4-25-2018

"From the Neighborhood Up!": Neighborhood Sustainability Certification Frameworks and the New Urban Politics of Scale

Alex J. Ramiller
Macalester College, alexramiller@gmail.com

“From the Neighborhood Up!”

Neighborhood Sustainability Certification Frameworks and the New Urban Politics of Scale

Alexander Ramiller

April 25, 2018

Advisor: Laura Smith
Department of Geography
Macalester College
Saint Paul, Minnesota

Abstract

Urban sustainability goals are closely tied to the current political context, in which the imperative to attract highly mobile global capital frequently steers the objectives of local government. In this paper, I argue for the incorporation of the neighborhood scale into contemporary understandings of "local" or "urban" sustainability policy, emphasizing the potential for multi-scalar certification frameworks to subvert the predominant global-local relationship. By shifting the conceptualization and implementation of sustainability from globally dependent urban regimes to a diverse array of discrete urban communities, neighborhood-scale initiatives are able to draw greater attention to issues of social equity, environmental justice, and spatially uneven development. At the same time, the ability for those initiatives to operate within (inter)national certification frameworks provides them with guidance, greater legitimacy, and opportunities for knowledge-sharing. I explore this idea through an examination of two neighborhood-scale sustainability certification frameworks: the well-established "LEED for Neighborhood Development" certification that uses a points-based framework to evaluate the sustainability of neighborhood redevelopment designs; and the "EcoDistricts" framework, which uses a general set of "imperatives" to evaluate neighborhood sustainability. Through quantitative analysis, I find that neighborhoods participating in both of these frameworks are at potential risk of gentrification. Through case studies and empirical analysis, I find that certification frameworks and neighborhood-scale projects form a mutually constitutive relationship in which interpretations of sustainability and social equity are generated by neighborhood stakeholders, codified through certification, and evolve through knowledge-sharing and local adaptation.

Acknowledgements

I must begin by extending the sincerest gratitude to the members of my Honors Thesis Committee, each of whom made invaluable contributions both to this research project and to my undergraduate experience. I would first like to thank my thesis advisor, Laura Smith, for her invaluable support, encouragement, and guidance throughout this process, even when my project unexpectedly turned in a more qualitative direction. I would also like to thank my academic advisor Dan Trudeau, who first introduced me to the discipline of Geography and provided me with indispensable advice on conducting the qualitative and case study portions of this research. Finally, I would like to thank Patrick Schmidt from the Political Science Department, who provided me with the incredible opportunity to join him on a research project in Denmark almost two years ago that provided me with direct inspiration for this project.

In addition, I would like to acknowledge all of the practitioners who agreed to speak with me for this project, as it was their participation and their insights that made this research project possible. On that note, I want to extend special thanks to I-Chun Catherine Chang for providing me with a crucial contact at the United States Green Building Council. Finally, I want to thank my family and friends for their support and advice, and the entire Macalester Geography Department for being the best academic home that any student could ask for.

Table of Contents

List of Figures and Tables

Chapter 1: Contextualizing Urban Sustainability

"Can cities save the world?" Renowned political theorist Benjamin Barber (2013) addresses this question head-on, arguing that in a time of inaction at the national level of government, cities are uniquely situated to face the challenges of contemporary society. While nation-states are by nature rivalrous and mutually exclusive, Barber contends, city governments are largely free from patriotic and nationalist tendencies and are able to interact directly with one another through global networks of interdependency. This is particularly true in the context of environmental politics, where the failure of nation-states to produce stable global environmental accords will have a direct impact on urban residents. As Barber notes, "in this ecologically challenged era, *sustainability is the condition for survival*, and ecological interdependence means there will be no survival without cooperation" (Barber, 2013, p. 130, emphasis added). While cooperation between nation-states on sustainability goals remains elusive, cities have already begun to respond to the challenges of climate change at a global scale. Countless intercity organizations such as the "International Council for Local Environmental Initiatives," and the "World Mayors Council on Climate Change" provide cities with forums to strive for mutual cooperation in the pursuit of global sustainability.

Sustainable development has been in the public consciousness since the 1980s, when it was first defined by the World Commission on Environment and Development (WCED) as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). While this definition of sustainability is fairly intuitive, the true innovation of the WCED report was the introduction of economic development and social equity as parallel goals to

environmental protection. In the very same paragraph, the WCED asserts that "poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfil their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes" (WCED, 1987, p. 43). This forceful argument for attacking poverty at a global scale makes sustainable development a far more holistic framework for pursuing environmental objectives and helps to explain the enduring popularity of sustainability as a policy goal.

However, while sustainability has become an increasingly popular policy objective in the sphere of urban politics, it is also extremely pliable. Sustainability has been characterized as an "empty signifier": a label "without a specific meaning, which thereby derives its political and ideological value as a master signifier of identification" (Gunder & Hillier, 2009, p. 142). In other words, the fact that sustainability does not have a single definition means that it can simultaneously represent multiple conflicting meanings and reflect multiple ideological identifications and beliefs (Gunder, 2006). In a positive light, this presents the potential for sustainability to generate multiple new avenues of political action (Brown, 2016), but it has also led to the critique that multiple actors pursuing sustainability without agreeing on a single action renders the entire concept ambiguous and imprecise (Torgerson, 1995). Dryzek (2005) refers to sustainability as a "rhetoric of reassurance" that implies not only the *possibility* of a better future, but also its ultimate attainability: "We *can* have it all: economic growth, environmental conservation, social justice; and not just for the moment, but in perpetuity. No painful changes are necessary" (p. 159). The rhetoric of sustainability brings together

disparate groups from environmentalists to corporations to consumers and can limit the conflicts between those groups by promising a cure-all solution. Sustainability becomes a powerful tool that can be used to accomplish political ends, and its ambiguity allows many different groups to claim its values as their own. Indeed, cities throughout the world can be seen pushing sustainability agendas, often heavily marketing their engagement in energy policy, public transportation, natural protection, and other policies that can be tied to the notion of sustainability (e.g. City of Copenhagen, 2012; Singapore Ministry of the Environment, 2012).

Although there is clear incentive for cities to claim sustainability as a policy goal, a curious recent development has been the adoption of sustainable policy goals at the even smaller scale of the neighborhood. Neighborhoods are an essential element of the urban landscape, but the neighborhood scale is undertheorized in critical geography relative to "urban," "global," or even "national" scales. This is perhaps unsurprising given the traditional lack of autonomy attributed to political sub-units below the scale of urban government, but the rise of neighborhood-scale planning and community-oriented decision-making in recent decades necessitates a reconsideration of the neighborhood as a legitimate scale of political action. In the form of "eco-neighborhoods" or "eco-districts," cities and local nonprofit organizations are producing sustainable development strategies tailored to individual neighborhoods. These initiatives have appeared in many different cities throughout the world over the past decade, reflecting their growing appeal as a policy tool (Flurin, 2017). This heterogeneity makes it difficult to draw any definitive conclusions about the general trajectory of urban sustainability, and the ties between different initiatives may be invisible or nonexistent. While endless case studies

could be conducted into the specific strategies employed within neighborhood-scale sustainability initiatives, each initiative operates within a unique political and socio-spatial context. Given that neighborhoods generally do not possess the autonomy or political authority to leverage economic or political capital, this lack of a universal approach to sustainability at the neighborhood scale could limit the diffusion of successful policies between different neighborhoods and to larger scales of government.

In response to this concern, neighborhood-scale sustainability has become formalized in the United States through the creation of certification frameworks that seek to coordinate and standardize neighborhood-scale sustainability. In this paper, I contrast two such frameworks: "Leadership in Energy and Environmental Design for Neighborhood Development" (hereafter referred to as "LEED-ND"), created in 2007 by the United States Green Building Council (USGBC) with support from the Natural Resource Defense Council and the Congress for the New Urbanism; and the "EcoDistricts Protocol," devised by the organization EcoDistricts with support from the City of Portland, Oregon and the Portland Development Commission. Much like the intercity networks described by Barber, these frameworks codify practices and create cross-border networks through which knowledge about policy solutions can spread. Both frameworks are fairly new, which makes it difficult to evaluate their respective successes in advancing sustainable policy goals in specific neighborhoods. However, their approaches to the inherent ambiguity of sustainability could illuminate alternative paths to a durable and equitable form of urban sustainability. The recent creation of these two frameworks offers a singular opportunity to explore the linkages between sustainability,

neighborhood-scale politics, and the role of certification frameworks in facilitating the development and diffusion of policy.

While neighborhood-scale sustainability has been explored in the past through the implementation of the LEED-ND framework, these studies have tended to focus on developer incentives and rating characteristics rather than the underlying causes of the pivot to neighborhood-scale sustainability or the role of certification frameworks in facilitating that shift. In addition, there appears to have been little consideration of how the neighborhood scale affects the implementation and diffusion of sustainable development strategies, particularly given that neighborhoods generally lack the strong governance structure that characterizes other political scales such as cities. This project will thus explore this down-scaling of sustainable development, with the primary goal of determining whether these neighborhood-scale sustainability certification frameworks offer the performative form of sustainability exemplified by the green branding efforts of city governments or a more radical and community-driven alternative. To this end, I will address several questions:

1) *Why has the neighborhood scale become an increasingly popular scale for the implementation of sustainable policy initiatives?*
2) *What are the specific policy advantages of using certification frameworks to pursue sustainability at the neighborhood scale?*
3) *Do each of the frameworks under consideration (LEED-ND and EcoDistricts) primarily serve the economic development goals of global-scale financial capital or the social equity goals of local-scale neighborhood communities?*

Addressing these questions through both qualitative and quantitative analyses, I find that neighborhoods have become key sites through which sustainability is operationalized and developed due to the optimal nature of the neighborhood scale for policy implementation and that certification frameworks play a key role in formalizing and diffusing sustainable policy innovations. I also find that neighborhood-scale sustainability certification frameworks have the *potential* to facilitate the incorporation of social equity goals, and that successful community-oriented certification frameworks subvert dominant practices in contemporary urban governance through the creation of multi-scalar networks that link local practices to global objectives.

The remainder of this exploratory analysis is laid out in six chapters. Chapter 2 introduces the "New Urban Politics of Scale," a theoretical framework for understanding the contemporary relationship between global and local politics and its implications for urban sustainability. In Chapter 3, I offer up neighborhood sustainability certification frameworks as a multi-scalar alternative, determining the advantages of political action at the neighborhood scale and introducing the two certification frameworks addressed in this analysis. This is followed in Chapter 4 with a qualitative analysis of personal interviews that highlights the political, social, and economic advantages associated with using each certification framework. In Chapter 5, I begin to consider the question of social equity through a quantitative geospatial analysis of the demographic and socioeconomic characteristics of neighborhoods within which these sustainability initiatives are enacted. In Chapter 6, I deepen and contextualize these analyses through case studies of three neighborhood sustainability projects in Portland, Oregon. Finally, I conclude in Chapter 7 by summarizing the findings of these three methodological

approaches and drawing conclusions about the broader significance that this study has for future research into neighborhood-scale governance, urban sustainability, and multi-scalar networks of knowledge-sharing.

Chapter 2: Sustainability and the New Urban Politics of Scale

Before turning my attention to neighborhood-scale sustainability certification frameworks, I must first consider the role of political scale in contemporary urban politics and its effects upon urban sustainability and neighborhood planning. This chapter will be divided into three sections. I begin by contextualizing the increasingly local focus of sustainability initiatives through the political framework of the "New Localism," exploring the rationale behind Localist approaches to sustainability and considering mobile policies and intercity networks as mechanisms through which urban actors communicate in order to circumvent their scalar limitations. In the subsequent section, I establish the "New Urban Politics of Scale" as a framework to explore the tensions between the global scale and the local scale that undergird contemporary urban policymaking. Using this framework, I explore the critique that the New Localism actually undermines democratic objectives by delimiting spaces of political action and providing justification for a neoliberal form of economic development. Finally, I examine the negative implications of the New Urban Politics of Scale for neighborhood planning and focus on divergent environmental outcomes resulting from uneven geographies of neighborhood development.

The New Localism and Urban Sustainability

While sustainability was originally framed in the WCED report as a global solution to the global problem of climate change, the concept has increasingly been shaped by an emphasis on the "local" scale of political action. The desire to increase the political power of individual localities is widespread across the political spectrum: in the United Kingdom, for example, policies of "Localism" have been supported by successive

Labour and Conservative governments (Davoudi & Madanipour, 2015). Advocates of localism point to enhanced democratic legitimacy as one of the key advantages of a local approach to politics, as local governments are better able to represent the interests of their respective communities than at larger scales of governance (Clark & Teachout, 2012). A new sort of Localism has come to dominate the rhetoric of environmental policymaking that focuses on developing local solutions to the global problem of climate change. This philosophy underlying this "New Localism" is perhaps best encapsulated by the now-ubiquitous slogan: *"Think Globally, Act Locally."* The New Localism frames local decision-making as a legitimate political force in an era of globalization, treating local government as "pivotal to the representation of people's interests in their locality" (Selman, 1996, p. 4). Ideally, a Localist political orientation could strengthen participative democracy, increase citizen engagement (Fung, Wright, & Abers, 2003), and contribute to the global goal of combatting climate change.

This focus on the local scale in sustainability discourses can be traced back to "Local Agenda 21," the United Nations action plan for sustainable development developed during the United Nations Conference on Environment and Development in 1992. Agenda 21 notes that while cities have a disproportionately large ecological footprint, they are also an ideal location for the implementation of sustainable policy due to the unique position of local authorities:

> "Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. *As the level of governance closest to the people*, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development" (United Nations, 1992, emphasis added).

The idea that local government should take the lead in environmental governance due to its proximity to citizens – a concept that has since been referred to as "subsidiarity" – has gained traction ever since the publication of Agenda 21 (Krueger & Gibbs, 2007). This concept is compelling because it simultaneously appeals to the widespread desire for greater political autonomy and offers an alternative to the indecision and disagreement that frequently paralyze international politics.

This shift to local politics is also rooted in the notion that decentralization and the shift to smaller scales of social organization are essential in avoiding ecological crisis. The idea that "small is beautiful" (Schumacher, 1973) has long shaped radical environmentalism, such that decentralization is considered by some to be an optimal condition of human society (Cowell, 2015). Humans would have a much smaller impact on the environment if they were operating at smaller scales, distinct from the current paradigm of globalization in which an individual's ecological footprint includes the import of consumer goods and the export of environmental degradation (Rees, 1992) The disproportionate ecological footprint of urban areas makes them both a primary source of the global climate crisis and a key to its resolution (Rees & Wackernagel, 1996). Shifting to a local scale of political implementation also has the advantage of incorporating locally contextualized understandings of social-ecological relations that may otherwise be absent (Cowell, 2015). However, the challenge in this approach lies in translating "acting locally" into "thinking globally," given that the locally contextual nature of both social-ecological knowledge and policy solutions can hinder the transmission of policy ideas to other localities.

Policy Mobilities and Multi-Local Networks

One response to the barriers between local action and global thought has been the creation of multi-local networks through which localities can share policy ideas and successes with one another. It has long been theorized that local governments adopt policy ideas from one another, but in the past this process was frequently conceptualized as a mere interjurisdictional "transfer" of policies from one locality to another. More recently, the "policy mobilities" literature proposes that this process entails not only the transfer of policy ideas but also their modification and adaptation to unique policy contexts (Peck & Theodore, 2010). This framework fits comfortably into the New Localist approach to sustainability, by providing each local government with a "menu of policy measures and processes from which local authorities can choose in order to implement their own forms of sustainability development" (Krueger & Gibbs, 2007, p. 3). Localities have the ability to make their own decisions about which policies to implement while also providing them with the opportunity to implement policies that have been successful elsewhere. A successful model developed by one locality can then be spread through policy-sharing networks as a "best practice" from which "lessons can be learned, and applied, within the urban arena or transferred between cities" (Bulkeley & Betsill, 2005). The circulation of these mobile policies between local governments can result in a merging of local policies and global objectives that McCann (2011) characterizes as "local globalness."

While the transmission of mobile policies can take place through both formal and informal channels, best practices in environmental policymaking are increasingly spread through formalized networks of local actors that share similar goals. As Barber (2013)

describes, cities engage in transnational networks that transcend national borders in order to generate innovative and global-scale solutions to climate change. This potential is exemplified by organizations like the International Council for Local Environmental Initiatives (ICLEI), a transnational organization composed of more than 1,500 member cities that spearheads the "Cities for Climate Protection" (CCP) programme. The CCP programme requires participating cities to establish local emissions reduction targets and achieve them through local policy initiatives, giving local governments the opportunity to participate in networks where they can work together in the pursuit of policy (Bulkeley, 2005). Through these networks, cities are able to transcend the local scale of political action and interact with actors at multiple political scales simultaneously (Leitner, Pavlik, & Sheppard, 2002). These networks are sustained by the belief that cities can increase their collective capacity by working together, engaging in knowledge sharing, and developing best practices for climate change mitigation (Bulkeley & Betsill, 2003). In countries such as the United States that have experienced a "vacuum" in environmental policymaking at the scale of national government, these networks can have a significant influence on the direction of local policy (Bulkeley, 2010).

This system of multi-local knowledge-sharing is self-reinforcing in large part because it is mutually beneficial for localities to share best practices with one another. Cities gain political capital by developing successful policy models that others seek to emulate, and other cities adopt those models in an attempt to attain the same level of success. This is particularly notable in the case of sustainability, where cities adopt "best practices" from other locations such as Vancouver and Whistler in British Columbia, which have developed extra-local reputations in policy areas such as development and

sustainability (McCann, 2013; Temenos & McCann, 2012). In this manner, cities act as "entrepreneurs," seeking out new approaches that will allow them to compete effectively in the global economy. While in principle this entrepreneurial approach to governance could take any form, it most often manifests in the perpetual competition between cities to pursue economic development objectives and attract capital operating at a global scale. In this context, Localism becomes "a way of distinguishing localities from one another and responding to extra-local pressures" (Davoudi & Madanipour, 2015, p. 15). This phenomenon, which I characterize as the "New Urban Politics of Scale," constrains the autonomy of local actors and in so doing presents the single greatest impediment to holistic sustainable development.

The New Urban Politics of Scale

The central flaw of the New Localism is that its philosophy is founded upon the faulty premise that there exists a defined "local" scale at which political action should optimally occur. New Localist rhetoric emphasizes the primacy of local action and in so doing cuts off the local scale from other scales of political action. This rhetoric separates local actors and institutions from the complicated multi-scalar networks of causality that determine economic and political activity. In this form of politics,

> "Conceptually the locale is seen as a socio-spatial container in which the sum of institutional, social and physical relations necessary to achieve a more sustainable future can be found. The local becomes a 'black box' disconnected from the global, international and national contexts within which localities are framed. Not surprisingly the local has become 'enshrined' in much of contemporary policy development" (Marvin & Guy, 1997, p. 312)

Separating the "local" from other scales of political action limits the potential for transformative change by introducing a political myopia that makes local actors unable to see beyond their jurisdictional boundaries. Instead of acting locally and thinking globally,

local actors are encouraged to act *and* think at the local scale. This has led to a "local trap" in both theory and practice, where the local scale is upheld as the optimal scale at which to carry out political action and resist neoliberal globalization, to the detriment of other potential scales of political action (Purcell, 2006). This approach is problematic because "local" politics are often conflated with imagined units of "community," which can contribute to the fragmentation of urban spaces (Clarke, 2005; Davoudi & Madanipour, 2015; Rose, 1996). Even more fundamentally, this local trap inhibits the creation of comprehensive policy solutions by introducing scale-defined limits along economic, political, and social dimensions. These scalar limits provide political actors with the opportunity to move both the negative effects of their actions and the responsibility for those actions beyond their borders, thus restricting their incentives to contemplate global-scale action (Ramiller & Schmidt, 2017).

As a way to counter this problematic understanding of the "local" and contextualize the state of environmental policy in contemporary urban governance, I now introduce the "New Urban Politics of Scale." This term is an amalgam of two concepts developed by geographer Kevin R. Cox to describe the restructuring of political scale following the neoliberal reforms of the 1980s and 1990s: the "New Politics of Scale" (Cox, 2002) and the "New Urban Politics" (Cox, 1993). In linking these terms, I aim to demonstrate the implications of neoliberal restructuring for both urban and global governance. I then consider the role of urban sustainability policy within this politics of scale, which Jonas, While, and Gibbs (2011) describe as a "New Environmental Politics of Urban Development."

The New Politics of Scale

Scale provides a framework of spatial organization through which to interpret and analyze political relations, but the common understanding of scales as discrete spatial units no longer serves to describe the current state of political relations. While common scale labels such as "global," "national," and "local" immediately conjure up certain assemblages of political actors and institutions, there is never a clear justification provided for the categorization of scales in this manner. Even in foundational understandings of the politics of scale, those three scales are simply taken for granted as the most "natural" way in which to interpret political relations under capitalism (Smith, 1984; Taylor, 1982). The traditional understanding of scales as nested territorial units has been critiqued in recent years, however, due to the growing complexity of political relations in an era of globalization. Political actors no longer interact solely with others at discrete levels of government, but rather engage in political action at multiple scales simultaneously through assemblages such as the aforementioned multi-local climate networks. This complicates the notion of political scale because it means that "causality can run in all kinds of directions across (and within) scales" (Sheppard & McMaster, 2004, p. 261). In contemporary geographic thought, scale is thus often treated as a "chaotic conception" with no formally agreed-upon definition (Marston, Jones, & Woodward, 2005).

