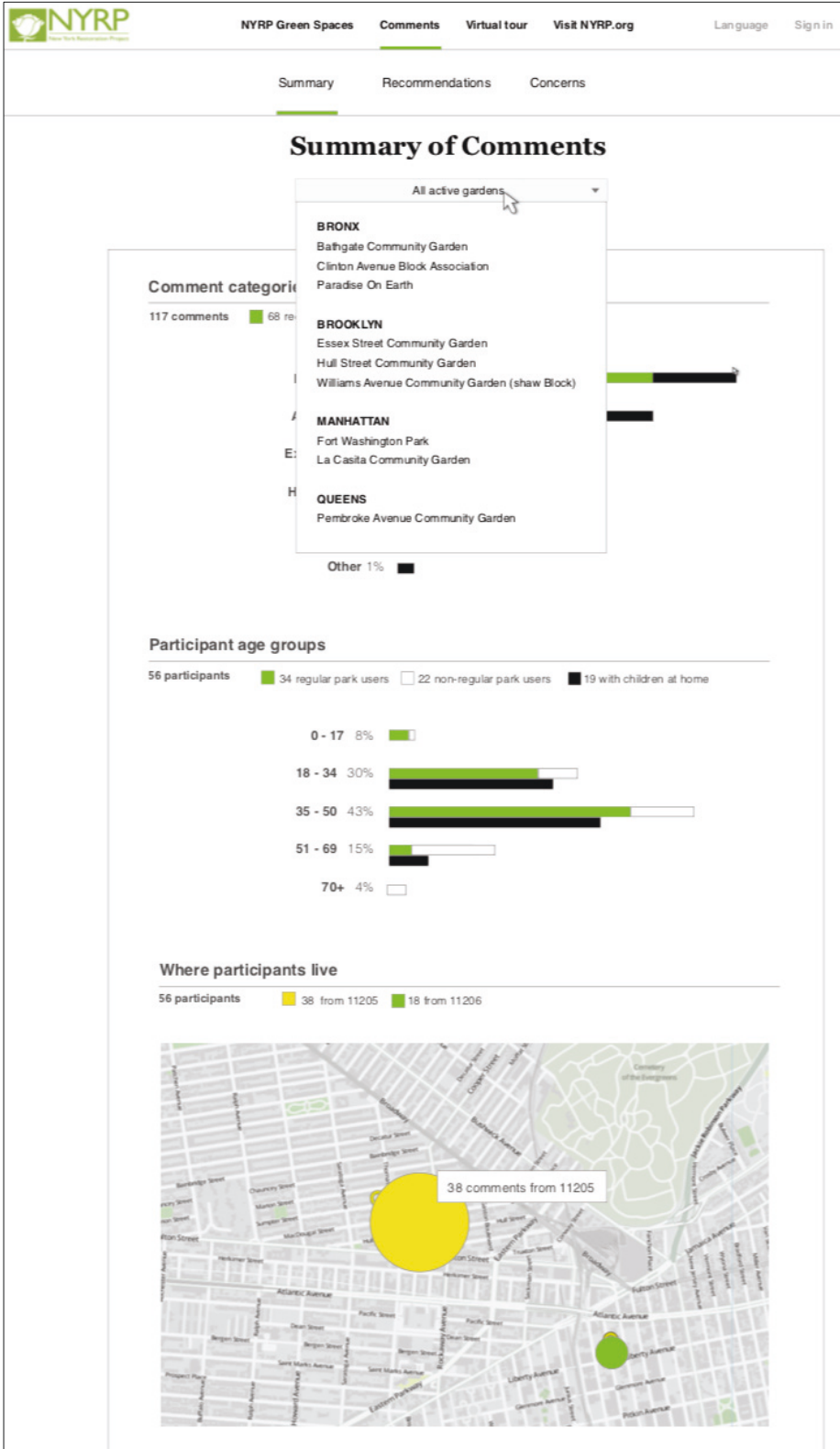
Figure 51

Users can use the dropdown menu to see the comments from an individual park
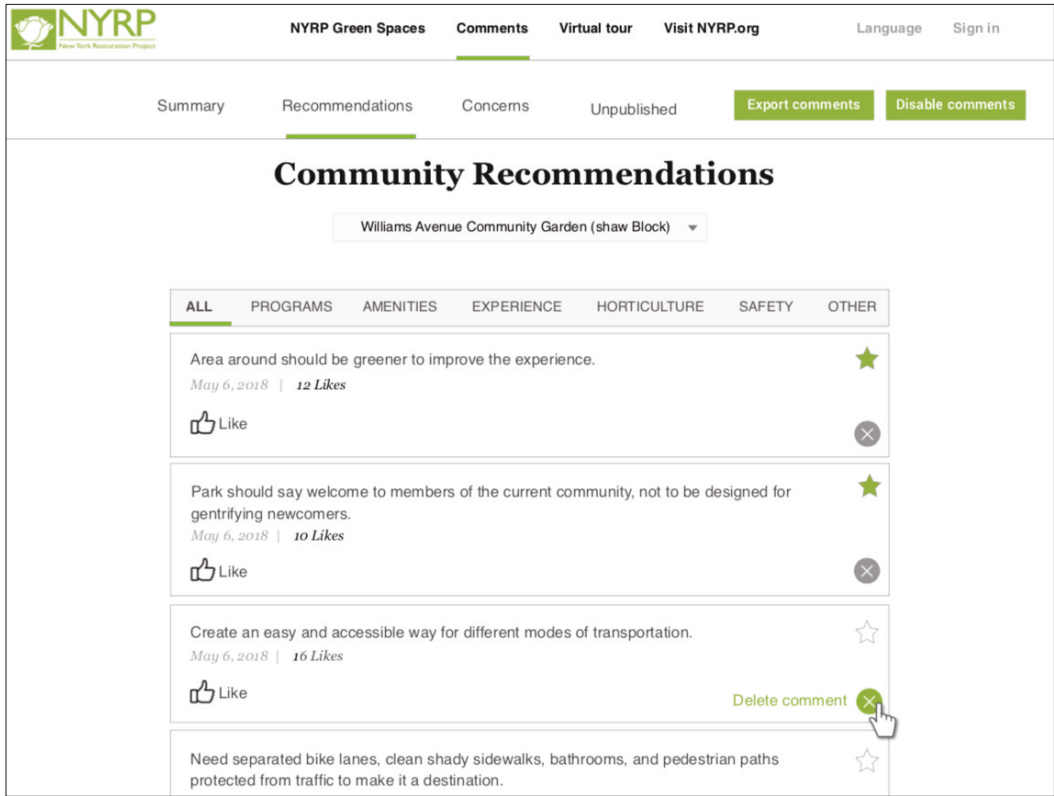
Figure 52 Administrators can delete comments
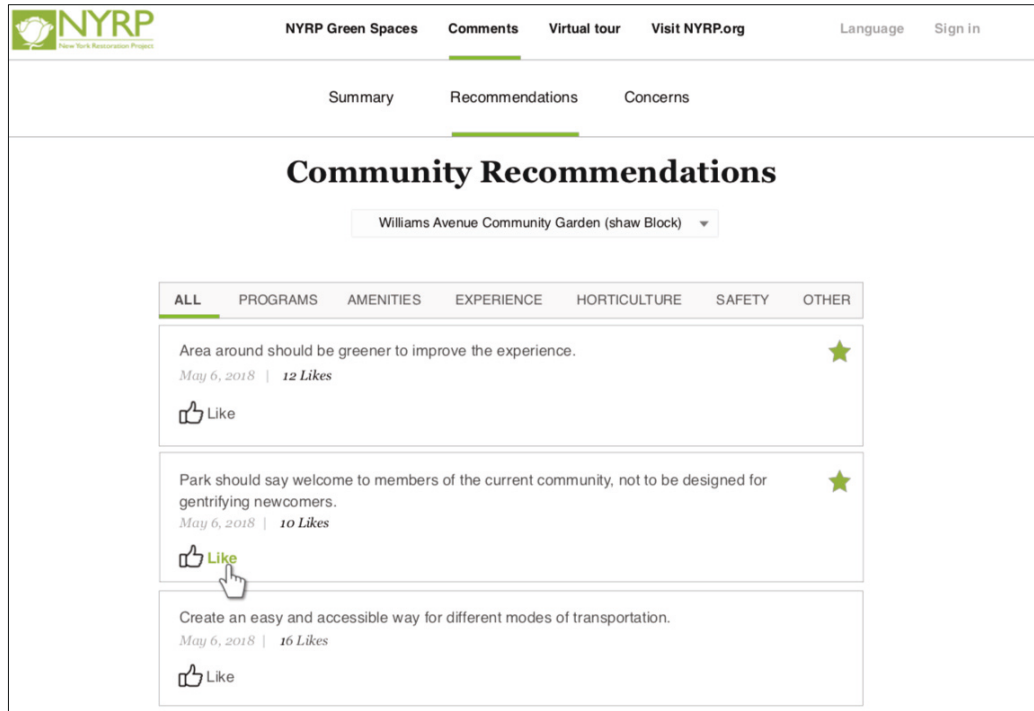