If individual scales are no longer taken for granted as discrete territorial units, it becomes clear that artificially constructed notions such as "local" and "global" are mutually constitutive in the era of neoliberal globalization (Gibson-Graham, 2002). Globalization has brought about a reorganization of scalar politics, decreasing the

importance of the national actors while simultaneously compressing the relationships between local and global actors. Swyngedouw (1992; 1997) refers to this as a process of "glocalization," in which economic globalization and political decentralization operate as related but contradictory movements, with political power simultaneously shifting to the global scale of capital and to the local scale of governance. These parallel shifts entail a "hollowing-out" of the economic and political authority of the nation-state, which has limited the power of actors at the national scale to exercise authority over local scales (Jessop, 1993). As global capital has gained more power, local governments have paradoxically been ascribed with ever greater responsibility as sites of regulation, institutional organization, and political action (Brenner & Theodore, 2002; Swyngedouw, 1989). Peck and Tickell (1994) identify this relationship as a "global-local disorder," arguing that while the interurban competition for mobile capital engenders an illusory sense of local action, local actors are in fact only *reacting* to actions taking place at the global scale. Peck and Tickell proceed: "it is difficult to see how local strategies can, in the long run anyway, do anything other than bend to the will of global competition… it is consequently to misread the situation to infer from an increasing propensity to *act* locally an enhanced capacity to effect *real change* at the local level" (1994, p. 323, emphasis in original). This directly contradicts the logic of the New Localism, rendering local action at best harmless and at worst complicit in processes of neoliberal globalization.

The New Urban Politics

This "New Politics of Scale" has fundamentally altered the paradigm of contemporary urban governance, generating a "New Urban Politics" that reformulates the role and responsibilities of local governments by restructuring local decision-making and

relegating urban policymaking to the accommodation of capital interests. A fundamental feature of the New Urban Politics is the subjugation of the local scale of decision-making to the global scale of capital movement. Cox (1993) notes that the source of this competition lies in the fact that municipal governments are bound to the urban scale while the financial capital upon which they are dependent is free to move elsewhere. This creates an imperative that overrides local political objectives and forces municipal governments to adopt certain neoliberal policies, such that "even the most resolute and avant-garde municipal socialists will find themselves, in the end, playing the capitalist game and performing as agents of discipline for the very processes they are trying to resist" (Harvey, 1989). Regardless of local political context, cities must uniformly adopt the policies favored by capital interests or risk severe economic consequences.

Harvey (1989) argues that this phenomenon constitutes a shift in urban governance from "managerialism" to "entrepreneurialism," in which municipal governments that previously focused on the provision of resources and services must now sell themselves through local economic incentives and place marketing. As the neoliberal reforms of the late 20th century have increased the mobility of capital, immobile cities are forced to compete in order to retain that capital or risk losing economic activity and jobs (Peterson, 1981). Financial capital exerts influence through tools such as municipal bond ratings, punishing governments that fail to adopt neoliberal growth-oriented agendas with downgraded credit ratings (Hackworth, 2007). In an era of scarce financial resources in which lack of access to debt could financially paralyze municipal governments, bond rating agencies serve as a coercive mechanism that keeps the focus on economic development for even the most radical urban regimes. While local actors may possess

some autonomy in *how* they pursue global capital, and are even able to choose to attract certain forms of capital over others (Wilson, 2012), the fundamental priority of contemporary urban governance remains the same.

Marketing has become a particularly crucial aspect of this entrepreneurial governance, as place is increasingly commodified by urban regimes for the purposes of attracting capital. Urban regimes use thematic advertising campaigns that focus not only on their business-friendly atmosphere of their city, but also the quality of life available to residents through environmental and cultural amenities (Short & Kim, 1998). While such advertising is a popular method for entrepreneurial cities to gain an edge in interurban competition, it is frequently "generic and repetitive" (Holcomb, 1994; Quoted in Hall & Hubbard, 1998). This points to an inevitable problem with entrepreneurial governance: every city is selling itself to capital interests simultaneously, and each city has a similar array of economic development tools at their disposal. This has led to what Harvey (1989) identifies as the "serial reproduction of certain patterns of development," in which cities pursue broadly the same approaches to economic development such as waterfront redevelopments, cultural centers, and other "mega-projects" (e.g. Fainstein, 2008; Hackworth, 2007; Lehrer, 2008). This contributes to a dynamic of inter-urban competition in which every city is competing for the same finite reserve of highly mobile financial and human capital (Harvey, 1989; Jonas & Wilson, 1999; Peck, 2010). This zero-sum form of competition leaves municipal governments seeking out any marginal advantages that may make them more appealing to global capital than their competitors.

The New Environmental Politics of Urban Development

Sustainability offers the latest such marginal advantage, supplying "green" policies as a new method for cities to set themselves apart in the interurban competition for capital. This has resulted in a "New Environmental Politics of Urban Development," which links Localist discourses of environmental policy with the economic development imperatives of the New Urban Politics. This new form of the New Urban Politics is premised upon the perceived value attached to participating in sustainability initiatives. This can come in the form of increased political capital if a city is seen as a national or global leader in environmental governance, which can in turn boost that city's global brand and attract new sources of financial capital. As Jonas et al. (2011) describe, "the use of quantitative estimates of carbon emissions reduction to measure urban economic performance or the ranking of cities on the basis of carbon emissions both sit quite comfortable with aspects of urban competition as *the* dominant mode of political calculation in urban governance" (p. 2539, emphasis in original). Environmental policies thus feed into the logic of the New Urban Politics by providing cities with a tool to participate in inter-urban competition while simultaneously enacting policies with positive social and environmental outcomes. In effect, sustainability offers a "spatio-institutional fix to safeguard growth trajectories in the wake of industrial capitalism's long downturn, the global 'ecological crisis' and the rise of popular environmentalism" (While, Jonas, & Gibbs, 2004). This "urban sustainability fix" modifies Harvey's (1982) notion of a "spatial fix" – the idea that spatial reorganization could temporarily resolve the tensions between capital and labour – to also resolve tensions between economic development and environmental protection.

Although the prioritization of economic growth and the decreased regulation featured prominently in the New Urban Politics would seem antithetical to the objectives of sustainability, its value as a branding tool makes it compatible with neoliberal objectives. Acuto (2012) argues, for example, that the City of Sydney's focus on environmental sustainability is driven largely by the global value of "environmental imagineering." Aggarwal (2013) notes that this phenomenon also exists in developing country cities such as Delhi, which was the first city in India to adopt a climate action plan. While Delhi's climate action plan appears largely symbolic, it plays a vital role in casting the city as an important global player. Each of these cases reflects the power of entrepreneurial governance in shaping the development of sustainability; Holt (2014) notes that in the cases of both Sydney and Delhi, the evolution of sustainable policy does not appear to have originated from local actors:

> "Both cities wanted to lay claims to the sustainable city status. What seems particularly interesting is the lack of agency in both accounts. It appears that the process of imagineering in both cities was neither actively pushed ahead by a group of local elites, nor pushed back by a counterforce. It seems to have simply run its course" (Holt, 2014, p. 12)

Holt's observation points to the fact that urban sustainability does not originate primarily from local actors seeking to contribute to global climate change efforts, but rather from entrepreneurial regimes that have been subjugated to the interests of global-scale capital.

While cooperation may appear antithetical to this interurban competition, multi-local climate networks actually *support* the New Environmental Politics of Urban Development by acting as a powerful form of signaling. Local governments see inherent value in participating in frameworks such as the "Chicago Climate Exchange" because doing so can "deliver economic opportunities for member-cities" (Holt, 2014, p. 12). By

engaging in those networks, urban governments convey a clear commitment to environmental goals, which sends a signal to potential firms, investors, and workers engaged in environmental work. Local government also see value in sharing their accomplishments with other cities, because doing so can increase a locality's reputation as a leader in policy innovation and transform their policy into a "best practice" (Temenos & McCann, 2012). If a city becomes known for being the site of significant policy innovation, it could also attract new investment and spur economic development. There is significant political and economic capital to be gained from being declared the "greenest city in the world," and many cities such as Vancouver, British Columbia, are currently vying for that title (City of Vancouver, 2016). This development-oriented approach makes a holistic equity-oriented approach to sustainability significantly less likely due to the primacy of economic development in the New Urban Politics.

Neighborhood Political Ecology

While the political and environmental implications of the New Urban Politics have been explored at the urban scale, its consequences for sustainability and social equity manifest most obviously at the scale of individual neighborhoods. As with the "local" scale, the concept of the "neighborhood" entails a great deal of ambiguity, functioning as a powerful social imaginary that shapes perceptions of space and consequently influences social actions. Neighborhoods are considered to be the "smallest unit of urban social territory and political organization," serving as complex sites of housing sub-markets, consumption, civic engagement, socialization, and a psychosocial sense of belonging for individuals and families (Flint, 2009). At scales such as the "neighborhood," boundaries are frequently ambiguous and based more on social

imaginaries than on political realities (Campbell, Henly, Elliott, & Irwin, 2009; Chaskin, 1997). However, neighborhoods can also lead to greater civic engagement by creating "identifiable areas that encourage citizens to take responsibility for their maintenance and evolution" (Katz, 1994). A strong sense of neighborhood identity can induce residents to invest in neighborhood spaces through participation in neighborhood meetings or advocacy for local causes. Though communities are not necessarily coterminous with neighborhoods, the organization of neighborhoods as discrete political units can strengthen existing spatially-bounded communities or create entirely new communities. While strengthening social ties in this manner is undoubtedly beneficial for members of the given neighborhood, however, doing so may have detrimental external consequences.

Uneven Geographies of Neighborhood Development

The partitioning of space into neighborhood units can lead to socioeconomic segregation and contribute to an uneven landscape within which the social and physical qualities of the urban environment are enhanced in certain areas and left to deteriorate in others. When neighborhoods are clearly defined and codified, they become "units" with distinct boundaries and edges that can inhibit spatial interaction and enhance social difference between urban spaces (Murrain, 2012). In its extreme form, this can result in the highly segregated landscapes endemic to many American cities. Due to historical patterns of investment and disinvestment, these cities are a socioeconomic and environmental patchwork in which wealthier communities tend to have greater access to environmental amenities while poorer communities face a "deterioration of social and physical conditions and qualities" and are more likely to be within the vicinity of environmental hazards (Swyngedouw & Heynen, 2003, p. 909). These spatial patterns are

the product of historical processes such as redlining and urban renewal, which city governments used directly and indirectly to determine the fate of neighborhoods and the populations within them. By designating certain areas as worthy of investment or disinvestment, local governments and private interests are able to strategically redevelop urban landscapes with shopping malls, office buildings, and other large development projects (Squires, 1994).

A decisive factor in these uneven patterns of investment at the neighborhood scale is the fact that neighborhoods lack political autonomy and frequently cede decision-making power to actors operating at larger spatial scales. This is particularly true within the context of the New Urban Politics, in which neighborhood developments are driven by local governments, which are in turn driven by the economic growth imperative originating from the global scale (Ward, 2003). McCann (2003) illustrates this phenomenon with a neighborhood planning initiative developed by the City of Austin in the late 1990s, which moved planning to the neighborhood scale but preserved the political authority of the city government. In the East César Chávez Neighborhood, which was one of the first neighborhoods to join to the neighborhood planning program, some community members saw it as a facilitator of gentrification given the neighborhood's proximity to the downtown and the myopic focus of neighborhood plans upon technical characteristics such as zoning and design. This suggests that Austin's use of the neighborhood scale for planning initiatives was simply a "scalar fix" that would use spatial divisions to facilitate capital investment. By constructing a tangible political framework at the scale of the neighborhood, the City of Austin was able to shape how and where development would take place, with a particular focus on attracting investment

into the downtown core and surrounding neighborhoods. Therefore, while the neighborhood scale does offer the potential of greater community input, it also can be used as a tool to further exacerbate uneven geographical development in cities. This same approach appears in Boston, where the city government has faced significant criticism from individual communities for a lack of attention to affordable housing in its neighborhood-scale planning. When the city proposes a percentage of affordable housing that it wants to put in a particular neighborhood, the community protests and asks for it to be much higher. While the city sometimes capitulates, it then "tends to go to the next neighborhood and act like nothing happened in the last one and tries to do what it wants to do again" (D. Queeley, personal communication, November 25, 2017). This presents on ongoing obstacle for neighborhood-scale planning, as the specific needs of individual communities may be undermined by the economic development objectives of city governments.

Eco-Gentrification

This phenomenon is also apparent in the context of sustainable development, where the New Environmental Politics for Urban Development shapes patterns of *environmental* investment and disinvestment. As the concept of sustainability has increasingly permeated urban policy, the targeted application of "green" improvements has negatively affected lower-income urban residents by increasing amenity value and catalyzing displacement. While gentrification is a well-established phenomenon, recent political ecology research has demonstrated the existence of a novel variety known as "green gentrification" or "eco-gentrification," which refers to "the displacement of vulnerable human inhabitants resulting from the implementation of an environmental

agenda driven by an environmental ethic" (Dooling, 2009, p. 41). Eco-gentrification occurs when an environmental site that had formerly been assigned a low value is remediated through public or private capital, which transforms its "environmental bad" or "environmental neutral" into an "environmental good." When this occurs, the poor and non-white residents that were formerly able to live near the site due to its negative or neutral effect on land values are displaced as site gains value and draws in wealthier and whiter residents (Gould & Lewis, 2017, p. 29). This phenomenon has appeared in many cities, often originating from private developers. Quastel (2009) illustrates this phenomenon through the case of a developer in Vancouver, BC that created a "community garden" to simultaneously emphasize its commitment to sustainability and draw attention away from its contribution to gentrification in vulnerable neighborhoods (p. 694).

Reflecting the logic of the New Urban Politics, city governments seeking sustainable development also use sustainability as a tool to distract from the negative social impacts of their economic development goals. In the case of a publicly funded waterfront redevelopment project in Toronto, the city adopted a "three-pillar" framework for sustainability and required all of the newly constructed buildings to be certified LEED Gold. However, the City also contributed to the gentrification of the surrounding neighborhood by selling public land and providing financial incentives to private developers (Bunce, 2009). The brand value of sustainability provides an effective distraction from potential for gentrification, by using environmental bona fides such as LEED certification to conceal social failures. Dale and Newman (2009) note the same phenomenon in brownfield development projects, where city-led projects use imagery of

environmentalism and sustainability to conceal the potential for negative impacts such as gentrification. The Dockside Green project in Victoria, BC, for example, was intentionally designed with sustainability in mind and the City of Victoria had the goal for much of the project to meet LEED Platinum standards. However, the project did not ultimately include significant provisions for social housing, raising questions about whether the City's understanding of sustainability included social equity. This omission of social considerations from sustainability policy reflects, once again, the power of the New Urban Politics to shape urban political conditions. Social sustainability is in the interest of local community actors but is not the priority of cities seeking greater access to capital, and the conceptual ambiguity of the social dimension of sustainability makes it an easy target for exclusion. Therefore, in this paper I will define a socially equitable outcome in the context of sustainability as one in which people of any demographic or socioeconomic status are able to live in areas that are free from "environmental bads" and that include adequate "environmental goods" without fear of displacement.

Conclusion

This review of existing literature has intentionally painted a rather bleak picture of urban sustainability, reflecting on the many barriers to an equity-oriented form of sustainability. The New Environmental Politics of Urban Development undermines the Localist approach to sustainability by coopting sustainability goals for economic development purposes. This has especially dire consequences at the neighborhood scale, which simultaneously serves as the scale of economic development projects and the scale of self-defined urban communities. An equity-oriented interpretation of sustainability must address the inherently uneven geographies of neighborhood development, while

simultaneously avoiding the political myopia of the "local trap." In addition, it must find a way to circumvent the New Urban Politics of Scale, which renders local actors including urban governments and nonprofits susceptible to cooptation by globally-imposed economic development imperatives. In the following chapter, I focus explicitly on the neighborhood scale of politics and propose the consideration of a strategy that links neighborhood-scale actors with extra-governmental frameworks operating at national and global scales.

Chapter 3: Introducing Neighborhood Certification Frameworks

In this paper, I argue for the incorporation of the neighborhood scale into contemporary understandings of "local" or "urban" sustainability policy, emphasizing the potential of multi-scalar certification frameworks that operate simultaneously at the neighborhood and global scales to subvert the dominant global-local relationship inherent to the New Urban Politics. While multi-scalar frameworks already exist in the form of the multi-local climate networks such as the Cities for Climate Protection programme, these frameworks have been largely co-opted by the focus of local governments on economic development objectives. Following the logic of subsidiarity, neighborhoods present a level of governance even "closer to the people" that could allow for more democratic and responsive governance. However, given the lack of political autonomy granted to neighborhoods within the paradigmatic political framework of federal, state, county, and city governments, neighborhood-scale planning must either take place at a larger scale of implementation or must take place outside of traditional governance structures. The former approach places neighborhood-scale planning in the jurisdiction of urban government, which has contributed to the geographies of uneven development ingrained in the contemporary urban landscape. Placing decision-making outside of traditional governance structures holds promise, but has traditionally been hindered by a lack of capacity among community organizations and non-profits to affect lasting change. Indeed, even individual non-profit organizations can be subject to the same neoliberal pressures as city governments, as their competition to satisfy external funders feeds into a "non-profit industrial complex" that inhibits transformative change (Pérez, 2007). Even with these limitations, however, there are multiple advantages to neighborhood-scale

political action that have motivated significant growth in neighborhood-scale sustainability initiatives particularly over the last decade.

The Neighborhood Scale

Multiple practitioners of neighborhood-scale sustainability initiatives that I spoke with over the course of this project offered their perspectives on the advantages of operating at the neighborhood scale, and they all arrived at similar conclusions. Unlike individual buildings, the neighborhood scale is large enough to make a substantial impact on policy (D. Snyder, personal communication, September 28, 2017; R. Walsh, personal communication, November 27, 2017; E. Hughes, personal communication, March 9, 2018). In addition, the neighborhood scale provides the potential to look at larger infrastructure projects such as district heating, district water, and community solar that could not occur at the scale of a single building (M.L. Vidas, personal communication, January 19, 2018). At the same time, the small size of the neighborhood scale makes it much easier to communicate with potential stakeholders, arrange meetings, and gain support than at the scale of an entire city. Political action can also take place much more quickly at the neighborhood scale than at the urban scale due to the smaller number of actors involved (D. Snyder, personal communication, September 28, 2017; R. Walsh, personal communication, November 27, 2017; E. Hamant, personal communication, November 28, 2017), and the neighborhood scale provides a forum for policy experimentation that would not be possible at the scale of an entire city (B. Wolovich, personal communication, November 27, 2017). The neighborhood scale thus fits into an optimal middle ground at which communities can make a tangible contribution to sustainability policy. In addition, neighborhoods are not necessarily subject to the same

pressures as city governments and could make decisions that are focused more on social equity than economic development.

However, a central challenge for neighborhood-scale policy implementation is the fragmented nature of neighborhood politics. While neighborhoods in some cities can possess a certain level of planning authority, they are rarely endowed with the autonomy to circumvent citywide objectives. This limited autonomy and the fragmented nature of neighborhood politics introduce a significant impediment to meaningful neighborhood-scale action. As Harvey (1996) notes in a critique of poststructuralist literature,

> "The politics of resistance… are typically attached to small-scale communities of resistance, marginalized groups, abnormal discourses… The objective of reform or revolutionary transformation of contemporary capitalism as a whole has been given up on, even as a topic for discussion, let alone as a focus for political organization… The best that can be hoped for… is that innumerable localized struggles might have some sort of collective effect on how capitalism works in general" (p. 347-8).

Harvey contends that poststructuralists frequently glorify localized and marginalized communities without acknowledging the necessity for broader social movements. Poststructuralism thus falls into the Localist trap of isolating the local scale from broader scales of political action and limiting the scope of transformative social change. Until recently, however, this philosophy of political action dominated organizing and planning at the neighborhood scale and circumscribed resistance to broader economic processes. The introduction of certification frameworks offers a way to circumvent the limitations of the neighborhood scale while retaining a focus on community action.

Certification Frameworks

Certification frameworks combine proximity to individual communities with a greater capacity associated with larger scales of governance, reflecting what Smith (1992)

terms “scale jumping.” Scale jumping allows local movements to escape “the traps of localism, parochialism, and particularism through an expansion of geographic and political reach,” and entails strategies that cross scalar boundaries and operate at multiple scales simultaneously (Jones, Leitner, Marston, & Sheppard, 2016). Certification provides a sense – real or imagined – of institutional legitimacy, which allows individual neighborhood-scale organizations to leverage a greater array of resources. These neighborhood-scale frameworks also have an advantage when compared with similar multi-scalar projects initiated by cities, which are potentially limited by the paradigm of the New Urban Politics. As Jonas et al. (2011) note, intercity climate frameworks are driven in part by the New Environmental Politics of Urban Development, as cities associate them with economic development opportunities. This economic development orientation makes it less likely that such programs will focus on issues related to social sustainability, whereas neighborhood-level decision-making likely would not be driven by the same political constraints.

At the neighborhood scale, a number of certification frameworks have been created in order to formalize the neighborhood-level approach to sustainability. Prior to the creation of discrete frameworks for development, attempting to analyze the sustainability of neighborhoods or communities consisted of inventing theoretical frameworks (e.g. Kim, 2005) or relying on self-reporting from project developers themselves (e.g. Mapes & Wolch, 2011). Without clear guidelines, the concept of neighborhood sustainability could be defined according to convenience rather than a rigorous standard. Some successful neighborhood-scale projects were produced during this period, including most notably several sites in Northern European countries such as

Sweden and Germany (Iverot & Brandt, 2011; Medved, 2017). These isolated successes were difficult to replicate, however, particularly outside of the European countries where such sustainability projects are more politically feasible than in the United States. Since around 2008, however, this dynamic has shifted, and there are now a vast array of measurements and indicators for neighborhood sustainability including "BREEAM Communities" in the UK and "CASBEE-UD" in Japan (Sharifi & Murayama, 2013; Wangel, Wallhagen, Malmqvist, & Finnveden, 2016). There are also a number of other frameworks specific to the United States, focusing on various aspects of sustainable development ranging from "Envision," a framework created by the American Public Works Association that specifically focuses on infrastructure, to "Star Communities," which places emphasis on the social dimension of sustainability (Garde, 2009).

While the diversity of frameworks now available would seem to be a boon for communities seeking guidance in becoming more sustainable, the entire process has also become complex, competitive and commodified in what could be termed an "indicator industry" (King et al., 2000, cited in Holman, 2009, p. 365). Within this vast array of frameworks, there is a lack of consensus surrounding the definition and measurement of sustainable practices (Tanguay, Rajaonson, Lefebvre, & Lanoie, 2010). Other limitations of these frameworks include a relative lack of indicators measuring tangible outcomes, an inability to take a systems approach that analyzes the "upstream" and "downstream" impacts of a neighborhood development, and a complexity that renders many certification frameworks unable to adequately judge the sustainability of a project with respect to economic, environmental, and social dimensions (Wangel et al., 2016). While many frameworks are good at assessing the more easily measurable environmental elements of

a neighborhood, they tend to do a particularly poor job of measuring social and economic successes. In addition, many of these sustainability frameworks do not possess mechanisms that encourage local participation or adapt to local contexts, which disconnects them from democratic and community-oriented decision-making processes.

In spite of these limitations, certification frameworks have benefits that extend beyond the way in which they explicitly define sustainability. Holman (2009) argues that certification frameworks have inherent value beyond their basic definitional indicators, and criticizes previous analyses that emphasize either the "hard" measurable indicators or "soft" intangible elements of existing frameworks. Rather, the frameworks have inherent value in themselves can contribute positively to governance, by creating "portals of communication" that catalyze discussions about sustainability across local networks (Holman, 2009, p. 373). Once sustainability indicators and certification frameworks can be evaluated as governance tools, it becomes clear that they exist within a context of multilevel and multi-scalar governance. These frameworks provide a way for sustainability policies to both create and cross boundaries, as they "construct a web of commonly shared norms, conventions, and rules across different policy arenas" (Bauler, 2012, 43; in Holden 2013, 95). Certification frameworks and sustainability indicators become tools for dialogue, information sharing, and consensus building, providing a structure for the implementation of sustainability policy without formal government authority (Holden, 2013). In order to arrive at this ideal, however, frameworks must strike a balance between finding a standard and commonly understood definition of sustainability and allowing for flexible interpretations that take into account local context. To that effect, Weaver and Jordan (2008) advocate for "a cyclical, participatory process

of scoping, envisioning, experimenting, and learning through which a shared interpretation of sustainability for a specific context is developed and applied in an integrated manner" (p. 24). This type of approach is not evident in many of the more popular frameworks, but that may be changing as community engagement becomes an increasingly important part of urban sustainability governance.

Background for Comparative Analysis

In order to further explore the implications of neighborhood-scale sustainability frameworks for multi-scalar environmental governance, the remainder of this research is based on direct comparison of two such frameworks: "LEED-ND" and "EcoDistricts." LEED-ND can be used to represent indicator-based frameworks writ large, due to the fact that it is the largest and most established neighborhood-scale framework in the US (and possibly in the world). Even new frameworks that explicitly focus on different dimensions than LEED-ND, including the equity-focused "STAR Communities," are presented as direct competitors to the LEED-ND model (e.g. Flurin, 2017). EcoDistricts, on the other hand, is a framework based on direct community involvement that does not rely on indicators and gives individual neighborhood projects the flexibility to interpret its guidelines according to their specific circumstances. As we shall see, LEED-ND and EcoDistricts do not fulfill the same roles and therefore do not necessarily compete. Due to the ambiguity of the neighborhood scale, projects within each framework represent an array of different neighborhood types and spatial extents. Given the bulk of research that has already been conducted on indicator-based frameworks such as LEED-ND, this paper focuses primarily on the novel approach of the EcoDistricts model and assesses its attributes *relative* to traditional indicator-based frameworks such as LEED-ND.

Therefore, while the remainder of this paper is framed as a comparative analysis, the primary object of study is the EcoDistricts framework.

LEED for Neighborhood Development

LEED-ND is a popular certification used by the United States Green Building Council (USGBC) in order to operationalize sustainability goals at the scale of entire development projects. The USGBC was created in 1993 to promote the pursuit of sustainability specifically in the fields of architecture and construction, and the first LEED certification framework was launched in 2000 as a way to codify characteristics and practices that could be considered sustainable (U.S. Green Building Council, 2018c). The USGBC now provides a variety of certifications, including "LEED for Building Design and Construction" (BD+C) for buildings that are either newly constructed or undergoing extensive renovations, "LEED for Interior Design and Construction" (ID+C) for projects focused on building interiors, "LEED for Building Operations and Management" (O+M) for buildings pursuing sustainable operations without extensive construction or renovation. LEED for Neighborhood Development (ND) is distinct from these other frameworks in that it does not apply to a single building but rather to development projects encompassing multiple buildings. The pilot version of the framework was developed in 2007 by the Congress for the New Urbanism (CNU), the National Resources Defense Council (NRDC), and the U.S. Green Building Council (USGBC) – the managing organization for the LEED building certification (Garde, 2009). Since that time, the framework has exited the pilot stage and undergone a surge in popularity – there are now 519 projects classified as LEED-ND in the USGBC database. 182 of these projects have achieved sufficient progress to gain official certification

through Green Business Certification Inc., which costs a minimum of around $30,000 with additional costs larger projects and expedited reviews (Green Business Certification Inc., 2018; U.S. Green Building Council, 2018a). The popularity of the framework extends internationally: while the United States comprises approximately 80% of the total projects, there are a number of LEED-ND projects spread throughout the world from close neighbors such as Canada and Mexico to more distant locales including Turkey, Lebanon, Malaysia, South Korea, and China (see Figure 3.1 and Table 3.1). Just as LEED has become a universally accepted standard for green buildings, LEED-ND is poised to become the standard for sustainable neighborhoods.

The LEED-ND framework carries the logic of LEED to a larger scale, by providing a standard framework with quantifiable and easily assessed characteristics through which sustainability can be achieved at a neighborhood scale. The LEED-ND framework takes advantage of the ambiguity of the neighborhood scale, and has been implemented for projects as small as 5 acres and as large as 1000 acres (Garde, 2009). LEED-ND can be applied to many different types of areas, whether they are residential or non-residential and whether they are new land developments or redevelopment projects (E. Hughes, personal communication, March 9, 2018). It awards "points" to a project based on its success according three major categories: "smart location and linkage," "neighborhood pattern and design," and "green infrastructure and buildings" (Szibbo, 2016). The green infrastructure category extends the logic of the LEED certification directly to neighborhoods, requiring green buildings as well as sustainable infrastructure such as stormwater management and on-site renewable energy. The other two categories focus on the layout of the neighborhood and its position relative to its surroundings, with

points awarded for characteristics such as reduced automobile dependence, proximity to housing and jobs, walkable streets, and mixed uses. Certain characteristics are *required* for certification, including walkable streets and the presence of certified green buildings. Beyond that, however, projects can earn up to 110 points, with 40 required for basic certification and 80 required for the highest "platinum" status. The framework prioritizes certain characteristics of neighborhood development over others, rewarding up to 12 points for walkable streets, for example, but only 1 point each for features such as transit facilities, public space access, and reduced parking footprint. The framework has been criticized in particular for its lack of attention to the social dimension of sustainability. While it makes allowances for the inclusion of social sustainability in its "neighborhood pattern and design category," including 7 points for "mixed-income diverse communities" and another 2 points for "community outreach and involvement," those 9 points constitute the entirety of social considerations in the LEED-ND framework and neither is required for certification. This means that while attention to social equity is encouraged, developers could theoretically achieve even the highest level of LEED-ND certification without incurring the additional expense of providing affordable housing (Szibbo, 2016).

EcoDistricts

Variations of the term "EcoDistrict," including "eco-district" and "eco-neighborhood," have existed for a number of years, broadly referring to a delineated area at a sub-urban scale focusing explicitly on enhancing its sustainability (Citron, 2014). In the United States, this approach has been spearheaded by a nonprofit organization called "EcoDistricts." The EcoDistricts framework was created in 2010 by a coalition of public

and nonprofit actors in the city of Portland, Oregon, and was originally intended as a city-specific tool for sustainable redevelopment. With oversight from the Portland Mayor's office, the Bureau of Planning and Sustainability and the city-affiliated Portland Development Commission (PDC) contracted the newly formed Portland Sustainability Institute (PoSI) to lead the initiative. Five pilot projects were selected in parts of the city designated as "Urban Renewal Areas" (URAs), which were chosen because they already received funding through the PDC and possessed both access to tax increment financing and a degree of political autonomy (EcoDistricts, 2015, p. 7). Although PoSI provided leadership and support for these programs in the initial planning stages, each neighborhood pilot was essentially an autonomous project managed by a neighborhood-level organization. The pilot program was a mixed success. Although each neighborhood initiative received support between 2010 and 2012, a report published by the EcoDistricts organization in 2015 found that only three of the five initiatives had survived (EcoDistricts, 2015). In reality, the outcome was far less successful than the report described: by 2017, two of those three were officially active but had been inoperative for some time. Only one of the five pilot projects – the Lloyd EcoDistrict – remains in operation.

In spite of the pilot program's mixed results, PoSI expanded its efforts and transformed itself into "EcoDistricts," a nonprofit organization promoting a neighborhood-scale sustainability model in cities throughout the United States and the world. To date, EcoDistricts has initiated pilot projects in dozens of cities ranging from the United States and Canada to New Zealand and South Africa (EcoDistricts, 2018a) (see Figure 3.2 and Table 3.2). The original EcoDistricts "performance areas," which

included equitable development, health, community identity, access, energy, water, habitat, and materials management, have been translated into a multi-dimensional implementation framework first published in 2015 as the "EcoDistricts Protocol." The Protocol sketches out a three-tiered framework composed of three "imperatives" (equity, resilience, and community protection), six "priorities" (place, prosperity, health and wellbeing, connectivity, living infrastructure, and resource regeneration), and three "implementation phases" (formation, roadmap, and performance) (EcoDistricts, 2016). Much like LEED-ND, the Protocol provides a standardized model for neighborhood projects to follow, as well as a $9,500 "certification" to recognize successful adherents (EcoDistricts, 2018b). While it has not yet certified any neighborhood initiatives, there are 13 projects that have paid $900 to register with the EcoDistricts Protocol as of March, 2018. In a comparison of six different neighborhood-scale sustainability models conducted by the Millvale EcoDistrict in Pittsburgh, Pennsylvania, the EcoDistricts Protocol stands out in the competitive marketplace for neighborhood-scale sustainability indicators due to its focus on continuous governance (evolveEA, 2016). In addition, while the LEED-ND framework was built upon the LEED building certification, EcoDistricts was developed as a fundamentally neighborhood-scale approach (M.L. Vidas, personal communication, January 19, 2018).

Chapter 4: Advantages of Certification Frameworks

These frameworks each provide distinct advantages to neighborhood actors pursuing sustainability. In the following analysis, I analyze qualitative data gathered through interviews with practitioners of LEED-ND and EcoDistricts to determine what specific advantages originate from certification frameworks at the neighborhood scale, focusing primarily on the EcoDistricts framework, both because it is less explored than LEED-ND in the literature and because EcoDistricts practitioners are more readily accessible due to the continuous nature of the EcoDistricts framework. As a more established framework, LEED-ND thus serves as a baseline that can be compared with the EcoDistricts framework. Through this analysis, I ascertain several distinct criteria to comparatively assess the LEED-ND and EcoDistricts frameworks, and I find that the two certification frameworks contribute to neighborhood-scale sustainability in different ways. While the LEED-ND framework provides more structured guidance and projects legitimacy through its brand identity, the EcoDistricts model encourages a more stable form of local governance and encourages knowledge-sharing between neighborhood actors.

Methodology

For this analysis, I use thematic coding, an analytical technique in qualitative research that illuminates patterns in the subject matter addressed by subjects across multiple interviews. Thematic coding involves three distinct stages which establish those patterns and provide an interpretation in the context of the specific research question. It begins with a "descriptive coding stage," in which important passages of an interview transcript are highlighted and "descriptive codes" are assigned to passages based on their

subject matter. These descriptive codes are then grouped together into "interpretive codes" which find patterns in the descriptive data that relate to the initial research question. Finally, these interpretive codes are groups into "overarching themes" that can be used to summarize the main findings produced by the data (King & Horrocks, 2010). The source for this analysis consists of ten interviews conducted between October 2017 and March 2018 with neighborhood practitioners and other sources knowledgeable about either of the two frameworks (see Table 4.1 for a complete list of interviews conducted for this project). Seven interviews were conducted with staff members of current or former EcoDistricts projects, while the LEED-ND framework is represented through interviews with a staff member at the USGBC, a developer involved in a LEED-ND certified project in Portland, Oregon, and a City of Portland staff member familiar with the history of that project. Each interview was transcribed and thematic codes were added to relevant passages of interview transcripts. Through this thematic analysis, I establish four primary advantages associated with neighborhood-scale sustainability certification: the presence of a guiding framework, the growth of legitimacy and recognition through brand identity, the creation of collaborative governance strategies, and the use of knowledge-sharing networks. Using these four themes, I establish both the similarities and differences between the two frameworks, and consider their respective uses of those four characteristics in providing a solid base for the implementation of sustainability.

Guiding Framework

One of the key features of both LEED-ND and EcoDistricts is the presence of a guiding framework that informs the development of participating local projects and provides them with best practices for implementation. The LEED-ND framework has laid

out very clear requirements for participating projects from the beginning, functioning as a "pre-set checklist" with criteria largely focusing on buildings and infrastructure (D. Snyder, personal communication, September 28, 2017). In this way, the LEED-ND model reflects its origin as an extension of the LEED building certification, as LEED Project Manager Emma Hughes describes:

> "The mission of the United States Green Building Council is to affect sustainable market transformation of the built environment. Obviously, it started small with buildings, but continuously looking at ways to affect greater market transformation, so it was sort of a natural progression that we would look at a larger scale than just buildings and try to identify the strategies and best practices for developing at the neighborhood and community level" (E. Hughes, personal communication, March 9, 2018)

This same logic also makes the LEED-ND framework appealing for neighborhood actors such as the Talbot-Norfolk Triangle Eco-Innovation District (TNT), which reasons that "we're doing all these individual green buildings. If we're going to do a lot of them in a neighborhood, shouldn't we be thinking about things on the neighborhood scale?" (D. Queeley, personal communication, November 25, 2017). TNT also views LEED-ND as potentially complementary standard that could be used as an "organizing principle" to address environmental and sustainability concerns.

The slightly less definitive nature of the EcoDistricts framework, on the other hand, led to initial implementation problems for some of the participating projects. One solution for individual projects was simply to move ahead without the guidance of the framework, and hope that the EcoDistricts organization would eventually catch up and provide guidelines that could be adapted to already existing projects. This sentiment was expressed by the Director of Eco-Innovation at TNT, who stated "we've kind of been ahead of where they are, and they have a whole methodology for doing things, and some

of that methodology has been useful for us, but we've continued to have to just roll along as we do" (D. Queeley, personal communication, November 25, 2017). While some projects were able to move forward without the benefit of a guiding framework, however, other projects had much more difficulty bringing together stakeholders and leveraging their existing resources. The High Falls EcoDistrict in Rochester, New York, for example, worked to follow the established EcoDistricts methodology, but found it difficult to maintain interest from potential stakeholders without a clear structure for implementation already in place. At the time, the lack of a framework contributed to the heterogeneity of EcoDistricts projects, making it difficult for High Falls to draw out any stories that could be applied to their specific context, which limited stakeholder engagement in the project (R. Walsh, personal communication, November 27, 2017). The lack of specific guidelines and the limited number of similar projects left the High Falls EcoDistrict without a clear path forward and without concrete answers to many of the questions posed to the EcoDistricts organization and peer projects.

The ambiguity and uncertainty that plagued the early days of the EcoDistricts framework was a disadvantage in many ways, but it also served as an advantage for participating organizations in that they could help shape the way in which it evolved. Unlike LEED-ND, which was a new framework but based on an older and more established model, there were no established practices for EcoDistricts projects. This was true not only for conceptual elements such as guidelines for certification, but also for the basic ways in which the EcoDistricts organization would operate. The director of the High Falls EcoDistrict recounts that this was even true when the EcoDistricts organization sent them a legal agreement: "We actually had the opportunity to give

feedback on it. So we gave it to our lawyers and we said 'you know, there's a couple of things in here we're uncomfortable with' and then the agreement got amended and sent back again" (R. Walsh, personal communication, November 27, 2017). Whereas more established frameworks such as LEED-ND would already have had fixed rules in place for such procedures, individual organizations were able to have a tangible effect on the evolution of the framework. This same process defined the creation of the EcoDistricts Protocol, which was jointly authored by many different practitioners and included several of the initial EcoDistricts projects. As Brian Wolovich, current director of the Triboro EcoDistrict in Pittsburgh describes, "it was a lot of people playing in petri dishes like ours across the world who were sharing what they learned and giving back to strengthen and figure out this Protocol" (B. Wolovich, personal communication, November 27, 2017). Through this collaborative and dialectical process, the EcoDistricts organization was able to work with various pilot projects and prospective participants in order to arrive at a comprehensive framework that could be broadly accepted.

The publication of the EcoDistricts Protocol in 2015 has largely brought the EcoDistricts framework up to speed with LEED-ND in terms of providing a foundation for policy implementation. In the High Falls EcoDistrict, the existence of the Protocol required "a level of engagement and a level of specificity" in community outreach that strengthened outreach to stakeholders and contributed to the institutional legitimacy of the project. Due to the importance of the Protocol to their outreach, the High Falls project also adjusted its roadmap as necessary to reflect elements of the Protocol that had not previously been discussed. The ultimate product was a framework that was "tailored, but less ambiguous" than the previously vague EcoDistricts guidelines (R. Walsh, personal

communication, November 27, 2017). This sentiment was articulated by other respondents as well, who perceived the EcoDistricts Protocol as a sort of hybrid between the ambiguity that had come before and the rigidity of other frameworks such as LEED-ND: "it's not really changing the work that we do – we've already done this work – but it's getting a checklist of goals and criteria and saying that we're going to meet them, and we're going to be held to a little bit more of a strict schedule because the certification process is happening" (D. Snyder, personal communication, September 28, 2017). Thus, the EcoDistricts Protocol fulfills one of the central promises of a neighborhood-scale sustainability framework by providing clear guidance that governs implementation. The organization, for its part, contends that the Protocol is an essential tool to encourage the development of sustainable policies at the neighborhood level, stating that "true transformation doesn't happen without commitment, and true commitment in neighborhoods doesn't happen without a standard to guide the work" (EcoDistricts, 2018d).

While the EcoDistricts framework has gained specific guidelines, it retains a degree of flexibility that has become one of its most significant advantages in terms of differentiating itself from other neighborhood-scale frameworks. Several respondents compared the EcoDistricts model to LEED frameworks directly, claiming that EcoDistricts allows for more flexibility at the neighborhood level and makes it possible for people to "connect on a human level." The EcoDistricts framework allows individual neighborhood initiatives to choose the elements of sustainability that they wish to prioritize and carry them out in the method that they desire (B. Wolovich, personal communication, November 27, 2017; R. Walsh, personal communication, November 27,

2017). Instead of building according to a set list of standards, the EcoDistricts framework allows neighborhoods to "create something that's unique and that people have ownership over," allowing for a more community-driven process (D. Snyder, personal communication, September 28, 2017). The EcoDistricts framework does not provide the same level of prescriptive guidance given by other frameworks such as LEED-ND, but it instead allows neighborhoods to choose their approach while still following broadly the same format. However, it should be noted that the EcoDistricts organization is not yet at the stage of providing services to individual projects in order to implement the framework; rather, it provides them the framework and individual projects are largely expected to implement it on their own (E. Hamant, personal communication, November 28, 2017). In their respective ways, both of these frameworks are subject to the same multi-scalar processes that Bulkeley (2005) identifies in interurban climate networks, but the two differ in terms of the scale at which decision-making takes place.

Brand Identity

Certification frameworks also generate value by tying individual neighborhood initiatives to an existing brand identity, which can allow those individual initiatives to leverage more resources from developers and funders. With a well-established brand such as LEED, the brand value is immediate – over 108,000 buildings are listed in the US Green Building Council's online database (U.S. Green Building Council, 2018b), and recent research in the field of economics has pointed to a property value premium associated with LEED certification (Aroul & Hansz, 2012; Kahn & Kok, 2014). According to LEED Project Manager Emma Hughes, one possible reason for this property value premium is a desire among developers and building owners to compete

with others in order to be seen as "leaders" in the field of green building: "to have one neighborhood that's being certified signals to the market that they are a leader in this space and hopefully sparks interest and encourages others to learn more about the system and pursue similar strategies and ultimately certification" (E. Hughes personal communication, March 9, 2018). LEED proves a systematic and standardized framework for comparison, which stokes the natural competitiveness of market participants looking to demonstrate their ability to invest in techniques that are seen as cutting-edge in some way. This leads to another possible reason for the popularity of LEED, proposed by the Green Building Policy Coordinator of the City of Portland: the LEED certification is seen as a signal of architectural quality. If a project is certified under the LEED framework, it has been assessed by a third party and has been found to be exemplary. LEED therefore serves a similar role to other building classifications: "it's almost like Class A versus Class B office space. If it's LEED certified it's assumed that it's Class A and that it's a step up. People think of it as 'this is a *well-made* building'" (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). This same logic could easily extend to the neighborhood-scale, where the LEED label still carries a great deal of weight and can be used to market larger developments or neighborhoods to residents and businesses who find the notion of "green" architecture appealing.