Figure 53 Comments that are starred by administrators become "sticky" and stay at the top of the list, and are then ordered by number of "likes", and reverse-chronological order

Figure 54 Administrators have access to view, publish or delete unpublished community comments

# Appendix 5 NYRP Memo to Pierina Sanchez, Office of New York City Mayor Bill de Blasio

**MEMORANDUM**

To: Pierina Sanchez, Office of New York City Mayor Bill de Blasio
From: Deborah Marton, New York Restoration Project (NYRP)
Date: August 20, 2018  Re: The Haven Project

NYRP deeply appreciates the commitment shown by the Mayor's Office to advance the vision of the Haven Project. We have truly appreciated the conversations had to date and are confident that together we will find an effective pathway forward.

As you are aware, this past spring NYRP submitted a request to repurpose  FY17 Capital funds initially allocated to NYCDOT to NYCEDC. The primary reason was that NYCDOT, an operational agency, does not have the remit to issue funding agreements or deliver these kinds of capital projects. NYCEDC has been widely understood as the ideal agency to manage these funds and we were advised by many partners in the city to request to have this initial misallocation corrected by submitting a repurposing request. Unfortunately, however, our application was ultimately classified as ineligible because NYCDOT did not provide necessary supporting documents.

**NYRP and the Haven Project**

NYRP is a non-profit organization dedicated to transforming open space in under-resourced communities to create a greener, more sustainable New York City. Since our founding in 1995, NYRP has planted trees, renovated gardens, restored parks, and transformed open space throughout all five boroughs. As the only citywide conservancy, we bring private resources to spaces that require additional support, fortifying the city's aging infrastructure and creating a healthier environment for those living in the most densely populated and least green neighbourhoods.

NYRP has been leading the Haven Project since its inception in 2014. The Haven Project is an equity-driving waterfront strategy for the South Bronx and the entire city of New York, developed by a diverse and extensive network of community based organizations, businesses, elected officials, and service providers across Mott Haven and Port Morris. It seeks to realize a long fought for transformation of the South Bronx's waterfront for recreational use and support enhanced connectivity and accessibility.

**Community Engagement**

Over 220 organizations and 600 individuals have informed this vision to date. Together, we have made significant progress:

**2014 – 2015**

Extensive neighbourhood analysis and visioning. Publication Haven Project master plan.

**2016**

Commitment of $2 million from Council Member Salamanca and former Speaker Mark-Vivirito and $750,000 Bronx Borough President for the first major capital phase – redesign and reconstruction of the East 132 Street Pier Park. $500,000 additional private funds were also secured.

**2017**

Implementation of wayfinding strategy and other community- led activation projects. Schematic design for East 132 Street Pier Park developed through extensive community workshops.

**2018**

Under advisement from NYCDOT, NYCEDC, Council Finance, and the Speaker's Office, application submitted through City FY19 budget to repurpose $2 million city funds in order to correct errors from FY17 allocation. Repurposing request was ineligible because application did not include necessary support documentation from NYCDOT.

Since learning that our repurposing application was not approved, we have spoken to CBO, business, and municipal stakeholders whose questions we address here:

**I. Public approvals process**

The approximately 4,000 SF footprint of the East 132 Street Pier Park site is owned by NYCDOT. Once a thriving fishing pier, the site has remained dilapidated since being destroyed by a fire in 1989. Many parts of the old pier remain on the site, including a wooden deck on the street end and pilings in the river.