While EcoDistricts does not have nearly the same level of name recognition as LEED-ND, it still possesses a brand value that is seen as somewhat valuable, particularly to potential funders looking for ways to evaluate different projects. Being attached to an external framework such as EcoDistricts enhances the legitimacy of an individual project and gives them "bragging rights" to membership in an exclusive club that keeps funders

interested (D. Queeley, personal communication, November 25, 2017). Along with these more intangible benefits, participation in the framework makes it easier to obtain funds due to the contemporary structure of nonprofit fundraising: "when you talk about all the grant-writing these days, you need four or five letters of support, you need the neighborhood on board, you need the city on board… when the grant comes out and you only have a month and a half to write it, those letters of support will be a lot easier to get" (R. Walsh, personal communication, November 27, 2017). Participation in a larger framework such as EcoDistricts thus makes it easier to consistently leverage existing resources and support in order to obtain grant funding. In addition, many funders prefer to give money to larger-scale projects such as EcoDistricts that in turn help smaller projects, which makes the EcoDistricts organization another conduit through which individual neighborhood-scale projects can leverage resources (D. Queeley, Triangle Eco-Innovation District, personal communication, November 25, 2017). As the director of the Triboro EcoDistrict notes, "People see you what you're doing and see it being successful, and they want to be part of something successful" (B. Wolovich personal communication, November 27, 2017).

Part of the brand value associated with EcoDistricts comes from the conflation of sustainability with environmentalism and quality of life, which contributes to positive feelings towards the label even if the specific context of the framework is unrecognized. The name "EcoDistrict" engenders such a positive image that people want to associate with it even without knowing anything about the certification framework or the organization behind it. For example, an environmental lawyer moved her offices into the High Falls EcoDistrict in Rochester, New York, in order to be located in an EcoDistrict,

but had never spoken with members of the EcoDistrict organization prior to doing so (R. Walsh, personal communication, November 27, 2017). While the broad appeal of the EcoDistricts label may appear to be an advantage for the EcoDistricts organization, it does raise a significant concern: is it the organization's *brand* that is successful, or simply the way the name sounds? The director of High Falls EcoDistrict infers from previous conversations with external actors that the latter may be true: "They don't know that it's an organization out of Portland. They don't know about the framework. They just hear the word "eco" and go for it… it's going to be hard to differentiate, I think for EcoDistricts as an organization, where their name actually carries weight and just where the fact that it sounds like a cool sustainable project carries weight" (R. Walsh, November 27, 2017). This characteristic has the potential to undermine the burgeoning EcoDistricts brand, which is already less distinctive than the immediately recognizable "LEED" brand. This introduces the possibility of unaffiliated organizations calling themselves EcoDistricts, and indeed such projects already exist in cities ranging from Atlanta, Georgia to Saint Paul, Minnesota. There are also projects that use the "EcoDistrict" label but that are only tangentially related to the EcoDistricts organization. Midtown EcoDistrict in Atlanta, for example, does not engage directly with the EcoDistricts organization but works closely with Southface Energy Institute, which is a member of EcoDistricts (T. Wynn, personal communication, October 2, 2017). The ongoing creation of an EcoDistricts certification may allow the organization to address some of these ambiguities, by differentiating between projects that simply use the "EcoDistrict" label and projects that are explicitly affiliated with the organization and following the Protocol (R. Walsh, personal communication, November 27, 2017).

Another problem associated with the EcoDistricts brand is the negative association that certain communities derive between "green" development and economic development. While the "eco" element of the EcoDistricts label is appealing in its own right, it can also be a controversial subject among certain communities. The Santa Monica City Yards project, for example, has made the intentional decision to pursue EcoDistricts certification but not brand themselves as an EcoDistrict going forward, following the logic that "communities are really sensitive to the words 'sustainability' or 'green' [being attached to] projects and the added costs related to sustainability. So when you put "eco" in there, it can turn some people off" (E. Hamant, personal communication, November 28, 2017). This creates a definite barrier for EcoDistricts projects and neighborhood-scale sustainability projects in general, because the stakeholders must be convinced that it will benefit them (D. Queeley, personal communication, November 25, 2017; R. Walsh, personal communication, November 27, 2017). An additional challenge for the EcoDistricts framework may be the ambiguous definition of the term "district," for while the organization generally conflates district and neighborhood, other practitioners treat the two as separate categories (E. Hamant, personal communication, November 28, 2017). Without a clear definition of the scales and territorial entities with which the EcoDistricts framework is engaging, it may be hard to produce a common understanding of what an EcoDistrict should be.

By exercising their brand influence, both LEED-ND and EcoDistricts take advantage of the inherent ambiguity of neighborhoods, strengthening neighborhood ties in some cases and producing entirely new neighborhoods in others. While the points-based system of LEED-ND clearly emphasizes large-scale infrastructure investments, it

provides no clear definition of the neighborhood scale itself. The very first project certified with LEED-ND was not a neighborhood, in fact, but rather a single residential building located in the downtown of Portland, Oregon that technically fulfilled all of the metrics laid out in the LEED-ND framework. Eliot Tower, located in downtown Portland, was certified under LEED-ND in December of 2007. While the project was only a single building, it qualified due to the many amenities that already surrounded the building site including green space and a streetcar line (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). This issue was later resolved by the USGBC in future projects through the establishment of "minimum program requirements" that called for LEED-ND projects to be no smaller than two buildings. With EcoDistricts, the question of how to define the neighborhood is equally acute. In projects such as High Falls and the Seaholm EcoDistrict in Austin, Texas, borders are being drawn around entirely new areas and new neighborhood identities are being formed (R. Walsh, personal communication, November 27, 2017; City of Austin Chief Sustainability Officer, personal communication, December 12, 2017). In either case, the ambiguity of the neighborhood scale means that projects can be defined in any number of ways, which potentially allows communities to define themselves but also has the potential to allow definitions of neighborhood communities to be externally imposed.

Governance

This ambiguity plays an important role in the potential for certification frameworks to offer a framework for local governance, because the way in which a community is defined can determine who is able to participate in decision-making. While governance is not a central component of the LEED-ND framework, the LEED model

generally encourages an "integrative" form of decision-making in project implementation. This "integrative" process contrasts broadly with the "linear" process of standard design and construction in which developers and architects are the primary actors:

> "An integrative process encourages all relevant stakeholders – all project team members – to sit together during the earliest possible stage of the project… and share perspectives, challenges, plans, establish goals… and we find that projects that successfully leverage the integrative process as they're going through the LEED certification process are generally the most successful in that the strategies are not developed in silos. This is a component of the projects where they can really build off each other and synergies can be identified and exploited" (E. Hughes, personal communication, March 9, 2018)

The resources needed to develop the neighborhood landscape frequently require multiple developers and local governments are often also required. In its ideal form, an integrative governance process would bring those multiple stakeholders into a framework of continuous collaborative governance in which there would be clear lines of communication throughout the project rather than a "one-and-done" meeting. Working closely with local government authorities can be particularly important for LEED-ND project teams, as LEED Project Manager Emma Hughes argues that doing so can "help streamline permitting processes and… can also result in more socially equitable sustainability outcomes" (E. Hughes, personal communication, March 9, 2018). There are therefore clear benefits to an integrative governance approach from both administrative and social justice perspectives. However, while this type of governance is encouraged, the integrative process is not a prerequisite for LEED-ND certification and it is entirely possible for a project to be certified if it meets the other necessary requirements. While integrative governance is highly encouraged, the process only provides a project with one point toward certification, and a project can potentially be certified without significant

input or knowledge from either municipal governments or participating developers (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018; R. Loveland, personal communication, January 19, 2018). In addition, while successful integrative governance can last the entire lifetime of a project, the process does not persist after construction of the project is complete.

While LEED-ND *encourages* local decision-making and stakeholder engagement, the EcoDistricts framework is fundamentally built on a collaborative form of governance that requires continuous engagement with and input from all potential stakeholders. Most of the registered EcoDistricts are operated by nonprofit organizations rooted within specific communities. Consequently, respondents from each of those organizations referred repeatedly to the important of collaboration and community engagement in their work: "it's the relationships that we create with the people that we work with and that support our work that allow us to do the things that we do, and that we couldn't really do any of the large-level projects but also smaller-scale without community buy-in… collaboration and community buy-in is really really important in sustainability work" (D. Snyder, personal communication, September 28, 2017). The three stages of implementation in the EcoDistricts Protocol – formation, roadmap, and performance – require this type of engagement by making certification a continuous process rather than a one-off project. In places where this model has been applied, this means that sustainability has come inextricably linked with collaborative governance and community involvement. For individual EcoDistrict projects such as the Millvale EcoDistrict, community-oriented decision-making is already so fundamental that they engaged with the community to inquire whether EcoDistricts was even the appropriate framework for

their community: “we had put enough into it and it had been intentional enough that we said ‘okay, here’s where we’re going to have more input as community members, and we’re not going to just assume that that’s the right model for us’” (B. Wolovich, personal communication, November 27, 2017). This suggests that the collaborative nature of individual EcoDistricts projects is not something imposed by the framework itself, but rather that projects with an already collaborative orientation self-select into the framework.

City government agencies that have engaged directly in the process by taking on the management of EcoDistrict projects largely share the goal of collaborative governance espoused by the nonprofit actors. The City of Santa Monica, for example, chose the EcoDistricts model for its City Yards project precisely because it would focus on community-driven development and address issues such as equity and gentrification: “the EcoDistricts framework is not just go to your government or go to your developer. It’s about bringing all of these stakeholders together to figure out within their own processes how they can support one vision” (E. Hamant, personal communication, November 28, 2017). In places where local government is *not* supportive of sustainability efforts, the same actors behind EcoDistrict projects can contribute to political shifts: in the Millvale EcoDistrict, a member of the EcoDistrict project ran with three others to take over the seven-person local council (B. Wolovich, personal communication, November 27, 2017). Even government actors acknowledge that city governments cannot be the sole leaders of the EcoDistrict process, as doing so would undermine the very intention of the framework. In the City Yards project, for example, the City of Santa Monica acknowledges the fact that an EcoDistrict cannot be driven only by city government, and

hopes to become the catalyst for a broader EcoDistrict project that involves broader community engagement (E. Hamant, personal communication, November 28, 2017). Similarly, the Seaholm EcoDistrict in Austin, Texas is currently being run by the city's Office of Sustainability, and has been keen to respond to the specific interests of particular partners through actions such as developing an electric vehicle program through the public utility Austin Energy. However, the city government is prepared to move on to other projects, and wants to fully hand over control of the project to private partners in order to make the project viable in the long term (City of Austin Chief of Sustainability, personal communication, December 12, 2017). Thus, in spite of the problems sometimes associated with city government efforts around neighborhood-scale sustainability, city governments appear to be positive contributors to the EcoDistricts efforts.

One of the primary advantages of collaborative governance is that it creates greater potential for capacity-building, both for organizations taking the lead on EcoDistricts projects and for communities themselves. The process of forming an EcoDistrict requires engaging directly with community members, which provides a way to form local relationships that may not already exist. As the director of the High Falls EcoDistrict recounts,

> "creating an EcoDistrict roadmap and creating this EcoDistrict, if nothing else, gave us a reason to knock on people's doors and start a conversation with some sort of structure around it… the more I do outreach and the more I talk to people, there's all these people working on sustainability, but unless you have a reason to set a meeting it's kind of hard to break down those silos" (R. Walsh, personal communication, November 27, 2017).

The process of EcoDistrict formation not only facilitated interactions between the newly formed High Falls EcoDistrict and community members; it also gave the organization the

opportunity to see what sustainability efforts were already happening in the community. Ideally, this process would ultimately allow the EcoDistrict to incorporate aspects of work that was already occurring into its framework and begin from an even stronger position.

This type of collaborative governance also has the potential to strengthen ties within the community itself and increase the sense of agency and identity within a neighborhood community. As an example of the power of collaborative governance, David Queeley, the Director of Eco-Innovation at the Codman Square Neighborhood Development Corporation and the Talbot-Norfolk Triangle Eco-Innovation District recounts a project that preceded the creation of the EcoDistrict but that spurred action around sustainable development in the neighborhood:

> "We worked on creating a park out of the vacant land. And I think it was really that project that got folks to begin to take control of their neighborhood. They're already organized into a group, but it's really been since that project I think that they went 'you know, we could be doing a lot more, and we should be taking control of our own destiny in terms of open space and sustainability and buildings.' It's really led to them taking command of their future. They were doing it before, but I think they're much more conscious of what's possible. Because once we opened that park and playground, they really got it. They understood the power that they had" (D. Queeley, personal communication, November 25, 2017).

While this was not an EcoDistrict project in itself, it demonstrates the power that working together on a project can have for a community and reflects what an EcoDistrict could potentially do in the future. By mandating the involvement of all actors in sustainability projects, the framework encourages exactly these types of projects. This same result can be seen in the Bend Sustainable Neighborhood Initiative (BSNI) in Bend, Oregon, which was an EcoDistricts "incubator" pilot project in 2012. While the EcoDistricts initiative ultimately did not succeed due to a lack of financial resources, members of the initiative

were able to participate in training and networking events through the EcoDistricts organization, and the incubator "team lead" ML Vidas believes that the effort laid the groundwork for future sustainability initiatives in the City of Bend including a "Central District" initiative that is currently underway (M.L. Vidas, personal communication, January 19, 2018).

Collaborative governance is also a challenging activity to maintain, however, given the amount of resources needed to continuously engage community members and the ambiguity that goes along with the process. In some cases, collaborative governance is made difficult by reticence of stakeholders, who would prefer to engage once a full plan is already in place instead of helping to create it. Even when stakeholders are engaged, the continuous nature of the EcoDistricts framework is time-consuming and requires genuine collaboration, which means that nobody is fully in charge of the process (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). The process also appears to work best if there is already a governance structure in place, rather than simply a collection of people within a neighborhood that want something to happen (M.L. Vidas, personal communication, January 19, 2018). This leaves many significant questions unanswered, such as how financial responsibilities will be allocated, and how credit for individual projects will be distributed among stakeholders. While it is entirely possible to garner agreement from stakeholders on larger and more visionary goals, the "nitty-gritty" details such as choosing a logo and defining boundaries can impede the process significantly (R. Walsh, personal communication, November 27, 2017). Each EcoDistrict is generally coordinated and managed by a single organization, but the EcoDistricts framework requires those

organizations to take a step back and allow other voices to engage in decision-making. This has the potential to generate community-oriented decisions, but it also could obscure the basic goals of the EcoDistrict by increasing the influence of stakeholder objectives. This already occurs in certain EcoDistrict projects; the Communications and Outreach Coordinator from the Lloyd EcoDistrict substantiates, "our mission and our role could get kind of lost because we're so good at bringing a lot of people together that it can get confusing who the orchestrator is" (D. Snyder, personal communication, September 28, 2017). This offsets some of the advantages of the collaborative EcoDistricts framework, by making it more difficult for individual projects to maintain their adherence to the framework's basic goals. This is particularly true when certain stakeholders have a louder voice than others and when certain segments of the community such as low-income residents are more difficult to engage in the process (R. Walsh, personal communication, November 27, 2017).

Knowledge-Sharing Networks

The final advantage that these neighborhood-scale frameworks provide – and perhaps the most important for this analysis – is that they can act as a conduit through which to share knowledge about best practices. This is particularly true in the case of the EcoDistricts organization, which has made a concerted effort to provide channels of communication and knowledge-sharing for its affiliated neighborhood projects. In addition to hosting an "information exchange" on its website, which includes articles on subjects ranging from energy microgrids to racial equity, the EcoDistricts organization has considered hosting monthly conference calls between registered EcoDistricts projects in order to check in and share best practices (R. Walsh, personal communication,

November 27, 2017). EcoDistricts' most substantive forum for knowledge-sharing is the annual EcoDistricts summit, which the organization describes as "the world's only leadership event exclusively focused on neighborhood- and district- scale sustainability" (EcoDistricts, 2018c). The summit assembles not only participating projects but also public officials, intellectuals, developers, and other members of the urban sustainability community.

The EcoDistricts organization's goal to encourage knowledge-sharing is laudable, but is limited by the heterogeneous nature of the individual projects themselves, some of which are too different to be compared directly. This indicates that the EcoDistricts model appeals to a broad range of neighborhood types, which means that in many respects it has already been successful. However, it also means makes knowledge-sharing between those projects more difficult:

> "I would say it has been a little bit hard so far to get ideas from them because each situation is so unique. Each political and business climate is so unique… it's a little bit tricky because some ideas have been shared but I haven't talked to many of them that are directly applicable to our situation. This why we picked EcoDistricts, because they could be tailored to our specific needs, but it does make it a little bit tricky to take direction from other places because everybody's so different." (R. Walsh, personal communication, November 27, 2017)

The flexibility of the EcoDistricts framework cuts both ways, allowing each project to contextualize and tailor the guidelines to their specific project, but also limiting the applicability of any one project's approach to any other project. While participating projects can still benefit from the EcoDistricts model's role in strengthening governance, imparting brand identity, and providing guidance, knowledge-sharing between projects is the key component that sets it apart from other frameworks such as LEED-ND. This

makes immediate solutions, such as the monthly conference call, all the more significant for the continued success of the EcoDistricts framework.

Several respondents note that the EcoDistricts organization is beginning to do a better job of catalyzing knowledge-sharing, suggesting that the organization may in fact be able to capitalize on that aspect of its framework. The team lead of the Santa Monica City Yards EcoDistrict focused on the importance of the EcoDistricts Summit, maintaining that "even though you can't replicate everything everyone's doing, it's just really helpful to talk about it, where you are at, what are your goals, what's the context of whatever you are doing in your community. So just having this forum I think is really helpful" (E. Hamant, personal communication, November 28, 2017). While the contextual specifics may vary between the projects, they all share the same general goals and can collaborate and support each other in those efforts. This does not necessarily permit the transmission of distinct policy ideas, but it does provide a supportive community within which more general knowledge-sharing could take place. The EcoDistricts Protocol may help facilitate that knowledge-sharing as well, by providing a "similar to-do list" that each project will have to follow regardless of contextual differences (R. Walsh, personal communication, November 27, 2017). In addition, the organization has begun to bring more "knowledge-based resources to the table" in an effort to assist the individual projects in standardizing their approaches to a greater extent (D. Queeley, personal communication, November 25, 2017).

In addition to the EcoDistricts organization's attempts to create networks at the national (or global) scale, individual EcoDistrict projects utilize local networks in order to further strengthen themselves. Some individual projects share information with

regional stakeholders and businesses much more frequently than with other EcoDistricts projects across the country (D. Snyder, personal communication, September 28, 2017). In large part, this is because each of the projects is dealing with unique circumstances, including different communities, different reasons for pursuing the EcoDistricts model, and different institutional assemblages providing the driving force (E. Hamant, personal communication, November 28, 2017). These local networks can include any number of different organizations, ranging from city governments to local chapters of national advocacy organizations such as the Natural Resource Defense Council and from local businesses to regional organizations such as Community Development Corporations (D. Snyder, personal communication, September 28, 2017; D. Queeley, personal communication, November 25, 2017). A particularly notable case of local networking is the alliance of multiple different communities in the Pittsburgh area into a single EcoDistrict, which has been termed the "Triboro EcoDistrict." The Triboro EcoDistrict consists of the Millvale EcoDistrict, which is registered with the EcoDistricts organization, and two other nearby communities: Etna and Sharpsburg. Their intention behind allying directly with one another, rather than simply interacting through the EcoDistricts organization itself, is

> "to *scale up some of our work but also maintaining neighborhood independence* and their ability to craft their own visions and goals… we've been having some quiet discussions around the creation of a regional group that will work to strengthen our inner relationships and our own successes in our neighborhoods but also to welcome in some new communities to share – "hey, we're not experts, but here's some things we've learned that might help you" and maybe we can all strengthen each other's efforts" (B. Wolovich, personal communication, November 27, 2017, emphasis added)

This represents an extension of the logic underlying the knowledge-sharing taking place at larger scales through the EcoDistricts organization, and suggests that yet another layer

could be added to the already multi-scalar arrangement intrinsic to the EcoDistricts framework.

Whereas the EcoDistricts organization plays a facilitative role in knowledge-sharing *between* different projects, the LEED-ND framework is entirely centralized within the USGBC and knowledge-sharing takes place through certified practitioners and updates to the certification standards. This means that while knowledge moves horizontally across the network of EcoDistricts, it mostly moves *vertically* in the LEED-ND framework between neighborhood projects and the USGBC. One advantage of this top-down approach is that LEED-ND is a fully standardized framework, which means that it faces less of the heterogeneity endemic to EcoDistricts-affiliated projects. The framework evolves more gradually in response to information gathered from individual projects by the USGBC, and is incorporated into successive versions of the certification framework. This takes place through a balloted voting process in which more than 12,000 organizations that are members of the USGBC are able to consult on the development of new certification standards. Over time, the certification framework systematically raises performance requirements in order to encourage greater market transformation. This process adds legitimacy to the framework and provides a common understanding and sense of stability that increase the value of the framework relative to others. In addition, locally-based "LEED-ND Accredited Professionals" can work with individual projects to make sure that their development decisions align with the LEED-ND framework (E. Hughes, personal communication, March 9, 2018). While the lines of communication between LEED-ND projects are not nearly as complete as those within the EcoDistricts network, local networks can also play a role in the founding of LEED-ND, by working

together to provide the funding necessary to make LEED-certified development and eventual certification possible (D. Queeley, personal communication, November 25, 2017).

Discussion

This thematic analysis reveals several of the key similarities and differences between LEED-ND and EcoDistricts. Analysis of these two frameworks through the four themes of guidance, brand identity, governance, and knowledge-sharing reveals that the advantages of each framework lie in different areas. LEED-ND provides more concrete guidance than EcoDistricts by providing a more definitive points-based framework and leaving none of the ambiguity of the qualitative descriptions contained within the EcoDistricts framework. The EcoDistricts framework is more flexible, however, which means that it is less clear but also more adaptable to different circumstances. LEED-ND has a clear advantage in brand recognition, for although it is a new certification, it benefits from sharing a name with the much more established LEED certification. EcoDistricts is still relatively unknown, and there is currently a risk that the appealing but ambiguous label of "EcoDistrict" may be driving its popularity more than the model itself. In terms of governance, on the other hand, the EcoDistricts framework is much more effective, because it provides a template for collaborative governance that must be continually reaffirmed in order to maintain adherence with the framework. LEED-ND can originate entirely from a single developer, and even projects involving multiple developers do not continue after certification has been obtained. The EcoDistricts framework thus provides a form of governance that has the potential to be more durable. Finally, the EcoDistricts Protocol offers neighborhood actors the ability to participate in

knowledge-sharing networks and learn from similar projects through "information sharing and peer-to-peer learning" (EcoDistricts, 2016). Through its interactions with neighborhood-scale projects in a variety of different spatial contexts, the organization is theoretically able to construct generalizable solutions to common problems or provide contextually-specific strategies to implement policies that have been successful elsewhere. In addition, the organization is able to convene various participating organizations from across the country, where they can engage in information-sharing with one another. The limited extent of knowledge-sharing in the LEED-ND framework comes from the standardized nature of its certification criteria, which have undergone several evolutions in response to successes and failures. However, this does not provide the sort of continuous feedback and knowledge-sharing that is theoretically possible in the EcoDistricts framework.

One final point to make about these two frameworks is their differing approaches to the social equity dimension of sustainability. Testimony from practitioners suggests that equity is in fact one of the primary elements of EcoDistricts that sets it apart from other frameworks such as LEED-ND. Equity has already been identified as a shortcoming of LEED-ND, given that the framework includes only a few non-mandatory points toward neighborhood diversity and community involvement (Szibbo, 2016). The EcoDistricts framework can thus be compared favorably relative to LEED-ND due to its focus on categories such as civic participation, economic opportunity, health, physical surroundings, and social resilience. This is particularly true for EcoDistrict projects encompassing lower-income communities, where there was a concern with engaging low-income residents in the process. In theory, the EcoDistricts framework would

provide a collaborative and equity-centered method that would engage those marginalized groups to a greater extent than other sustainability projects (R. Walsh, personal communication, November 27, 2018). Even some low-income communities expressed a desire for sustainability, leading the Director of Eco-Innovation from the Talbot-Norfolk Triangle Eco-Innovation District to conclude, "once you start thinking about sustainability, you start thinking about equity, and you start thinking about how you really do have to do things in a way that doesn't displace people" (D. Queeley personal communication, November 25, 2017). Equity should thus be regarded as an important consideration in analyzing these frameworks, not only in terms of their approach but also in terms of the communities they serve. However, the stated goals of each framework do not necessarily line up perfectly with the ways in which those frameworks are implemented. Therefore, I turn next to a consideration of the neighborhoods within which these frameworks are being located, to determine whether neighborhoods under either framework possess any characteristics that would indicate uneven development or the possibility of eco-gentrification.

Chapter 5: Geographies of Certification Frameworks

I now turn to a spatial consideration of the demographic contexts of actually existing projects, focusing primarily upon the demographic characteristics of neighborhoods within which LEED-ND and EcoDistricts projects are located. While this is only an exploratory analysis, it has the potential to reveal demographic patterns linked with either framework. This would provide a preliminary indication of each framework's contribution or resistance to the uneven geographical distribution of environmental development. I begin my empirical analysis with an overview of the spatial characteristics of the LEED-ND and EcoDistricts frameworks, with the goal of understanding both the static characteristics of project communities and whether those communities are subject to change. This chapter will explore these findings in detail, providing a statistical description of the projects within each framework as well as comparing the two frameworks directly.

I begin by providing a detailed description of my methodological approach, which includes techniques for defining districts, sources for obtaining geospatial and demographic data, and strategies for converting data into district-wide measures. I proceed with an exploration of the geographical characteristics of LEED-ND and EcoDistricts projects specifically in the United States, which will be the focus of this analysis due to both its status as the source of the two frameworks and the abundance of data available through the United States Decennial Census. I use descriptive statistics to explore various characteristics of projects that fall within each framework and explore the possible effects of various characteristics such as certification level and date of creation. I conclude with a comparative statistical analysis of median income and race in LEED-ND

and EcoDistricts project neighborhoods in order to determine if their locations differ significantly in terms of demographic and socioeconomic characteristics. This analysis will reveal if location selection under either framework is biased toward specific types of neighborhood communities or correlated with certain types of neighborhood change.

Methodology

This statistical analysis will consist of descriptive statistics as well as difference-of-means tests that reveal differences between neighborhoods under each framework as well as changes over time. However, given the relative novelty of both certification frameworks, there is relatively little publicly available data concerning their structure or the characteristics of their individual projects. Therefore, in order to conduct a statistical analysis, I must first construct project-level statistics by defining the spatial extent of each individual project and aggregating census data.

Project Boundaries

The first step in analyzing these projects was to define their respective boundaries, given that each project has a specific area within which it operates. The locations of LEED-ND projects were provided to me by Green Business Certification Inc in the form of a dataset including the names, unique identification numbers, and addresses for all LEED-ND projects (Green Business Certification Inc., 2018). There is no particular protocol for the placement of these addresses; while they lie within the boundaries of each project, they do not necessarily represent the *center* of the project. This dataset includes any projects that have pursued the LEED-ND certification, including both those that have achieved certification and those that have not. In addition, while most projects have detailed information, a number of projects have been listed as

confidential and lack an identifying project name or street address, instead including only the country or state within which the project is located. Given these characteristics, I narrow the data in three ways for the purposes of my analysis. First, I narrow the parameters of LEED-ND projects to only projects that have been officially certified. This removes projects from consideration that had considered LEED-ND certification and ultimately withdrew or that have not yet attained certification, and leaves only the projects that have officially met the requirements of the LEED-ND certification framework. Second, I remove any projects that are confidential in order to eliminate spatial uncertainty and retain only projects that have exact locations. Finally, I narrow the dataset to projects located within the United States, which will permit the direct application of demographic and socioeconomic data through the United States Census. For the remaining 118 observations, each address location has been verified and geocoded as a set of geographic coordinates.

Unlike LEED-ND, there is no easily accessible dataset for the locations and characteristics of EcoDistricts projects, which necessitated the creation of a new dataset for the purposes of this project. While there are many projects that use the name "EcoDistrict" without any affiliation to the EcoDistricts framework, I focus on projects that collaborated with the EcoDistricts organization by either becoming registered for the "EcoDistricts Protocol" or participating in the organization's annual "EcoDistricts Incubator" initiative. The list of projects registered for the EcoDistricts Protocol was taken from a district registry available on the EcoDistricts website, which included fifteen projects as of April 2018 (EcoDistricts, 2018a). EcoDistricts Incubator projects were similarly located on the organization's website, which provided summary documents for

projects in the incubators from 2012 to 2015 and the names of projects from 2016 and 2017. Using these data, I extrapolate the locations and boundaries of each EcoDistricts project. For projects that participated in incubators between 2012 and 2015, I used maps from summary documents in order to determine the boundaries of the projects. For registered projects, as well as incubator projects from 2016 and 2017, summary documents were unavailable from the EcoDistricts site and I navigated to individual organization websites and used maps or textual descriptions in order to determine boundaries. Using those materials, I created a map showing the areal extent of each EcoDistricts project, drawing the shape of each project individually and appending data on various attributes including project name, city and state, registration status, and the year that the initiative participated in an incubator (if applicable). As with LEED-ND projects, I then narrowed the parameters to include only projects located within the United States in order to produce an effective comparison.

Census Data

With the spatial coordinates of LEED-ND projects and the spatial extent of EcoDistricts projects thus defined, I proceed by gathering data on the socioeconomic characteristics and racial demographics of project neighborhoods. Statistics concerning median household income and racial composition are chosen for this analysis because they serve as effective proxies for the social and economic status of a neighborhood and are also relatively sensitive to neighborhood change. These statistics can therefore be employed to determine whether projects under each framework tend to locate in neighborhoods that are wealthier or poorer, and whether those neighborhoods would be more or less white. If projects under these frameworks are located primarily in white and

wealthy neighborhoods, it would suggest that they are primarily benefiting dominant populations and are probably not focusing on equity concerns. If projects are located in neighborhoods that are poorer or less white, it may induce greater attention to equity in the discourses and practices generated by a given framework. Neighborhood change also plays an important role in this analysis, however; if a project neighborhood is showing signs of becoming wealthier and whiter, it may suggest that the project either contributes to eco-gentrification or is at least concurrent with processes of neighborhood change. Comparing baseline characteristics and changes over time between LEED-ND and EcoDistricts will also establish whether the greater rhetorical emphasis on social equity in the EcoDistricts Protocol has any effect upon site selection of EcoDistricts projects relative to LEED-ND projects.

These data are drawn from the American Community Survey (ACS), an annual survey of demographic and socioeconomic characteristics conducted by the United States Census Bureau. Unlike the decennial census, the ACS gathers information a small sample amounting to only around 2.5% of households. ACS estimates can therefore have significant margins of error, particularly within small areal units. One strategy that corrects for the significant margins of error associated with ACS estimates is the use of estimates averaged over a 5-year period, which reduce temporal specificity but provide greater certainty. Given the timelines of the LEED-ND and EcoDistricts frameworks, I use two five-year estimates in my analysis: 2005-2009 and 2012-2016. The five-year estimate from 2005 to 2009, which will henceforth be referenced as the 2009 ACS estimate, was chosen both because it encompasses the period before many projects were certified under either framework and because it is the first year for which five-year ACS

estimates are available. The five-year estimate from 2012 to 2016, which will henceforth be referenced as the 2016 ACS estimate, was chosen because it represents the most recent set of available data as of April 2018 and represents the period during which many LEED-ND and EcoDistricts projects were implemented. This process results in four different metrics with which to explore LEED-ND and EcoDistricts neighborhoods: median income estimates for 2009 and 2016 and estimated percentage of neighborhood population that is white for 2009 and 2016.

Project Statistics

ACS data are disaggregated to individual census tracts, but LEED-ND and EcoDistricts projects often extend across multiple census tracts. In order to permit accurate analysis of project areas, it is therefore necessary to aggregate this tract-level data into a single figure for each project. Take, for example, the RiNo Art District in Denver, Colorado, which is a registered EcoDistrict project that encompasses parts of four different census tracts (see Figure 5.1). Given that each census tract makes up a different percentage of the District's area, it would be unreasonable to conduct an unweighted average of the four census tracts. Instead, I conduct a weighted average of the district based on percentage of the district's area that each census tract occupies. The percentage of district area that each census tract occupies is multiplied by the relevant statistic (median income and white percentage). Those numbers are then added together in order to arrive at a single value for the district as a whole. In the case of the RiNo Art District, the area that each census tract encompasses was divided by the total area of the District (approximately 1.5 square miles) in order to determine the percentage of the

Figure 5.1: RiNo Art District in Denver, Colorado, highlighting component census tracts

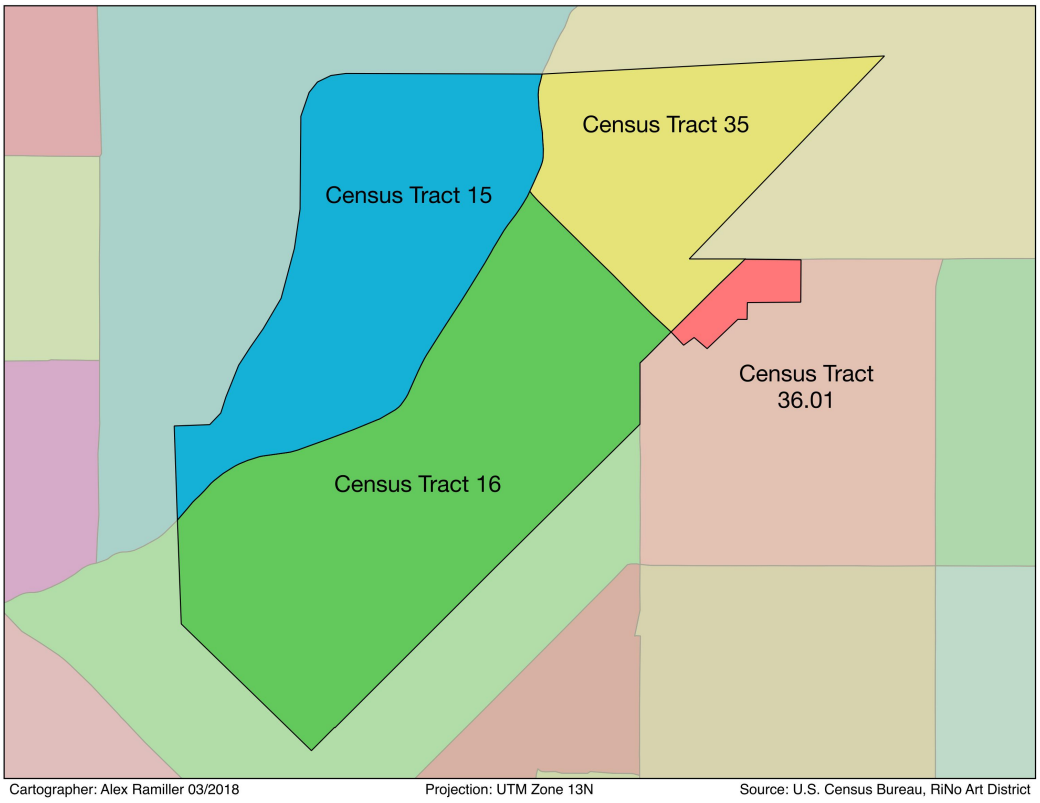


Table 5.1: Calculation of median household income for the RiNo Art District

Census Tract	Area (Sq. Miles)	% of District Area	Median Income (2016)	Weighted Average
Census Tract 15	0.485	31.46%	$35,389	$11,134.01
Census Tract 16	0.717	46.53%	$70,128	$32,630.07
Census Tract 35	0.307	19.89%	$43,585	$8,668.54
Census Tract 36.01	0.033	2.12%	$38,542	$817.13
Sum	1.541	100.00%	N/A	**$53,249.75**

district area that each tract represents. Using the following weighted average formula, I can determine the district average:

$$Average = w_1 x_1 + \cdots + w_n x_n$$

For the RiNo Art District, the weighted average derived from constituent census tracts is $53,249.75 (see Table 5.1). This same process is employed for each EcoDistrict project and for each type of data. For LEED-ND projects, on the other hand, this task was much simpler because only address points were provided by the USGBC. For projects with address points located entirely within a single census tract, the project's statistics would simply be the statistics for that tract. Statistics for projects with address points on the border of two or more census tracts would be averaged evenly between those census tracts.

In order to enhance the usefulness of this data, I also generate *relative* statistics by comparing these district-level statistics with those of the urban areas within which those districts are located. The term "Urban Area" refers here to an areal unit defined by the US Census Bureau as "densely developed territory that contains 50,000 or more people" (US Census Bureau, 2012). Census-defined urban areas are preferred in this analysis over other areal units such as "Core-Based Statistical Areas," which also define urban areas but generally include large portions of surrounding rural counties that could bias results. Linking these urban-scale data with project-level data produces useful information including how a project's median income compares to the Area Median Income (AMI). For example, we have established that the RiNo Art District has a median income of $53,249.75 for the 2016 ACS estimate. The 2016 ACS estimate for median income for the entire "Denver-Aurora Urban Area," on the other hand, is $66,641. This shows that

the median income for the RiNo Art District is approximately 80% of AMI for Denver-Aurora, which places it at the upper bound of what is considered "low-income" (U.S. Department of Housing and Urban Development, n.d.). Because AMI is a relative statistic, the RiNo Art District can be directly compared to projects in other urban areas.

Statistical Techniques

After compiling data in this manner, I use three different statistical techniques in order to explore the types of neighborhoods within which LEED-ND and EcoDistricts projects are located and identify potential distinctions between those two groups of projects. First, I compute an array of descriptive statistics for each group of project neighborhoods in each time frame including mean, median, minimum, maximum, standard deviation, and range. This permits a consideration of the general characteristics of each group and also identifies any extreme outliers. Second, I employ a "paired two-sample t-test for means," which determines whether the mean value of one group differs significantly from another when the two groups have observations that can be paired with one another. This test is an effective tool for measuring changes in one set of observations over time, and it is used here to determine if there is a significant difference in means for a given statistic about a given set of projects between the 2009 and 2016 ACS estimates. Finally, I utilize a "two-sample difference of means test" in order to compare *between* LEED-ND and EcoDistricts project neighborhoods and determine whether their means are statistically significantly different. Heterogeneities between the two datasets necessitate an assumption of unequal variance for each case in which this test is employed. Using these three techniques, I conduct a thorough statistical exploration of the neighborhoods within which these projects are located.

Geographical Context

LEED-ND

While the LEED-ND framework has gained some popularity internationally, it is a largely American phenomenon with 150 certified projects spread across 33 states. Excluding confidential projects and those lying outside of urban areas, that leaves 118 projects in the United States that have achieved some level of certification. Significant heterogeneity exists within this set of projects: while they have achieved some level of certification, only seven have achieved "platinum" certification, meaning that they have attained at least 80 points in the 110-point LEED-ND framework. A full 37 projects, meanwhile, have attained only the *minimum* level of certification (simply titled "certified"), which means that they only needed to receive between 40 and 49 points – less than half of the total points available (see Figure 5.2). This means that while all LEED-ND projects included in this analysis meet the minimum requirements of the framework, they may not implement certain additional goals such as "mixed-income diverse communities" (Szibbo, 2016). It is also interesting to note that a large majority of these urban LEED-ND projects in the United States that were certified as of December 2017 – 83 out of 118 – were first registered when the framework launched in 2007. This indicates that much of the current group of certified LEED-ND projects originated from widespread initial interest in the framework before it had exited its pilot stage. While the dates of *certification* for these projects are much more evenly distributed from 2007 to 2017, projects that were first registered in 2007 continued to achieve certification through 2014. Certification of these LEED-ND projects hit its height in 2009 and 2010, with 28 newly certified projects in each of those years. In the subsequent years, however,

certification of projects meeting all requirements of this analysis – located within an urban area in the United States and not listed as confidential – has slowed to a pace of only 6 or 7 per year (see Figure 5.3). While projects are being registered and certified at a steady rate, it has been several years since the framework was at its most popular in the United States.

LEED-ND projects are fairly dispersed geographically throughout the United States, with particular concentrations in coastal cities that are wealthier than the country as a whole. The urban areas with the most individual projects are Washington, D.C., with 15 individual certified projects, and the San Francisco-Oakland area, which includes 12 projects. There are also a handful of urban areas with between four and six projects: Portland, OR-WA; New York-Newark, NY-NJ-CT; Los Angeles-Long Beach-Anaheim, CA; and Miami, FL (see Figure 5.4). A one-sample difference-of-means test shows that the 55 urban areas that house LEED-ND projects are statistically significantly wealthier than the rest of the country, with an average median household income of $63,530 in 2016 compared to a national figure of $57,617.

EcoDistricts

EcoDistricts began several years after the LEED-ND framework first launched, and use of the framework has spread much more slowly, with a total of 15 registered projects in the United States and Canada and an additional 38 projects that participated in "incubators" but did not pursue certification spread across five different countries. EcoDistrict incubators are two-year projects that have been running since 2012, with between six and eleven projects participating each year. Most of these incubator projects have also been located in the United States and Canada, but the incubator program has

provided an opportunity to extend the model to other contexts as well: in addition to a 2012 incubator in Guadalajara, Mexico, there was a 2016 project in New Zealand and three 2017 projects in South Africa. It should be noted that these incubator projects do not necessarily continue beyond the initial two-year period, and in fact only 6 out of 41 incubator participants have continued to pursue EcoDistricts certification. However, incubator projects are included in this analysis for two reasons: first, doing so enlarges the sample size beyond the relatively small subset of registered projects; and second, the location selection of these incubator projects can still provide information about the types of neighborhoods within which the EcoDistricts Protocol has been a desirable model.

It is more difficult to draw spatial and temporal conclusions about EcoDistricts than LEED-ND projects due to the smaller number of projects, but EcoDistricts projects in the United States appear to be concentrated in slightly different locations. There are still a number of projects in coastal urban areas such as San Francisco-Oakland, CA, Los Angeles-Long Beach-Anaheim, CA, and Portland, OR-WA. The latter is particularly unsurprising given that it is home to the EcoDistricts organization, and it hosts one registered EcoDistricts project as well as three incubator projects. Interestingly, however, other concentrations of EcoDistricts appear in areas with few LEED-ND projects such as Pittsburgh, PA and Atlanta, GA, as well as areas that have no LEED-ND projects at all such as Detroit, MI, and Orlando, FL (see Figure 5.5). As a whole, however, the socioeconomic characteristics of the urban areas that house EcoDistricts projects are very similar to those of LEED-ND projects, with a median income of $62,880 compared to $57,617 for the United States as a whole.

Median Household Income

Statistics concerning median household income point to significant socioeconomic differences between the neighborhoods within which LEED-ND and EcoDistricts projects are located (see Tables 5.2 and 5.3 for complete summary statistics). In 2009, before many projects had been planned or implemented, median household income was largely similar for LEED-ND and EcoDistricts neighborhoods: the average median household income of the 118 LEED-ND projects was $45,610 in 2016 dollars, while for the EcoDistricts projects it was $42,426. A two-sample difference of means test assuming unequal variances confirms that this difference between LEED-ND and EcoDistricts neighborhoods in 2009 is *not* statistically significant. Both groups of neighborhoods had median incomes significantly lower than the 2009 national average of $57,267 (in 2016 dollars). However, LEED-ND neighborhoods represented a somewhat broader range of socioeconomic outcomes, with a standard deviation of $27,629 and median household incomes ranging from $11,768 for a project in Tucson, Arizona to $133,786 for a project in San Jose, California. This compares to a standard deviation of $21,135 for EcoDistricts projects, which had neighborhoods ranging in median household income from $9,344 for the registered Sun Valley EcoDistrict in Denver to $104,671 for the "Central Corridor" – an unregistered 2012 incubator project in San Francisco.