Because it is a waterfront site, any work will require permits from the Army Corps of Engineers, NYS DEC, NYCSBS, NYCDEP, and possibly NYCDOB. However, remapping it as parkland or any other municipal entity would not be required. The site's use has been a recreational fishing pier for decades and nothing in the Haven Plan changes that. Repairs will be made so that it can once again be publicly accessible and safe.

Instead of remapping the street, we propose that it be redesigned and maintained as an NYCDOT Plaza in line with the many other Plaza Program sites managed by nonprofit partners citywide. Some highly similar examples include Willoughby Plaza, Counties Slip, and Whitehall Water Street. The site could be incorporated into the city's Greenstreets program, similarly to Sagamore Street and Cruger Avenue in the Bronx and Church Avenue, 14th Avenue, and 35th Street in Brooklyn.

**II. Project costs**

The total estimated budget for the Haven Project, inclusive of design and construction of the East 132 Pier Park, Waterfront Esplanade, and street level connectivity improvements is $25,400,000. (This excludes the later construction goal of redeveloping the historic gantries site at East 134 Street for public recreational use, which requires further analysis). From the beginning of this process, NYRP has stated explicitly that the East 132 Street Pier Park is phase one of the longer-term vision and a discrete project that can be delivered independently. Once delivered, it will demonstrate a robust commitment from the city and motivate further private investment towards later phases such as the Esplanade.

As outlined in our repurposing application, we are confident that we can build the East 132 Street Pier Park for a baseline construction ('bricks and sticks') cost of $2,279,680. This budget includes $2,000,000 allocated in FY17 and $279,680 of private funds already secured. It does not include an additional $750,000 allocation made in FY17 by the Bronx Borough President or a further $300,000 in private funds already committed for design development. The Pier Park construction budget has been refined in close collaboration with our design team, which is led by OLIN, PennDesign / Range, McLaren Engineers, and Civitas. The team brings extensive project management and design experience and is well equipped to draft accurate cost estimates.

We understand that due to the nature of the project and rising construction costs, there is a possibility that some additional investment may be required. In that event, NYRP is highly confident that we will be able to raise additional private funds as is reflected in our 20-year history of fundraising for both small and large projects. We annually raise over $10 million for our core work and have already secured significant private investment for the Haven Project. We are confident that other financial supporters would be interested in advancing this critical work once the city's commitment has been demonstrated.

### III. Competitive procurement

Due to the East 132 Street Pier's siting on City land, some partners have raised concern that the Office of Management and Budget may require the capital work to be delivered through a competitive bidding process, or RFP. There are many examples citywide of similar projects delivered without any need for competitive solicitation and therefore we do not believe it is necessary. Examples include NYCDOT license agreements with Business Improvement Districts for management of DOT Plazas and other public realm sites and NYC Parks license agreements with other park conservancies. However, In the interest of ensuring that this project is advanced by the most qualified party, NYRP will support whatever process is deemed necessary. We offer our expertise and support in whatever way possible.

### IV. Maintenance

NYRP has a long history managing land across many different jurisdictions. We have always anticipated that following any capital construction related to the Haven Project, we

would lead in the land management and maintenance through a license agreement with NYCDOT and any other relevant parties. We remain committed to overseeing maintenance for the East 132 Street Pier Park and raising funds to deliver this work. Through preliminary cost analysis, we anticipate that we will need to raise between $50,000-100,000 annually to cover maintenance costs for the site. We annually raise over $1.5 million to maintain Sherman Creek and Highbridge Parks in Upper Manhattan and are confident that we will be able finance this much smaller scope of work.

NYRP remains deeply committed to advancing waterfront access for residents of Mott Haven and Port Morris through design, construction, and maintenance of a network of waterfront open spaces beginning with the East 132 Street Pier Park. This community has been unequivocal about their needs and we stand ready to work in collaboration with the city to realize the vision of a healthier, safer, and more resilient South Bronx driven by an active and accessible waterfront. The most immediate next step in delivering this essential vision is a robust and comprehensive multi-agency meeting led by the Mayor's Office. We hope you will be able to coordinate this important conversation very soon.