Median household income increased for both LEED-ND and EcoDistricts neighborhoods between 2009 and 2016, but it increased more significantly for LEED-ND projects. The average for LEED-ND projects rose by more than $12,000 to $57,908 – slightly higher than the 2016 national average of $57,617 – while the average for EcoDistricts projects increased by only around $5,000 to $47,292. A paired-sample

difference of means tests comparing 2009 and 2016 observations confirm that the change in median income between the two periods is statistically significant for both LEED-ND and EcoDistricts projects. This would seem to indicate that the neighborhoods within which LEED-ND and EcoDistricts projects are located underwent rapid economic upheaval during exactly the period that the projects were being implemented. However, LEED-ND and EcoDistricts neighborhoods experienced differing rates of growth in median household income. A two-sample difference of means test shows that the average median household income of LEED-ND projects in 2016 ($57,908) was statistically significantly greater than that of EcoDistricts project neighborhoods ($47,292). While a handful of districts experienced decreases in median household income over the same time period, those were more than outweighed by substantial increases in others, such as one project in Honolulu, Hawaii that gained nearly $63,000 over the course of that 7-year period.

While these statistics appear to indicate significant socioeconomic shifts for both LEED-ND and EcoDistricts project neighborhoods, relative statistics correct for extreme socioeconomic differences between urban areas. It is not surprising that some of the poorest project neighborhoods are in cities such as Tucson, AZ – which had a median household income of $44,850 – and the wealthiest project neighborhoods were located in cities such as San Francisco ($82,958) and San Jose ($101,475). AMI statistics indicate that project neighborhoods were relatively low-income on average, with 64% of LEED-ND project neighborhoods and 88% of EcoDistricts project neighborhoods below AMI. The average for both LEED-ND and EcoDistricts project neighborhoods was approximately 66% of AMI, which would place them in the “low-income category”

according to HUD, although there was a great deal of variation in both frameworks. The economic situation of both types of neighborhoods improved marginally between 2009 and 2016. In 2016, LEED-ND project neighborhoods averaged 82% of AMI, while EcoDistricts averaged 73%. The number of LEED-ND projects in each bracket below AMI decreased, while the number of projects above AMI increased from 42 to 67 (see Figure 5.6). For EcoDistricts, meanwhile, the number of projects within "extremely low-income" neighborhoods (below 30% AMI) and within neighborhoods above AMI increased, while the number of projects in other categories fell (see Figure 5.7). These differences between LEED-ND and EcoDistricts neighborhoods are statistically significant, but only at the 10% confidence level. This indicates that some of the differences between the median incomes of LEED-ND and EcoDistricts projects could be explained by the cities within which they are located, as the higher wealth and growth rates of LEED-ND neighborhoods are less pronounced when urban areas are taken into account.

The relationship between median household income of project neighborhoods and area median income can also be displayed geographically, which provides useful information about the differences among projects in different regions. In 2009, most of the future sites of EcoDistricts projects had median household incomes below the average of their respective urban areas. Only five coastal cities hosted future sites of EcoDistricts that were wealthier than the urban area as a whole: Seattle, San Francisco, Los Angeles, San Diego, and Boston. These cities all have median incomes higher than the country as a whole, which makes it all the more interesting that the sites of EcoDistricts in those cities were even wealthier than their respective urban areas. There are still relatively few

EcoDistricts projects that are wealthy relative to their urban areas in 2016, but in addition to the aforementioned cities such projects can be found in Philadelphia, Charlotte, Austin, and Portland, Oregon. While many more LEED-ND projects exceeded the median income of their urban areas in 2009, their geographic pattern remains largely similar with many of the more affluent projects located in coastal cities. In 2016, however, there is much broader diffusion of wealthier LEED-ND projects than for EcoDistricts. Around 35% of LEED-ND projects are above their area median income in 2016 and they are spread across the country, whereas only 22% of EcoDistricts projects were in the same position.

In summary, there are a few key conclusions that can be drawn from these statistics concerning median household income in LEED-ND and EcoDistricts projects. First, both frameworks incorporate neighborhoods representing a wide array of socioeconomic conditions ranging from barely $8,000 to more than $175,000 in median household income. However, the socioeconomic conditions for LEED-ND projects tend to vary more significantly than for EcoDistricts projects. Second, both types of projects saw significant increases in median household income between the 2005-2009 and 2012-2016 ACS estimates, with median income for LEED-ND projects increasing by significantly more than for EcoDistricts projects. Third, despite these increases both types of projects tend to be in neighborhoods that are less wealthy on average than the urban areas within which they are located. Finally, LEED-ND projects are still wealthier on average than EcoDistricts projects when accounting for the socioeconomic status of the urban areas within which they are located, but this difference is much less pronounced.

Racial Demographics

As with median income, there appears to have been no significant difference between LEED-ND and EcoDistricts project neighborhoods prior to the introduction of the frameworks (see Tables 5.4 and 5.5 for complete summary statistics). In 2009, the average LEED-ND project neighborhood was 48.54% white, and the EcoDistricts project neighborhoods averaged 53.3% white. While this difference would appear large, a two-sample difference of means test assuming unequal variances finds no statistically significant difference in percentage white population between LEED-ND and EcoDistricts neighborhoods in 2009. This could be explained by the fact that while the means of the two groups differ somewhat, there is a great deal of within-group variation. LEED-ND project neighborhoods range from only 0.3% white for a neighborhood in Cleveland, Ohio to 98.83% white for a neighborhood in Coeur d'Alene, Idaho, while EcoDistricts project neighborhoods similarly range from having no white residents at all (Homewood Children's Village in Pittsburgh) to being almost entirely white (Millvale EcoDistrict, also in Pittsburgh). This makes it difficult to differentiate between the racial compositions of the neighborhoods represented by these two different groups, and suggests that the demographic differences between LEED-ND and EcoDistrict neighborhoods may not be as consistent or significant as for median household income. Both frameworks were skewed heavily toward white neighborhoods, and only 32% of EcoDistricts neighborhoods and 25% of LEED-ND neighborhoods were majority-minority.

No statistically significant difference appeared between LEED-ND and EcoDistricts in terms of racial demographics in 2016, although both projects experienced

statistically significant increases in their white populations. The average white population within LEED-ND project neighborhoods rose to 53.3% and EcoDistricts project neighborhoods rose to 58.75% white in 2016. Paired two-sample means tests comparing 2009 and 2016 observations confirm that the change in racial compositions between the two periods was statistically significant for LEED-ND and EcoDistricts projects separately, but a two-sample difference of means tests finds no statistically significant difference *between* LEED-ND and EcoDistricts projects in 2016. This means that neighborhoods participating in both frameworks became whiter on average over the 2009 and 2016 period.

The increase in the white population of project neighborhoods and the lack of distinction between the two projects are also evident when comparing individual project neighborhoods with the urban areas within which they are located. In 2009, both LEED-ND and EcoDistricts project neighborhoods had white populations approximately 72.5% that of the urban areas. Both types of neighborhoods experienced more rapid growth of their white populations than the urban areas within which they were located, but still remained less white with EcoDistricts neighborhoods at 81% and LEED-ND projects at 85% of the white population of their respective urban areas in 2016. The proportion of the white population in EcoDistricts and LEED-ND neighborhoods grew significantly between 2009 and 2016 relative to their urban areas, seemingly regardless of whether the white population of the urban area as a whole was increasing or decreasing in size. In urban areas where the white population was increasing, the proportion of white population in LEED-ND projects increased by an average of five times as fast as their urban areas, and the proportion in EcoDistricts projects increased *seventeen* times as fast.

Even within cities that experienced decreases in their white population between 2009 and 2016, the white populations of LEED-ND and EcoDistricts project neighborhoods defied that trend and became more white.

As with median income, it is instructive to examine the spatial distribution of these projects and understand how their racial demographics compare with the urban areas in which they are located. EcoDistricts have a fairly clear demographic pattern in 2009, with projects that tended to be less white than their surroundings in the eastern half of the United States and projects that tended to be whiter than their surroundings on the west coast. This may in part be a function of the different contexts in which the EcoDistricts framework was being applied: on the west coast, it seemed to serve an economic development purpose, as in projects such as the Lloyd EcoDistrict in Portland, Oregon and the Waterfront District in Bellingham, Washington. Projects further to the east, on the other hand, include poorer and more diverse neighborhoods such as the Talbot-Norfolk Triangle in the Boston area and several different neighborhoods in Detroit. This distribution does not change a great deal between 2009 and 2016, with some projects becoming more white (such as in Denver-Aurora, CO and San Diego, CA) while other projects appeared to become less white (as in Atlanta, GA and Portland, OR-WA). The distribution of LEED-ND projects is much more diffuse, with no clear geographic patterns either in 2009 or in 2016.

The results of this analysis are somewhat less dramatic than for median household income, but there are still a few key conclusions that can be drawn from these statistics concerning the proportion of white residents. First, in 2009 and 2016 both frameworks have projects in neighborhoods that range from almost entirely white to almost entirely

non-white, with a significant skew towards majority-white neighborhoods. Second, both LEED-ND and EcoDistricts project neighborhoods saw significant increases in white population between the 2009 and 2016 ACS estimates. Third, while there are differences in median household income between the two frameworks in 2016, the racial composition of LEED-ND and EcoDistricts projects did not differ significantly from one another in either 2009 or 2016. Finally, both LEED-ND and EcoDistricts project neighborhoods experienced significant growth on average in their white populations between 2009 and 2016, but they still remained less white on average than the urban areas in which they were located.

Discussion

This quantitative analysis raises several interesting points about the characteristics of neighborhoods in which LEED-ND and EcoDistricts frameworks have been implemented. Given the historical association of environmental hazards with low-income communities and communities of color, the locations of new sustainable developments are an essential consideration for social equity. If these frameworks are implemented only in neighborhoods that are already wealthy and predominantly white, they simply reinforce existing environmental inequalities and solidify patterns of uneven geographic development in urban areas. Therefore, if a framework has been implemented in communities with a diversity of socioeconomic and demographic characteristics, that would indicate that it has greater potential to be compatible with environmental justice goals. However, given the recent phenomenon of eco-gentrification, it is also important to consider whether either of these frameworks is correlated with neighborhood change. If neighborhoods within a framework have experienced significant demographic or

socioeconomic turnover, it would suggest either that the implementation of the framework is having a tangible impact upon the neighborhood or at the very least that the framework is optimized for neighborhoods experiencing turnover. Even with no way to determine the direction of causality between the implementation of a framework and turnover within a neighborhood, either of these implications would imply that the framework must do more to address social equity.

This exploratory statistical analysis indicates that while projects under both certification frameworks are located in large and wealthy cities, they are also located in neighborhoods that are less wealthy and less white than their surrounding urban areas. These figures suggest that both frameworks generally evade the potential problem of being located solely in neighborhoods that have already benefitted from significant investment. There is evidence, however, that neighborhoods under both frameworks ended up becoming wealthier over the period from 2009 to 2016. This is particularly true for LEED-ND projects, which were significantly wealthier than EcoDistricts projects by the time of the 2012-2016 ACS estimate. While qualitative analysis has suggested that certification labels do relatively little to change perceptions of project neighborhoods, particularly in the case of the EcoDistricts framework, practitioners also suggest that people are drawn to participating neighborhoods because of their high quality of life. In addition, both types of neighborhoods experienced a statistically significant increase in the proportion of the population identifying as white, which indicates that they were experiencing moderate neighborhood change that could be regarded as gentrification.

These findings have significant social justice implications for both certification frameworks, as they are both located in neighborhoods with fairly high low-income and

non-white populations that appear to be on the verge of demographic turnover. This means that the extent to which equity factors into each respective framework could serve as a powerful determinant of whether everyone is able to benefit from enhanced environmental amenities. The EcoDistricts framework appears to be particularly promising in this regard, as it directly incorporates equity into its definition of sustainability and is located in neighborhoods that have experienced somewhat smaller socioeconomic changes over time. However, the fact that both types of neighborhoods appear to be at risk of gentrification makes a focus on social equity all the more important so that the implementation of sustainable development practices does not lead to greater displacement. To that end, I turn now to case studies of neighborhood-scale initiatives in Portland, Oregon, in order to determine how participation in these frameworks influences the pursuit of social equity goals.

Chapter 6: Portland Case Studies

This preliminary analysis suggests that the neighborhoods participating in these certification frameworks are at greater risk of gentrification, which makes each framework's approach to social equity all the more important. A holistic consideration of social equity in certification frameworks, however, must include not only what the frameworks *say*, but also how they translate into concrete practices within specific neighborhoods. Therefore, I turn to a case study analysis that will permit an exploration of the distinct social and political conditions connected with each framework and the relationship between rhetoric and practice. Certification frameworks present idealized and decontextualized forms of neighborhood-scale sustainability, but they could be interpreted in myriad ways within specific local political contexts. The extent to which the ideals presented in the frameworks are actually carried out in local practice has significant implications for the social equity outcomes of neighborhood-scale sustainability initiatives. In order to determine the effect of externally imposed frameworks on neighborhood outcomes, I therefore examine specific cases of neighborhood-scale sustainability in the city of Portland, Oregon.

Methodology

Case study research is frequently underappreciated as a qualitative research method due to a perceived lack of rigor relative to other approaches, but case studies conducted in a systematic and rigorous manner can reveal factors that influence political decision-making in a way that other methods cannot (Yin, 2013). This makes case study analysis a perfect analytical tool for examining the processes through which EcoDistricts and LEED-ND frameworks were implemented in the context of specific neighborhoods.

I begin by providing a background on the choice of Portland as a site for case studies of neighborhood-scale sustainability certification frameworks, focusing on the City of Portland's regime of sustainability and the origin of the LEED-ND and EcoDistricts frameworks within the context of that regime. I then offer an in-depth description of three cases of neighborhood-scale sustainability, each of which originated in Portland between 2009 and 2011 (see Figure 6.1). I begin with the South Waterfront Central District, which was initially a member of the City's EcoDistricts Pilot Program but ultimately abandoned that effort to instead pursue LEED-ND certification. I then turn to Lloyd EcoDistrict, which is the sole participant in the City of Portland's pilot program for the EcoDistricts framework that has continued to use the EcoDistricts model into the present day. Finally, as an alternative to either of these approaches I consider Living Cully, a neighborhood initiative which does *not* operate within a broader certification framework and was formed as a social justice-oriented alternative to the EcoDistricts model. I conclude with a discussion of the similarities and differences between these three projects, and consider the implications that this comparison has for the study of neighborhood-scale sustainability.

For each case, I look at the institutional history behind each initiative and examine the characteristics of the neighborhood in which each initiative is situated. This allows me to establish the relevant actors responsible for the creation of each initiative and the baseline differences between the communities being served by each initiative. I then track the discourses and practices of sustainability in each initiative in order to understand how the three projects differ in interpretation and implementation of sustainability. This holistic multiple-case study will consist of qualitative and quantitative data drawn from a

variety of sources, including organization websites, popular media articles, and personal interviews. I use data supplied by the City of Portland and Portland Monthly Magazine for baseline neighborhood characteristics, and a combination of published reports and personal interviews in order to establish institutional histories and approaches to sustainability. Five personal interviews are utilized for this analysis: one with a staff member of a development company involved in the South Waterfront Central District project, one with a representative of Lloyd EcoDistrict, two with representatives of Living Cully, and one with the Green Building Policy Coordinator in the Bureau of Planning and Sustainability at the City of Portland.

Portland's Sustainability Regime

The evolution of neighborhood-level sustainability initiatives in the United States has been fundamentally shaped by the political regimes of cities such as Portland, Oregon, which have made sustainability a centerpiece of their development policies over the past decade. The rise of sustainability as a dominant narrative in Portland politics arguably began in 1988 with the nonprofit "1,000 Friends of Oregon," which successfully countered a proposal for a bypass freeway designed to reduce traffic congestion with neighborhood design alternatives that would instead encourage a decrease in car use. Portland adopted a carbon emissions reduction plan in 1993, becoming the first United States city to do so, and by 1994 it had established an "Office of Sustainable Development" to coordinate citywide sustainability efforts (Grewe, Anderson, & Butman, 2002). Following the election in 2008 of Mayor Sam Adams, the city government went a step further to enshrine sustainability as one of its primary objectives, merging the Office of Sustainability Development with the Bureau of Planning in 2009 in

order to form the Portland Bureau of Planning and Sustainability. According to Mayor Adams, the merger was partially in response to the recession but was also "meant to ensure that sustainability principles are at the core of everything the city plans and builds" (Mitchell, 2008).

The centrality of sustainability in the city government's policy priorities and bureaucratic structures has led to a widespread recognition of Portland as a "paradigmatic sustainable city," capable of making advances in implementing sustainability that have thus far been impossible at the national level (Goodling et al. 2015). However, the spatial distribution of sustainable development across the city suggests that the economic development imperatives of the New Urban Politics of Scale may still determine the ways in which sustainability can be implemented. Goodling et al. (2015) point out that the concentration of green investments within the urban core led to the "eco-gentrification" of central neighborhoods and a corresponding disinvestment in neighborhoods closer to the periphery. A former chair of the Portland Development Commission even stated that they had "anticipated gentrification and welcomed it to a degree," although they were not prepared for the degree of gentrification that ultimately occurred (Gragg, 2012). Portland is thus an exemplar of the political strategies connected with the New Environmental Politics of Urban Development and the challenges that arise in linking sustainability with economic development goals. While Portland's brand is now heavily linked with imagery of sustainability and green development, it appears to have come at the cost of marginalized communities that do not fit into the city's development priorities. However, as the subsequent case studies demonstrate, the incorporation of social equity concerns into sustainability initiatives in the city of

Portland varies both spatially and temporally. This suggests that while the New Environmental Politics of Urban Development may dominate Portland politics, the neighborhood scale introduces a potential path to subvert that development-oriented paradigm.

South Waterfront Central District

The South Waterfront neighborhood sits on a 409-acre former brownfield site just south of downtown Portland, and is notable for its rapid and complete transformation over the past two decades. Due to its advantageous location and river access, the site was home to various industrial activities including shipbuilding and lumber until these activities began to decline in the 1960s due to changing technologies and the construction of an interstate freeway that limited access for rail and trucks (City of Portland Bureau of Planning, 2002, p. A-7). The site sat as a brownfield for much for the next several decades, until the creation of the "South Waterfront Plan" in late 2002. The plan was inspired in part by conditions that exemplify the New Urban Politics of Scale: in the early 2000s, Oregon Health and Science University (OHSU) indicated that it would move its campus to the suburbs because the City was not doing enough to accommodate its growth. OHSU was the city's largest employer, and this threat was enough to motivate the city to set aside land for OHSU in South Waterfront and construct an aerial tram to connect the site to the University's original campus (R. Loveland, personal communication, January 19, 2018). The city's complete plan entailed the creation of a new urban neighborhood surrounding the OHSU campus extension that would be characterized by high densities, mixed uses, and strong connections to the previously abandoned riverfront.

Reflecting the sustainability-oriented nature of Portland's city government, the South Waterfront site catered to the needs of OHSU while simultaneously including a host of environmental stipulations that OHSU and other developers would be required to meet. In a notable contrast to the neighborhood's industrial history, the Bureau of Planning proposed an explicit focus on environmental design, with policies such as surface stormwater management, an "eco-roof bonus" incentive for developers, and the reintroduction of native plants in green spaces (City of Portland Bureau of Planning, 2002, p. ES-6). Although this was many years before the introduction of neighborhood-scale or district-scale sustainability frameworks, the City's South Waterfront Plan provided the precursor objective of "district-wide environmental design" (City of Portland Bureau of Planning, 2002, p. F-1). While not included in the initial plan, the City of Portland later introduced requirements that all new buildings constructed on the site would be certified LEED Gold and that some of the new residential would be set aside for affordable housing. This strategy had proven successful in a former industrial area north of downtown Portland known as the "Pearl District," where the City had actually *exceeded* its affordable housing goals, and the City sought to replicate its success in the South Waterfront. While the Pearl District project had involved only one developer, however, the South Waterfront District included at least *seven* different developers, which made it much more difficult for the city to enforce its requirements. The developers on the South Waterfront site ultimately made sure that all of their buildings met the LEED Gold requirement, if not for their agreement with the city then for the potential market value of the LEED label (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018).

Far from its previous status as an industrial brownfield, the South Waterfront is now a booming site of activity, with ten residential towers as of the end of 2017 as well as a campus extension of the Oregon Health and Science University located within its 409-acre area. The site has stayed true to the mixed-use goals of the South Waterfront Plan; although its entire land area is zoned for commercial land uses, it includes a number of residential towers. The high-density and residential southern half of the neighborhood includes several notable amenities, including a newly landscaped waterfront park, the aforementioned Portland Streetcar with service to downtown Portland, and the Portland Aerial Tram – a commuter aerial tramway that serves to connect the two campuses of the Oregon Health and Science University and doubles as a tourist attraction for the city. Based upon statistics for the South Portland neighborhood, within which the South Waterfront is located, it appears that these amenities have helped to attract affluent residents. The population of the South Portland neighborhood had an estimated median income of $71,396 in 2016, which increased sharply to $78,395 by 2017. Further, only 13.3% of the neighborhood's population fell below the federal poverty line in 2017. This is also reflected in the property values within the South Portland neighborhood, with an average cost per square foot in of $286 in 2016 that rose to $335 per square foot in 2017. This compared to an average cost per square foot of $233 for the city of Portland as a whole. While the South Portland neighborhood includes other areas as well, there is a clear effect from the South Waterfront development with a property value increase of 26% between 2012 and 2016. The South Waterfront is therefore clearly at an epicenter of demographic and socioeconomic change, even relative to Portland's already competitive real estate market (DeNies, 2016, 2017).