Thank you again for your efforts to improve environmental equity in the South Bronx.

# Appendix 6 Copy for the NYRP's Release the Funds email campaign

Dear City Officials,

As a [resident/business owner/property owner] in the South Bronx, I strongly urge leaders at City Hall to release the funds that were promised to our community two years ago to finally rebuild the East 132 Street Pier. The Mott Haven and Port Morris community has no publicly accessible waterfront despite being surrounded by waterways. For too long, we have seen other waterfront projects across the city get realized while we continue to struggle with poor environmental health outcomes such as asthma and obesity. We have waited for years and our turn is now.

I fully support the Haven Project, a transformative plan led by New York Restoration Project (NYRP), to renovate a network of open spaces along the Randall's Island Connector through to East 134 Street. We are shovel-ready on the first phase of this vision, reconstruction of the East 132 Pier, but we need you to correct budget errors that make our promised funds impossible to reach. We need to advance this long fought for, fully funded, and critical environmental justice project for the South Bronx and the city.

The Haven Project is the result of the collaboration of over 70 community based organizations and businesses and 20 government representatives. It has also long been championed by Council Member Salamanca and Bronx Borough President Ruben Diaz, Jr. We thank them for their commitment to our community and urge you to help them advance this vision on our behalf. Once complete, the Haven Project will provide neighbourhood connections, create a new waterfront trail, and support a resilient shoreline.

As a member of the South Bronx community, I request that the city, including the NYC Department of Transportation and the NYC Economic Development Corporation, work

collaboratively with NYRP and our community to make Phase I of the Haven Plan a reality.

**Release the funds.**

# Appendix 7

# 311 Call Sample Text for the East 132 Street Pier as part of NYRP's Release the Funds campaign

**Help us raise awareness at City Hall about the East 132 Street Pier Park by dialing 311 and saying the following...**

'Hello – I am a [resident / business owner / worker / home owner] in the South Bronx and I'm calling to make sure you are aware of the very poor physical state of the East 132nd Street Pier in Port Morris on the East River. The site used to be an active fishing pier but it has been a complete eyesore for three decades. It is very unsafe and is a blight on our community. The City Council and Borough President's office have allocated $2.75 million to New York Restoration Project to transform the site by constructing a new pier, adding green infrastructure, and a new gathering space.

Despite having the full support of our residents, businesses, and elected officials, the city has not given NYRP access to the funds. This project is fully funded and ready to go, but we need the funds to be released. Our community needs this new and very important waterfront open space. Please release the funds and finally let Mott Haven and Port Morris residents access our waterfront!'

**The People of the City of New York**
Boroughs of the Bronx, Brooklyn, Manhattan, Queens, and Staten Island

**Borough Presidents**
The Bronx | Brooklyn | Manhattan
Queens | Staten Island

**Comptroller**

**Mayor**

**Public Advocate**

**The City Council**
51 Council Members

The Bronx: 8 Members
Brooklyn: 16 Members
Manhattan: 10 Members
Queens: 14 Members
Staten Island: 3 Members

**City Clerk**
Clerk of the Counsel

**All District Attorneys**

**Independent Budget Office**

Borough Boards

Community Boards

Financial Information Services Agency

Office of Payroll Administration

Procurement Policy Board

Office of Special Narcotics

**Director of Intergovernmental Affairs**
- Federal Affairs
- State Legislative Affairs
- City Legislative Affairs

**Chief of Staff**
- Community Affairs Unit
- Gracie Mansion
- NYC Service
- Office of Administrative Services
- Advance
- Office of Appointments
- Office of Citywide Event Coordination and Management
- Office of Correspondence
- Office of International Affairs
- Scheduling and Executive Operations
- Office of Special Projects and Community Events
- EEO Officer
- Office to Protect Tenants
- Affiliated Boards and Commissions: Campaign Finance Board | Board of Elections

**Chancellor**
- Department of Education

**Deputy Mayor for Health and Human Services**
- Health + Hospitals
- Department of Social Services
- Human Resources Administration
- Department of Homeless Services
- Department of Health and Mental Hygiene
- Administration for Children's Services
- Department for the Aging
- Office of the Chief Medical Examiner
- Office to End Domestic and Gender-Based Violence
- Children's Cabinet
- Center for Innovation through Data Intelligence
- Office of Food Policy

**Deputy Mayor for Strategic Policy Initiatives**
- City University of New York
- Department of Youth and Community Development
- Department of Small Business Services
- Department of Consumer and Worker Protection
- Commission on Human Rights
- Department of Veterans' Services
- Office of Immigrant Affairs
- Office of Minority and Women-Owned Business Enterprises
- Office for People with Disabilities
- Office of Information Privacy
- Public Engagement Unit
- Office of Workforce Development
- Young Men's Initiative
- DemocracyNYC
- Census
- Commission on Gender Equity

**First Deputy Mayor**
- Office of Management and Budget
- Office of Labor Relations
- Department of Correction
- School Construction Authority
- Department of Probation
- Office of Operations
- Office of Criminal Justice
- Office of ThriveNYC
- Office of Policy and Planning
- Office of Recovery and Resiliency
- Office of Sustainability
- Office of Climate Policy and Programs
- NYC 311
- Office for Economic Opportunity
- Office of Data Analytics

**Police Department**
- Corporation Counsel/ Law Department
- Department of Investigation
- Office of Strategic Partnerships
- City Affiliated Non-Profits

**Deputy Mayor for Housing and Economic Development**
- New York City Housing Authority
- Department of Parks and Recreation
- Department of Housing Preservation and Development
- Economic Development Corporation
- Department of City Planning
- Department of Cultural Affairs
- Landmarks Preservation Commission
- Office of Housing Recovery Operations
- Office of Media and Entertainment
- Public Design Commission
- NYC & Company

**Deputy Mayor for Operations**
- Fire Department
- Department of Environmental Protection
- Department of Transportation
- Department of Sanitation
- Department of Design and Construction
- Department of Finance
- Office of Pensions and Investments
- Department of Citywide Administrative Services
- Department of Information Technology and Telecommunications
- Department of Buildings
- Taxi and Limousine Commission
- Office of Administrative Trials and Hearings
- Business Integrity Commission
- Department of Records and Information Services
- NYC Emergency Management
- Office of Contract Services
- Office of Environmental Remediation
- Chief Technology Officer
- NYC Cyber Command
- Capital Process Reform
- Office of Environmental Coordination

**Counsel to the Mayor**
- Conflicts of Interest Board
- Mayor's Judiciary Committee

**Senior Advisor for Strategic Planning**
- Press Office
- Communications
- Digital
- Office of Creative Communications
- Office of Media Research and Analysis
- Speechwriting

Liaison relationship
Direct reporting relationship

**Affiliated Boards and Commissions:** Age-Friendly Commission | Board of Health | Animal Care Centers of NYC | Child Fatality Review Advisory Team | Committee on City Healthcare Services | Community Services Board | Community Services Board Subcommittees | Dangerous Dog Advisory Board | Domestic Violence Fatality Review Committee | Drug Strategy Advisory Council | Food Service Establishment Advisory Board | Foster Care Task Force | GrowNYC | H + H Corporation Personnel Review Board | HASA Advisory Board | H + H Board of Directors | HIV Health and Human Services Planning Council | Primary Care Development Corporation | Senior Advisory Council

**Affiliated Boards and Commissions:** City University Construction Fund | City University of New York | City University of New York Task Force | Civic Engagement Commission | Community Action Board | Disconnected Youth Task Force | Equal Employment Practices Commission | MWBE Advisory Board | Veterans Advisory Committee | Voter Assistance Advisory Committee | Workforce Development Board | Youth Board | Young Men's Initiative Advisory Board