Two projects arose in 2010 in an effort to cement the South Waterfront's status as an environmentally-friendly neighborhood: the burgeoning EcoDistricts project and the effort to have the site certified by the LEED-ND standard. The South Waterfront EcoDistrict pilot was led by the Portland Sustainability Institute and the Portland Development Commission in partnership with South Waterfront Community Relations, a newly formed neighborhood association with funding, professional staff, and authority over transportation management. The pilot began with several distinct goals to enhance the district-wide sustainability of the new South Waterfront neighborhood, including an district-wide energy strategy, a water management plan, a solar site analysis, and the implementation of a bike sharing system (Portland Sustainability Institute, 2011). These proposed focuses failed to gain much traction, however, as the primary concern of residents was a shortage of parking in the new neighborhood. Although the site was connected to the city's transportation network through a brand-new extension of the Portland Streetcar, many residents saw the Streetcar as an inefficient mode of transportation and chose to drive instead. Many of the new residential buildings provided parking for their residents, but there was a concern that limited street parking would inhibit economic activity within the neighborhood. And indeed, anecdotal evidence suggests that the neighborhood lacked vitality, with very few retail options on street level and no signs of an active street life. In its early years, the development was even described as a "ghost town" due to its lack of vitality and economic activity (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). The EcoDistrict effort ultimately failed due to a lack of sustained interest and a lack of stakeholder interest in the continuous process that the EcoDistricts model would entail.

At around the same time, developers decided to pursue neighborhood-scale sustainability through a different approach: the LEED-ND certification. The LEED certification had several advantages over the EcoDistricts model: it had already been in place for several years, it had greater brand recognition, and it required relatively little from stakeholders. Due to the City of Portland's plan for "district-wide environmental design," the neighborhood already fulfilled many of the characteristics of the LEED-ND framework, including not only energy efficiency and stormwater management but also high-density land use and transportation access in the form of the Portland Streetcar (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). Local development company Williams and Dame was able to convene the other developers within the site, and by 2011 the neighborhood had received LEED-ND Gold certification (R. Loveland, personal communication, January 19, 2018). However, there appears to have been a general lack of coordinated governance, with most developers and the City being unaware of the LEED-ND certification process until after it had already been completed. While the Green Building Policy Coordinator with the City of Portland believed that the effort was spearheaded by local development firm Gerding Edlen (personal communication, January 5, 2018), the Director of Sustainability from Gerding Edlen stated that the firm had very little input in the LEED-ND process and that the certification had instead been managed by the development firm William and Dane (R. Loveland, personal communication, January 19, 2018). The opacity of this process points to the fact that while the LEED-ND framework *encourages* "integrative governance," that does not provide any guarantee that it will actually occur within any given project.

While the neighborhood's path to LEED-ND certification remains unclear, property owners and developers have nonetheless leveraged the "green" image of the neighborhood. While acknowledging that developers were interested in building green for non-economic reasons, the Green Building Policy Coordinator in the City of Portland also notes that LEED certification provided economic benefits as well: "it just helped them market the value of Portland's first ND neighborhood. It's a whole neighborhood, all of buildings are LEED Gold, so there's a way to market the value in terms of condominium sale and apartment rent" (personal communication, January 5, 2018). The South Portland Business Association, which represents businesses in the South Portland neighborhood, confirms this supposition by marketing the South Waterfront as "Portland's first green neighborhood" and referencing its LEED-ND certification as an "internationally recognized mark of excellence in terms of green energy and environmental good" (Calvin, 2012). This indicates that the LEED-ND certification is explicitly being leveraged in the context of the South Waterfront due to the aforementioned strength of its brand identity. However, because this certification was built largely from features that the neighborhood already possessed, it did not need to include certain other aspects of the LEED-ND framework. In particular, this includes the LEED-ND framework's main criterion for equity: "mixed-income diverse communities."

While the environmental improvements built into both the newly constructed buildings and the site as a whole allowed the project to easily achieve LEED-ND Gold status, the project also reflected the LEED framework's lack of attention to social sustainability. Notably, despite the city's goal to include affordable housing within the site, there was a marked reluctance among the developers to build affordable units. With

each construction project that was initiated, each developer would inevitably ask "can't the next project do that?", reflecting how little real accountability developers had to the City's stated goals (City of Portland Green Building Policy Coordinator, personal communication, January 5, 2018). The City invested $16 million for the development of 400 affordable units in the late 2000s, only to lose that investment as a result of the Great Recession (De Sousa & D'Souza, 2011). Only one affordable project has been built on the site: the Gray's Landing project, which includes 209 units for households earning 60% of median family income (REACH Community Development, 2018). In keeping with the requirements applied to the rest of the South Waterfront development, the Gray's Landing building also attained a LEED Silver certification. However, this relatively small affordable housing project does little to counteract the relatively unaffordable nature of other housing options within the development. While there could be many reasons why affordable housing was ultimately a very minimal part of the South Waterfront development, it may be a symptom of the fact that the project lacked "integrative" governance. With as many as seven different developers working within the project site, and only non-binding promises to the city government that certain conditions such as LEED building certification and affordable housing quotas would be met, the prospects of affordable housing in the South Waterfront were limited from the start. Obtaining LEED-ND certification without the need to incorporate equity considerations could only increase that inertia, by providing the neighborhood with a "green" brand and reducing the incentives of developers and building owners to adopt a holistic understanding of sustainability

Lloyd EcoDistrict

The differences between the South Waterfront and Lloyd EcoDistrict begin with the landscape of the Lloyd District, a small 410-acre neighborhood located directly across the Willamette River from downtown Portland, which contains various landmarks including a large urban mall, the Oregon Convention Center, and numerous private-sector and government offices. The commercial orientation of the neighborhood is reflected in the city's land use zoning, which devote a full 43% of Lloyd's land area to commercial and employment uses and only 9% for residential uses (see Figure 6.2) (City of Portland, 2017). While Lloyd features a variety of land uses, business interests thus tend to dominate neighborhood planning. The small population that does reside within the Lloyd neighborhood is approximately 80% white and has a median income of around $40,000, which denotes a population that is slightly less diverse than the city as a whole but also less affluent. This population benefits from a high level of infrastructural investment, with comprehensive access to multiple forms of transit including six rail lines, eleven bus lines, a bike route density of 13.5 miles per square mile, and a highly walkable streetscape. These conditions make it very easy for people to live in the neighborhood and commute without a car. As a consequence, nearly 80% of Lloyd residents commute to work via public transit, biking, or walking (DeNies, 2017). This combination of a commercial landscape, a small and largely white residential population, and numerous transportation options all contribute to characteristics of the Lloyd EcoDistrict.

Lloyd EcoDistrict was one of the five EcoDistricts established by the City of Portland and the Portland Sustainability Institute in 2010 as a part of the citywide EcoDistricts pilot program. The effort was supported by a strong neighborhood business

association, which had already been interested in pursuing sustainability goals prior to the launch of the pilot program. Lloyd EcoDistrict's initial approach to sustainability was fundamentally shaped by its status as a 501(c)6 business association, and in its initial projects the EcoDistrict worked almost exclusively with business stakeholders. Justifying this orientation, the organization argues that "we needed to start with the business community to develop credibility, trust, and a track record to show that this idea of scaling up for sustainability was a sound one" (Lloyd EcoDistrict, 2017). While this argument is reasonable, the nearly exclusive focus on business stakeholders in the early years of the EcoDistrict appears to have colored the organization's early approaches to sustainability. In its foundational "roadmap" published in 2012, Lloyd EcoDistrict expresses the goal to become the "most sustainable business district in North America" and explicitly makes allusions to sustainability as an economic development strategy:

> Infusing the value proposition in everything we do in the Lloyd EcoDistrict; is [sic] in our DNA. As a corollary to that outlook, we want to understand and develop a marketing brand strategy that serves businesses in the district. This brand strategy will communicate the difference and, market advantages to doing business in the Lloyd EcoDistrict. A formal brand strategy will be developed when we have a track record of successful initiatives (Portland Sustainability Institute, 2012, p. 9)

Given that Lloyd EcoDistrict's principal stakeholders would have been concerned primarily with their economic well-being, it was crucial for the EcoDistrict to couch its discussion of sustainability in terms of the potential for the EcoDistrict "brand" to generate economic advantages. However, casting sustainability primarily as a brand advantage could mean less attention was being paid to other dimensions of sustainability.

While its status as a business association is fundamental to Lloyd EcoDistrict's interpretation of sustainability, it is also heavily influenced by the EcoDistricts Protocol.

In its roadmap, the Lloyd EcoDistrict also articulates its adherence to the "EcoDistricts Framework," a precursor to the EcoDistricts Protocol that defines neighborhood sustainability in terms of equitable development, health and wellbeing, community identity, access and mobility, energy, water, habitat, and material management (Portland Sustainability Institute, 2012). Lloyd EcoDistrict has continued to operate within that framework as it has evolved, and is currently working to become "EcoDistricts Certified," which means that it intends to adhere to the requirements articulated in the EcoDistricts Protocol established by the national organization. Because Lloyd EcoDistrict has already operated within this model for some time, the primary advantage of certification lies not necessarily in the framework itself but in the access that it provides to an extensive knowledge-sharing network of other neighborhood and community organizations pursuing similar goals. In October 2017, for example, Lloyd EcoDistrict had the opportunity to present its work at a national summit run by the national EcoDistricts organization, with the goal of garnering attention to its current projects among peer organizations (D. Snyder, personal communication, September 28, 2017).

Although Lloyd EcoDistrict initially looked at sustainability through a business-oriented lens, it has evolved toward a more holistic form of sustainability that incorporates various other considerations such as social equity. Lloyd EcoDistrict's initial priorities were primarily infrastructure-oriented, focused on goals such as energy, water, materials management, and job growth (Portland Sustainability Institute, 2012). However, while Lloyd EcoDistrict still approaches sustainability through those specific lenses, its approach now goes beyond mere infrastructural changes to include the process of collaboration itself. Working with members of the neighborhood community – whether

businesses or residents – has become an increasingly important part of the work that Lloyd EcoDistrict does, and it has embraced its role as a facilitator. As the communications and outreach coordinator at Lloyd EcoDistrict describes, "we're good at aggregating people and bringing people together and putting them in a room and saying, 'here's how you could help them and how you could benefit from this relationship'" (D. Snyder, personal communication, September 28, 2017). In its role as a convener, the organization leverages its fairly limited resources to pursue sustainability in a more community-driven way that encourages stakeholders to step in. Getting neighborhood businesses and residents to communicate with one another allows the EcoDistrict to simultaneously pursue sustainability goals and contribute to the cohesion of the neighborhood community. It has also begun to change its approach to sustainability in order to focus more explicitly on community-oriented development, looking at issues such as equity and resilience that previously did not factor significantly into its framework. This is reflected in the organization's goal to move toward 501(c)3 nonprofit status, which will allow it to focus more broadly on using collaborative governance to address community concerns rather than functioning primarily as a top-down business-oriented organization (D. Snyder, personal communication, September 28, 2017).

Lloyd EcoDistrict's current projects reflect its evolving approach to sustainability over time, with a focus upon environmental design elements that has recently begun to shift more recently toward social sustainability. In keeping with its roadmap, the EcoDistrict lists energy, waste, water, and transit as its primary "performance goals." Through its "Energy Action Plan," the EcoDistrict plans to have no net increase in energy use by 2035, achieved through extreme reductions in the energy use of existing buildings,

stricter codes for energy efficiency on new buildings, and the installation of renewable energy generators such as solar panels within the district. As of 2016, the EcoDistrict had made progress on all three of those goals, with a 12.2% reduction in building energy use across the district, new buildings using 30% less energy, and 250,000 square feet of solar panels (Lloyd EcoDistrict, 2016). The EcoDistrict specifically encourages these developments through governance strategies such as the Lloyd EcoDistrict Energy Efficiency (LE3) Working Group, which brings together utilities, city agencies, and building owners, as well as smaller projects such as an LED purchasing program. The EcoDistrict also has a "Waste Reduction Action Plan," focused on creating a "collaborative infrastructure" in which stakeholders cooperate to create waste reduction strategies, with the parallel goal of no net increase in 2016-level waste by 2035. Transportation projects, meanwhile, are primarily focused around bicycles and cycling infrastructure, including an "e-fleet program" that provides electric bicycles to employees and residents within the district and a "pollinator corridor" that uses large planters in the street to protect bicycle lanes while simultaneously providing native perennials for pollinators.

The most common classification of Lloyd EcoDistrict's projects, however, is not one of these four performance goals, but rather "equity," which pertains to six of its current projects. The e-fleet program and pollinator corridor are both listed as equity projects, as are other community-oriented initiatives such as a street intersection mural and a partnership with the organization Elders in Action (EIA), which trains local seniors to provide feedback to businesses on making their services more accessible. In recent months, the EcoDistrict has begun to pursue a more radical agenda to reflect the fact that

"a lot of thought around sustainability has been changing (D. Snyder, personal communication, September 28, 2017). Lloyd EcoDistrict has formed a partnership with the organization Right 2 Dream Too, which provides a temporary rest area for members of Portland's substantial homeless population. When Right 2 Dream Too was evicted from its previous location due to development plans for the area, they were relocated to a site near the Oregon Convention Center, which falls within the Lloyd neighborhood. The EcoDistrict created a number of initiatives to support the organization in its new location, providing 10 solar-powered chargers and 80 sleeping bags and seeking funds for tiny "foam homes" and solar-powered mobile showers built from reclaimed materials. Livable Lloyd – a collaboration between Lloyd EcoDistrict and the neighborhood organizations Lloyd District Community Association and Go Lloyd – also helped to coordinate a welcome dinner for the incoming community, with donations going toward the infrastructural needs of the rest area (D. Snyder, personal communication, September 28, 2017). Although the Lloyd EcoDistrict began as a business-led sustainability initiative, it has clearly evolved into something more complex, taking into account not only the needs of neighborhood residents but also the needs of marginalized members within the broader Portland community.

Living Cully

Living Cully began in the same year as the EcoDistricts pilot program, but immediately diverged from pilot EcoDistricts projects such as South Waterfront and Lloyd in several key respects. Living Cully is actually an alliance of several different organizations: Native American Youth and Family Center (NAYA), Hacienda Community Development Corporation (Hacienda CDC), and Verde, which were later

joined by the Portland/Metro East chapter of Habitat for Humanity. These founding organizations each brought their own visions of neighborhood development into the Living Cully alliance, fundamentally shaping the alliance's interpretation of sustainability. NAYA provides cultural programming for the regional Native population for the purposes of "sustaining tradition and building cultural wealth" (NAYA, 2017). Hacienda Community Development Corporation also provides culturally-specific services by providing affordable housing for the city's Latino community (Hacienda CDC, 2017). The presence of NAYA and Hacienda CDC in the Living Cully alliance ensures that its approach to sustainability incorporates their focus on issues of social equity and racial justice. The environmental and economic dimensions of sustainability are spearheaded by the third founding organization, Verde, which was originally started within the Hacienda CDC as an "Environmental Economy" program. Verde is now an independent nonprofit organization that focuses on "building environmental wealth through Social Enterprise, Outreach and Advocacy" (Verde, 2017). This has entailed finding a way to bring in "green jobs" for the neighborhood's low-income residents, with the goal of simultaneously building the economic wealth of the neighborhood community and enhancing environmental quality. Verde's environment-oriented mission combined with the cultural and social goals of NAYA and Hacienda CDC gave Living Cully a novel approach to sustainability oriented around social equity and racial justice.

These organizations formed Living Cully in 2010 as a response to the investments in sustainability occurring elsewhere in the city through the nascent EcoDistricts pilot program and other redevelopment initiatives that were located in wealthier communities. The alliance was presented as an alternative "EcoDistrict" model that would combat the

potential for displacement by focusing on sustainable development providing benefits for low-income residents and residents of color. Cully deliberately juxtaposed itself with the EcoDistricts pilot program, initially appropriating the EcoDistricts label and referring to itself as the "Living Cully EcoDistrict." It deliberately chose not to become associated with the EcoDistricts organization itself, however, because low-income people and people of color were not a sufficiently large focus in the EcoDistrict framework. A case study of the organization published in 2015 specifies the distinction between Living Cully and the EcoDistricts movement writ large:

> "*Living Cully is unique among Ecodistricts in its focus on equity and its participatory approach to organizing*. In defining itself as an Ecodistrict, Living Cully makes use of the concept developed by a Portland-based nonprofit organization called EcoDistricts… which has developed a formal protocol to guide planners in developing neighborhoods. Living Cully, however, has chosen *not* to use the framework in order to set its own priorities, focusing on implementing its vision of 'sustainability as an anti-poverty strategy'" (Enelow & Hesselgrave, 2015, emphasis added)

The technical approach of the EcoDistricts framework was viewed as problematic within the Cully neighborhood. As one representative from Living Cully describes, "when the EcoDistricts model was coming about… most of those EcoDistricts were located in wealthier communities and more central communities in Portland, where as communities started gentrifying, poor folks were getting pushed further east and continue to be pushed further east in the city" (personal communication, October 5, 2017).

As EcoDistricts has grown into a national brand, Living Cully appears to have dropped its use of the EcoDistrict label and now describes itself simply as a neighborhood organization. Living Cully remains unaffiliated with the national organization, with no plans to pursue the EcoDistricts Protocol. Interestingly, however, the organization is not completely disassociated from the EcoDistricts network; the

aforementioned case study report, for example, was shared on the EcoDistricts organization's online "information exchange." This suggests that EcoDistricts may serve a broad role in facilitating knowledge-sharing not only for organizations participating in its framework, but also other neighborhood-scale sustainability initiatives.

The context of the Cully neighborhood fundamentally shaped both Living Cully's approach to sustainability and its decision to hold the EcoDistricts Protocol at a distance. In contrast with the previous two case studies and many other neighborhoods in Portland, almost 50% of the Cully neighborhood is non-white and 27% is below the federal poverty level. Like many such neighborhoods, Cully is subject to substantial environmental "bads," with industrial land uses making up more than half of its land area and located directly adjacent to residential properties. Consequently, residents must contend with the negative externalities such as noise and pollution associated with living close to heavy industry. The neighborhood also has a relatively poor walking infrastructure, reflecting a long history of disinvestment. According to Living Cully, the neighborhood was annexed into Portland in 1985 without basic infrastructure investments, resulting in only 34% of the neighborhood's streets including sidewalks. Additionally, although Cully has 55 acres of park space, only 24% of its residents live within ¼ mile of any of its three public parks, making them largely inaccessible to many residents (Living Cully, 2017a). However, in spite of these disamenities, the Cully population is particularly vulnerable to changes in property values, which rose nearly 11% for the city as a whole between 2015 and 2016. This shift was even more dramatic in the Cully neighborhood, where property values increased by 25% between 2015 and 2016 and by 57% between 2012 and 2016 (DeNies, 2017). Living Cully's mission and approach to sustainability are thus premised

on correcting these historic inequities resulting from a lack of investment combined with proximity to industry while avoiding the potential for green gentrification.

Living Cully consistently discusses sustainability as a method for facilitating community development, particularly for its low-income residents and residents of color. Reflecting the missions of its constituent organizations, Living Cully has adopted a community-centered model that defines sustainability as "an anti-poverty strategy by concentrating environmental investments at the neighborhood scale and braiding those investments with traditional community development resources" (Living Cully, 2017a). This anti-poverty framing defines Living Cully's entire approach to sustainability, which seems to be less about balancing the traditional three dimensions of environmental, economic, and social sustainability than about finding ways to make environmental and economic sustainability serve social justice goals. In choosing sustainability initiatives, Living Cully "works through a lens of community organizing, community-driven initiatives, creating opportunities for local employment, [and] contracting with women- and minority-owned businesses" (C. Gonzalez, personal communication, February 22, 2018). Verde is particularly conscious of the importance of linking environmental and social objectives, as it works to attract green jobs and green investments to the neighborhood. However, Living Cully is also acutely aware of the drawbacks associated with infrastructural investments such as bike lanes and sidewalks, especially in relation to the potential for eco-gentrification. Thus, it pays special attention to anti-displacement strategies that would allow current low-income residents and residents of color to benefit from enhancements in infrastructure or environmental quality such as increased

affordable housing, and increased employment opportunities (Living Cully, personal communication, October 5, 2017).

Living Cully's recent projects reflect its steadfast commitment to equity and social justice, with approaches to sustainability that are all ultimately tied to the needs of the community. Many of Living Cully's projects focus solely on social equity, including policy advocacy against the redevelopment of property into higher-rent housing and for the construction of affordable housing through the Hacienda CDC. Other projects focus more explicitly on sustainability, including the Living Cully Community Energy Plan, which identifies energy projects that simultaneously address climate change and sustain or increase affordable housing. The thought process behind the Community Energy Plan was centered primarily around the needs of community members:

> "What does it mean to a low-income person to hear about an energy plan? Well, for many people it would mean 'I'd like to save energy on my bills' or 'I'd like my trailer home weatherized so it's not cold in winter and my bill would be lower' or 'I'd like to be able to buy into a solar co-op when I also know that reduces the cost I would have to pay'" (Living Cully, personal communication, October 5, 2017)

This same attitude underpins Living Cully's involvement in Environmental Justice work: in response to the fact that many neighborhood residents lack basic access to the natural environment, Living Cully advocates for more green space and is currently turning a 25-acre former landfill into a public park. In addition, it has partnered with the local Native American community through NAYA to create an "eco-cultural restoration area." This initiative combines environmental goals with the social goal of cultural preservation on NAYA's 10.6-acre campus in the Cully neighborhood (Living Cully, 2017b). Through these projects, Living Cully demonstrates a clear and consistent approach to sustainability that is premised on its mission of reinterpreting sustainability as an anti-poverty tool.

While Living Cully is more community-oriented than either the South Waterfront or Lloyd Ecodistrict, it also lacks the advantages that come with having an external framework. Living Cully focuses largely on what can be accomplished within its community: "Part of the Living Cully paradigm is to do Cully-specific development, so at the moment we haven't been thinking about using projects that involve looking at a larger scale of impact. I think one of the challenges, which I wouldn't say is neighborhood-specific, might just be that it's a community-driven effort by a nonprofit" (C. Gonzalez, personal communication, February 22, 2018). Living Cully *does* benefit from existing within specific networks that help the organization to identify strategies for sustainable development, but it lacks the same level of guidance that LEED-ND or EcoDistricts provides and does not possess the same capacity to attract funding. The organization has ambitions to eventually expand its reach and influence city and state policies, and it has been in conversations with several local governments about codifying justice-oriented sustainability practices. While they seek to provide strategies that can ultimately be replicated within other low-income communities, for the moment their efforts remain rooted heavily in the Cully neighborhood (Living Cully, personal communication, October 5, 2017; C. Gonzalez, personal communication, February 22, 2018).