**Affiliated Boards and Commissions:** Audit Committee | Automated Decisions Systems | Board of Collective Bargaining | Board of Correction | Civilian Complaint Review Board | Climate Change Adaption Task Force | Commission for Economic Opportunity | Commission to Combat Police Corruption | Environmental Justice Advisory Board | Handschu Authority | Hurricane Sandy Charitable Organizations and Houses of Worship Recovery Taskforce | Mayor's Committee on Marshals | MTA Board of Directors | MTA Capital Program Review Board | Metropolitan Transportation Sustainability Advisory Workgroup | Municipal Labor Committee | Municipal Water Finance Authority | NYC Educational Construction Fund | NYC Office of the Actuary | NYC Panel on Climate Change | NYS Public Service Commission | OneNYC | Panel on Education Policy | Port Authority of NY and NJ | Power Authority of the State of NY | Real Property Tax Commission | Sexual Education Task Force | Temporary Task Force on Post-Incarceration Reentry for Older Adults | Transit Riders Council | Transitional Finance Authority | World Trade Captive Insurance Company

**Affiliated Boards and Commissions:** 9/11 Memorial & Museum Board | Advisory Council for the NYC Civil Courts Housing | Atlantic Yards Community Development Corporation | Board of Standards and Appeals | Brooklyn Public Library | Brooklyn Bridge Park Corporation | Brooklyn Bridge Park Development Corporation | Brooklyn Historical Society | Brooklyn Navy Yard | Development Corporation | Build NYC | Central Park Conservancy | City Planning Commission | Convention Center Development Corporation | Convention Center Operating Corporation | Council for Airport Opportunity | Cultural Affairs Advisory Commission | Cultural Institution Group | DCLA Citizens' Advisory Committee | Empire State Development Corporation | Flushing Meadows-Corona Park Alliance | Forest Park Trust | Greenbelt Conservancy | Hudson River Park Trust | Hudson River Valley Greenway Communities Council | In REM Foreclosure Release Board | Industrial and Commercial Incentive Board | Industrial Development Agency | Jamaica Bay-Rockaway Parks Conservancy | Jazz at Lincoln Center | Latin Media and Entertainment Commission | Libraries  Loft Board | Lower Manhattan Development Corporation | Moynihan Station Development Corporation | Museum of Modern Art | New York Community Trust Distribution Committee | New York Public Library | Nightlife Advisory Boar | NYC Empowerment Zones | NYC Housing Development Corporation | NYC Land Development Corporation | NYC Rent Guidelines Board | NYS Department of Economic Development | Prospect Park Alliance | Queens Borough Public Library | Randall's Island Park Alliance, Inc. | Residential Mortgage Insurance Corporation | Roosevelt Island Operating Corporation | Temporary Commercial Incentive Area Boundary Commission | Theater Subdistrict Council LDC | Trust for Cultural Resources | Trust for Governors Island | United Nations Development Corporation | Waterfront Management Advisory Board | World Trade Center Performing Arts Center

**Affiliated Boards and Commissions:** Advisory Council on Procurement Lobbying | Archival Review Board | Archives, Reference and Research Advisory Board | Banking Commission | Catskill Watershed Corporation | Board of Education Retirement System | Civil Service Commission | Civil Service Commission Screening Committee | Commission on Public Information and Communication | Cultural Institutions Retirement System Board of Trustees | Deferred Compensation Board | Environmental Control Board | Fire Department Pension Fund Board of Trustees | Franchise and Concession Review Committee | Multiple Dwellings Construction Task Force | NYC Employees Retirement System | Ocean Acidification Task Force | Office of Administrative Tax Appeals | Police Pension Fund Board of Trustees | Site Safety Training Task Force | Soil and Water Conservation District | State Fire Prevention and Building Code Council | SWMP Converted Marine Transfer Station Community Advisory Groups | Tax Appeals Tribunal | Tax Commission | Teachers Retirement System | Temporary Task Force on Tax Lien Sales | Water Board

# Appendix 9 Uniform Land Use Review Procedure

| | DEPARTMENT OF CITY PLANNING Application and Pre-Certification | COMMUNITY BOARD | BOROUGH PRESIDENT and BOROUGH BOARD | CITY PLANNING COMMISSION | |
|---|---|---|---|---|---|
| CITY MAP CHANGES<br><br>MAPS OF SUBDIVISIONS PLATTINGS<br><br>ZONING MAP CHANGES<br><br>CPC SPECIAL PERMITS<br><br>REVOCABLE CONSENTS FRANCHISE RFP'S MAJOR CONCESSIONS<br><br>NON-CITY PUBLIC IMPROVEMENTS<br><br>HOUSING AND URBAN RENEWAL PLANS<br><br>LANDFILLS<br><br>DISPOSITION OF REAL PROPERTY<br><br>ACQUISITION OF REAL PROPERTY<br><br>SITE SELECTION | • Receives application and related documents.<br><br>• Forwards application and documents within 5 days to CB, BP, and CC (and BB, if project affects more than one CB).<br><br>• Certifies application as complete. | • Notifies public.<br><br>• Holds public hearing.<br><br>• Submits recommendation to CPC, BP (and BB).<br><br>• Can waive rights on franchise RFP's and leases. | • BP submits recommendation to CPC or waives right to do so.<br><br>• BB (if project affects more than one CB) may hold a public hearing and submit recommendation to CPC or waive right to do so. | • Holds public hearing.<br><br>• Approves, modifies or disapproves application.<br><br>• Files approvals and approvals with modifications with City Council.<br><br>• Disapprovals are final, except for zoning map changes, special permits, and urban renewal plans. | SEE FLOW CHART BELOW FOR THE PROCESS FOR CITY COUNCIL AND MAYORAL REVIEW (Charter Section 197-d) |
| **PROCESS TAKES** | No Specified Time Limit (after 6 months, applicant or BP in some cases, may appeal to CPC for certification). | **60 Days** | **30 Days** | **60 Days** | |
| *Clock = 1 Year* | | | | | |
| **TOTAL DAYS** | | **60 Days** | **90 Days** | **150 Days** | |

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### AFTER CPC APPROVES APPLICATION

• **AUTOMATIC REVIEW BY CITY COUNCIL:**
Zoning map changes
Zoning text changes (non-ULURP)
Housing and urban renewal plans
Disposition of residential buildings (except to non-profit companies for low-income housing)
197-a plans**

• **"TRIPLE NO"—AUTOMATIC REVIEW BY COUNCIL OF ITEMS IN ELECTIVE LIST (BELOW), IF:**
CB recommended disapproval (NO #1)
BP recommended disapproval (NO #2)
BP files objection with Council and CPC within 5 days of CPC approval (NO #3)

• **CITY COUNCIL MAY ELECT TO REVIEW:**
City map changes
Maps of subdivisions or plattings
CPC special permits
Revocable consents, franchise RFP's, and major concessions
Non-City public improvements
Landfills
Disposition of commercial or vacant property
Disposition of residential buildings to nonprofit companies for low income housing
Acquisition of real property
Site selection

### IF CPC DISAPPROVES APPLICATION, ALL ITEMS ARE DEFEATED EXCEPT

**SPECIAL PERMITS,** if Mayor certifies as necessary
**ZONING MAP AND TEXT CHANGES,** if Mayor certifies as necessary
**197-a PLANS,** if Mayor requests approval**
**URBAN RENEWAL PLANS, Per State Law.**

### CITY COUNCIL

• Can review application, hold a public hearing, and vote to approve, approve with modifications, or disapprove.

• Refers any proposed modifications to CPC for an additional 15-day review.

• If Council does not act (or does not assume jurisdiction on items it must elect to review), CPC decision is final.

**Action requires majority vote.**

**Must assume jurisdiction within 20 days.**

**Action requires majority vote.**

**50 Days***

Action requires 2/3 vote. Action is final.
**50 Days**

Action requires 3/4 vote. Action is final. Law and timetable to be revised.

### MAYOR

• Reviews application.

• May veto Council action.

• If Council does not act (or does not assume jurisdiction on items it must elect to review), may veto CPC decision.

**5 Days**

### CITY COUNCIL

• May override Mayor's veto by 2/3 vote.

**10 Days**

**\* Does not include 15 day review for proposed modifications.**

**\*\* Refer to the "Rules for the Processing of Plans Pursuant to Charter Section 197-a" and the "197-a Plan Technical Guide" for 197-a Plan Review timeline.**

ABBREVIATIONS:

DCP = Department of City Planning
CPC = City Planning Commission
CB = Community Board
BP = Borough President
CC = City Council
BB = Borough Board

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