Discussion

The South Waterfront, Lloyd EcoDistrict, and Living Cully all began at approximately the same time with broadly similar goals to create sustainable practices scaled to the neighborhood. However, each of the three projects differs in terms of institutional history, discourses surrounding sustainability, and approaches to social equity. The differences between the three initiatives arise in part from the characteristics

of the neighborhoods within which they originated, which deviate from one another along multiple dimensions (see Table 6.1). The land use differences between the three neighborhoods, for example, indicate three very different communities with disparate needs and requirements (see Figure 6.2). The South Waterfront is entirely zoned as commercial but includes a mix of dense land uses that reflect both its relatively recent development and proximity to the downtown core. Lloyd EcoDistrict concerns itself mainly with business stakeholders, as they are by far the most prominent voices within its neighborhood. Living Cully's approach to sustainability is shaped by the fact that its diverse neighborhood with many low-income residents encompasses large swathes of industrial land that are directly adjacent to residential areas. While the South Waterfront and Lloyd EcoDistrict both initially approached sustainability through the lens of business activities, Living Cully is much more oriented toward resident needs and the environmental justice concerns arising from the mix of incompatible land uses present in the Cully neighborhood. Living Cully is also driven to focus on social equity and racial justice to a greater extent than the other two initiatives as a result of its demographic and socioeconomic characteristics. The resident populations of the Lloyd District and the South Portland neighborhood are relatively small and homogeneous, whereas the Cully neighborhood is a very diverse neighborhood with a history of disinvestment and vulnerability to gentrification. This means that in order to serve its principal stakeholders, Living Cully must be more intentional about how it incorporates both racial justice and social equity into its understanding of sustainability.

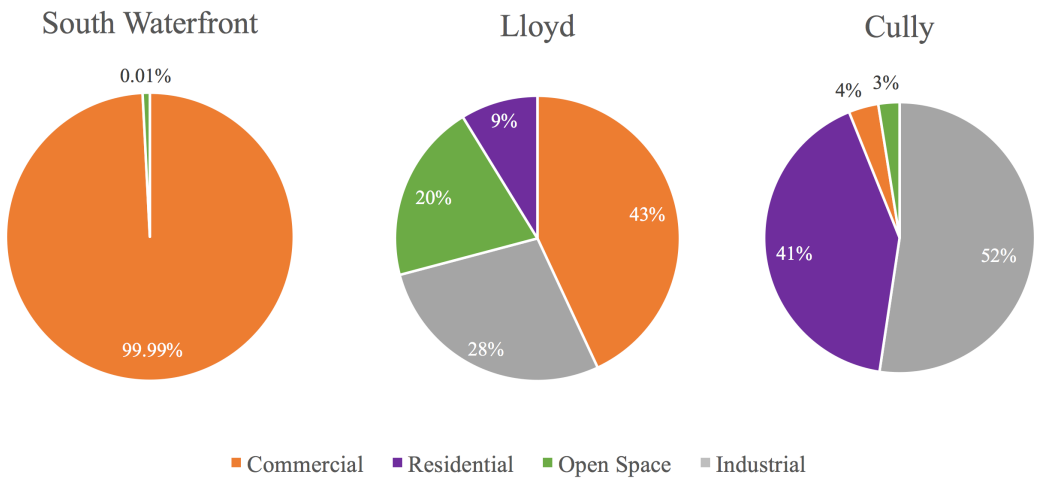
The approach that each of these projects has taken to social equity reflects the advantages that they obtain from participating (or not participating) in a given

Table 6.1: Characteristics of Portland neighborhoods within which the three case study initiatives are located

Neighborhood		City of Portland	South Portland*	Lloyd	Cully
Area	Neighborhood Size (Sq. Miles)	145	1.67	0.64	2.85
Demographics	Population	612,206	9,291	2,417	14,223
	Percentage Non-White	27.5%	17.4%	20.1%	48.4%
	Median Household Income	$55,003	$78,395	$40,567	$40,144
	Percentage Below Federal Poverty Level	18%	13.3%	22.7%	27.1%
Property Value	Property Value (Per Square Foot)	$233	$335	$278	$192
	Median Price Change (2015-2016)	↑12%	↑7.0%	↓3.2%	↑23.8%
	Median Price Change (2012-2016)	↑52%	↑40.0%	↑71.1%	↑57.1%
Amenities	Public Parks (Acres)	13,488	70	2	57
	Total Transit Routes {Rail Transit Routes}	64 {8}	27 {4}	15 {6}	4 {0}
	Bike Routes (Miles) {Density Per Sq. Mile}	456.4 {3.1}	11.2 {6.6}	6.9 {13.5}	6.8 {2.2}
	Walk Score	64	55	86	55

*Whereas Lloyd EcoDistrict and Living Cully encompass the entirety of their respective neighborhoods, the South Waterfront Central District comprises less than half of the "South Portland" neighborhood. Therefore, while these statistics are instructive they should not be compared directly.

Figure 6.2: Land-use zoning for each Portland case study neighborhood



certification framework. LEED-ND certification provided the South Waterfront project with definitive guidelines and a strong brand identity, but it lacked capacity for continuous governance and knowledge-sharing. The project concluded after LEED-ND certification and thus has not experienced significant evolution since that time. One of the most recent building completed within the site was the South Waterfront's single source of affordable units, but it remains the only project with affordable units in the neighborhood thus far. By not participating in any certification framework, Living Cully is the polar opposite, with no guidance or brand identity, but with strong continuous governance and at least some capacity to share knowledge with other neighborhood actors. This has led Living Cully to have a consistent and community-oriented definition of social sustainability, and each of its goals correspond in some way to community development, from the expansion of affordable housing to building employment and income opportunities for residents, and from anti-displacement development to community engagement through collective action (Living Cully, 2017a). Lloyd EcoDistrict appears to combine many of these advantages, with a guiding framework provided by the EcoDistricts Protocol along with a structure of continuous governance and the ability to share knowledge with other neighborhoods. Consequently, in contrast to the South Waterfront and Living Cully, Lloyd EcoDistrict's use of social sustainability has evolved over time: while the organization initially worked primarily with business stakeholders, they have begun to think more intentionally about equity and community resilience. Continuous governance allowed the Lloyd EcoDistrict to change its approach over time, while the guiding framework of the EcoDistricts Protocol and the knowledge-sharing networks established through EcoDistricts led Lloyd to incorporate equity. In

working to incorporate resilience and equity into its operations, Lloyd EcoDistrict has adopted a more radical approach to social sustainability in spite of the fact that doing so has no immediate benefit for its commercial stakeholders.

While this transformation was not necessarily induced solely by the EcoDistricts framework, the prominent use of equity and community resilience language throughout the EcoDistricts protocol and the existence of a national network of EcoDistricts with which Lloyd EcoDistrict is able to communicate suggest that it may have served as a contributing factor. This argument is echoed by the Green Building Policy Coordinator at the City of Portland, who describes the evolution of the EcoDistricts framework itself in similar terms: "EcoDistricts definitely steered toward becoming about people over time… it started off similar to LEED-ND with lots of standards and requirements, but became more about a people-driven process" (personal communication, January 5, 2018). Whereas the original incarnation of EcoDistricts was indeed designed as a market-driven standard and thus fit into the New Environmental Politics of Urban Development much like LEED-ND, its evolution into a more people-oriented framework fundamentally altered the approaches of its constituent neighborhood initiatives as well. Unlike Living Cully, which was cognizant of the importance of social justice from the start, the largely commercial constituency of the Lloyd EcoDistrict needed adherence to an external framework such as EcoDistricts in order to create a more inclusive and equitable form of sustainability.

Chapter 7: Moving Beyond the Neighborhood

Neighborhood-scale sustainability certification frameworks are a relatively new phenomenon, but the findings of the preceding chapters indicate that they possess a great deal of transformative potential. As discussed previously, urban sustainability has been shaped by a "New Urban Politics of Scale" in which actors at the scale of urban government are compelled to pursue economic development objectives at the expense of other policy goals. The effects of the New Urban Politics of Scale reverberate down to the neighborhood scale, with urban governments pushing for neighborhood-scale projects that serve economic development objectives. However, there are clear distinctions between neighborhoods that benefit from this form of politics and those that suffer negative consequences as a result of targeted development projects. While wealthier communities are often able to attract desirable development projects and resist undesirable development, lower-income communities are less able to make the same decisions due to constraints on their economic, political, and social capital.

This form of scalar politics is reflected in the evolution of urban sustainability as well, where a "New Environmental Politics of Urban Development" has seen environmentalism and sustainability increasingly employed as tools to encourage economic development. This entwining of sustainability and economic development raises the possibility that sustainable development in urban areas will either only serve wealthier communities or will act as a catalyst for displacement in lower-income communities. As sustainability increasingly functions as a central principle of urban planning, it is essential to consider which communities are actually served by sustainable development policies. Previous studies do not inspire confidence. Sustainable

development often takes place in areas that already possess a great deal of economic capital or brownfield redevelopments that provide a location for significant capital inflows. Lower-income communities, meanwhile, are burdened either by severe environmental disamenities such as proximity to heavy industry or by the threat of gentrification and displacement if new development does occur. This seemingly no-win scenario is a direct consequence of the hierarchical relationship inherent to the New Urban Politics of Scale, which provides a direct flow of capital from global actors to neighborhood developments.

While neighborhood-scale sustainability certification frameworks are clearly not a comprehensive solution for implementing urban sustainability, they have the potential to encourage the creation and development of strategies for a more holistic form of sustainability. Although Barber (2013) would argue that cities are the optimal scale for political action due to their ability to cooperate with one another across national borders, this analysis has shown that cities are subject to an intense pressure to conform to the needs of global-scale financial capital. In this context, neighborhoods emerge as an alternative scale for political action at which the needs of individual communities are prioritized. Neighborhoods are able to cooperate with one another through networks of knowledge-sharing while simultaneously representing a scale of political action that is even closer to individual communities. While certification frameworks provide various benefits to individual neighborhood initiatives including guidance and legitimacy through branding, arguably their most important innovation is the creation of multi-scalar frameworks that subvert the dominant global-local relationship and generate more transformative forms of political change. Frameworks such as LEED-ND and

EcoDistricts echo parallel efforts to generate interurban climate governance networks such as the "Cities for Climate Protection Programme," but combine the advantages of such frameworks with the benefits of operating at the neighborhood scale. Such networks have allowed local actors to operate at multiple scales simultaneously by providing lines of communication with other local actors in extra-local forums (Leitner et al., 2002). However, the actors participating in interurban networks are generally members of city governments, which limits the range of potential viewpoints and objectives particularly given the economic development imperative imposed by global-scale actors. In principle, neighborhood-scale sustainability certification frameworks could bring a similar model to neighborhood actors by providing them with opportunities to engage with one another and exceed their individually limited capacities.

Focusing on the potential for multi-scalar networks of governance and knowledge-sharing to increase the impact and autonomy of neighborhood initiatives, key differences emerge between LEED-ND, EcoDistricts, and organizations such as Living Cully that are not affiliated with either framework. While the LEED-ND certification framework is the most established, it also appears to provide the least potential for multi-scalar knowledge-sharing. The framework does evolve in response to the successes and failures of individual neighborhood initiatives, but it evolves slowly and is coordinated in a top-down manner through the USGBC. In addition, knowledge-sharing between LEED-ND projects is difficult because there is no requirement for continued engagement after certification is achieved. The LEED-ND model is thus premised on direct replication of best practices through quantifying different dimensions of sustainability.

The approach of Living Cully is in many ways the polar opposite of LEED-ND, where instead of focusing on universal standards and potential for replication it focuses largely on finding solutions that work within its own neighborhood. However, Living Cully has begun to broaden its focus as well: while the organization still operates largely within its own neighborhood, it also interacts with other neighborhood actors through forums convened by funders (Living Cully, personal communication, October 5, 2017). In addition, Living Cully is actively seeking to influence policy through conversations with local policymakers around affordable housing and renewable energy. The Community Energy Advocate at Verde notes that Living Cully was able to get both the City of Portland and Multnomah County to include "a goal of investing in community-based renewable energy" in their renewable energy policies (C. Gonzalez, personal communication, February 22, 2018). Living Cully also sees the potential for its strategies to function as replicable models that could be adopted by other community-oriented organizations. As a representative from Living Cully describes,

> "Our goal is not only to work in the neighborhood but also to have a model that could be considered replicable in other cases – in other low-income communities – and also to have broader policy impacts that do impact things at the city or the state level. I think the learning could be done at the neighborhood scale, but that learning could also radiate out." (Living Cully, personal communication, October 5, 2017).

While Living Cully has the goal of replicability, however, it does not have access to the same type of formalized knowledge-sharing network provided by EcoDistricts.

In contrast to the approaches of LEED-ND and independent neighborhood organizations, I would argue that the multi-scalar network created through the EcoDistricts framework represents the most promising model for neighborhoods to pursue radical social change. The EcoDistricts framework has greater durability and

reach than individual neighborhood projects, simultaneously providing neighborhood initiatives with autonomy to interpret sustainability in the context of their own self-defined communities and guidance to pursue sustainability in a holistic manner. The best example of this phenomenon is the Lloyd EcoDistrict, which originally reflected the business community's interest in leveraging sustainability as a branding tool but has since pursued an approach that is truly community-oriented through its support of the homeless encampment moved into the neighborhood. This indicates that involvement in the EcoDistricts certification not only provided a framework for collaborative governance and a forum for knowledge-sharing, but also encouraged a shift toward a more holistic form of sustainability.

Whether or not the EcoDistricts Protocol ultimately creates a widespread model for community-oriented sustainable development, it provides a more organic alternative to the *direct* replication of policies privileged in the New Urban Politics of Scale and within the LEED-ND certification framework. The key innovation of EcoDistricts is that it uses its principles as a common platform through which participating neighborhood organizations can use to communicate with one another. Direct replication of best practices is not feasible in the EcoDistricts framework simply because participating neighborhoods tend to differ substantially from one another. While it is therefore difficult for EcoDistricts organizations to directly share best practices, they are able to engage with one another, give one another feedback, and provide inspiration to one another by participating in those forums (D. Queeley, personal communication, November 25, 2017; B. Wolovich, personal communication, November 27, 2017; R. Walsh, personal communication, November 27, 2017). By operating at multiple scales simultaneously,

neighborhood actors can interact with one another and also begin to influence actors at larger political scales such as city, county, or state governments. In this way, neighborhood actors can collaboratively produce radical and transformative social change "from the neighborhood up."

Bibliography

Acuto, M. (2012). Ain't about Politics? The Wicked Power-Geometry of Sydney's Greening Governance. *International Journal of Urban and Regional Research*, *36*(2), 381(19). https://doi.org/10.1111/j.1468-2427.2011.01063.x

Aggarwal, R. M. (2013). Strategic Bundling of Development Policies with Adaptation: An Examination of Delhi's Climate Change Action Plan. *International Journal of Urban and Regional Research*, *37*(6), 1902–1915. https://doi.org/10.1111/1468-2427.12032

Aroul, R. R., & Hansz, J. A. (2012). The Value of 'Green': Evidence from the First Mandatory Residential Green Building Program. *Journal of Real Estate Research*, *34*(1). Retrieved from https://papers.ssrn.com/abstract=2029716

Barber, B. (2013). *If Mayors Ruled the World: Dysfunctional Nations, Rising Cities* (1st edition). New Haven: Yale University Press.

Brenner, N., & Theodore, N. (2002). Preface: From the "New Localism" to the Spaces of Neoliberalism. *Antipode*, *34*(3), 341–347. https://doi.org/10.1111/1467-8330.00245

Brown, T. (2016). Sustainability as Empty Signifier: Its Rise, Fall, and Radical Potential. *Antipode*, *48*(1), 115–133. https://doi.org/10.1111/anti.12164

Bulkeley, H. (2005). Reconfiguring environmental governance: Towards a politics of scales and networks. *Political Geography*, *24*(8), 875–902. https://doi.org/10.1016/j.polgeo.2005.07.002

Bulkeley, H. (2010). Cities and the Governing of Climate Change. *Annual Review of Environment and Resources*, *35*, 229–254. https://doi.org/10.1146/annurev-environ-072809-101747

Bulkeley, H., & Betsill, M. (2003). *Cities and climate change: urban sustainability and global environmental governance*. London ; Routledge.

Bulkeley, H., & Betsill, M. (2005). Rethinking sustainable cities: Multilevel governance and the'urban'politics of climate change. *Environmental Politics*, *14*(1), 42–63. https://doi.org/10.1080/0964401042000310178

Bunce, S. (2009). Developing sustainability: sustainability policy and gentrification on Toronto's waterfront. *Local Environment*, *14*(7), 651–667. https://doi.org/10.1080/13549830903097740

Calvin, E. (2012, September 28). Live Green in South Waterfront. Retrieved January 8, 2018, from http://www.southportlandba.com/live-green-south-waterfront/

Campbell, E., Henly, J. R., Elliott, D. S., & Irwin, K. (2009). Subjective Constructions of Neighborhood Boundaries: Lessons from a Qualitative Study of Four Neighborhoods. *Journal of Urban Affairs*, *31*(4), 461–490. https://doi.org/10.1111/j.1467-9906.2009.00450.x

Chaskin, R. J. (1997). Perspectives on Neighborhood and Community: A Review of the Literature. *Social Service Review*, *71*(4), 521–547.

Citron, P. (2014). Les écoquartiers: une exception française de plus? Analyse quantitative de 186 projets issus de l'appel à projet ÉcoQuartier 2011. *Logements et Politique(S)*, 107–124.

City of Copenhagen. (2012). *CPH 2025 Climate Plan* (p. 64). The City of Copenhagen - Technical and Environmental Administration.

City of Portland. (2017). Portland Maps Open Data. Retrieved December 15, 2017, from http://gis-pdx.opendata.arcgis.com/

City of Portland Bureau of Planning. (2002). *South Waterfront Plan*. Retrieved from https://www.portlandoregon.gov/bps/article/58748

City of Vancouver. (2016). *Greenest City Action Plan*. Retrieved from http://vancouver.ca/green-vancouver/greenest-city-action-plan.aspx

Clark, S., & Teachout, W. (2012). *Slow Democracy: Rediscovering Community, Bringing Decision Making Back Home*. Chelsea Green Publishing.

Clarke, P. W. (2005). The Ideal of Community and its Counterfeit Construction. *Journal of Architectural Education*, *58*(3), 43–52. https://doi.org/10.1162/1046488053420960

Cowell, R. (2015). "Localism" and the Environment: Effective Re-scaling for Sustainability Transition? In S. Davoudi & A. Madanipour, *Reconsidering localism* (pp. 216–237). New York: Routledge.

Cox, K. R. (1993). The Local and the Global in the New Urban Politics: A Critical View. *Environment and Planning D: Society and Space*, *11*(4), 433–448. https://doi.org/10.1068/d110433

Cox, K. R. (2002). "Globalization," the "Regulation Approach," and the Politics of Scale. In A. Herod & M. W. Wright, *Geographies of power: placing scale* (pp. 85–114). Malden, MA: Blackwell Pub.

Dale, A., & Newman, L. L. (2009). Sustainable development for some: green urban development and affordability. *Local Environment*, *14*(7), 669–681. https://doi.org/10.1080/13549830903089283

Davoudi, S., & Madanipour, A. (2015). *Reconsidering localism*. New York: Routledge.

De Sousa, C., & D'Souza, L.-A. (2011). *South Waterfront District, Portland, OR: A Sustainable Brownfield Revitalization Best Practice* (Sustainable Brownfields Consortium). University of Illinois at Chicago Institute for Environmental Science and Policy. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.593.1545&rep=rep1&type=pdf

DeNies, R. (2016, April 1). Portland Neighborhoods by the Numbers 2016: The City. *Portland Monthly*. Retrieved from https://www.pdxmonthly.com/articles/2016/4/1/real-estate-2016-the-city

DeNies, R. (2017, March 22). Portland Neighborhoods by the Numbers 2017: The City. *Portland Monthly*. Retrieved from https://www.pdxmonthly.com/articles/2017/3/22/portland-neighborhoods-by-the-numbers-2017-the-city

Dooling, S. (2009). Ecological Gentrification: A Research Agenda Exploring Justice in the City. *International Journal of Urban and Regional Research*, *33*(3), 621–639. https://doi.org/10.1111/j.1468-2427.2009.00860.x

Dryzek, J. S. (2005). *The Politics of the Earth: Environmental Discourses* (2nd ed.). Oxford: Oxford University Press.

EcoDistricts. (2015, February). Portland Ecodistrict Pilot Program Evaluation. EcoDistricts. Retrieved from https://ecodistricts.org/wp-content/uploads/2013/05/Portland-Pilot-Program-Evaluation.pdf.

EcoDistricts. (2016). *EcoDistricts Protocol Version 1.2*. EcoDistricts.

EcoDistricts. (2018a). District Registry. Retrieved November 18, 2017, from https://ecodistricts.org/district-registry/

EcoDistricts. (2018b). EcoDistricts Certified Fee Structure. Retrieved April 7, 2018, from https://ecodistricts.org/ecodistricts-certified/fee-structure/

EcoDistricts. (2018c). EcoDistricts Summit Program. Retrieved April 8, 2018, from http://www.summit.ecodistricts.org/program/

EcoDistricts. (2018d). Get Started. Retrieved November 18, 2017, from https://ecodistricts.org/get-started/

Enelow, N., & Hesselgrave, T. (2015). *Verde and Living Cully: A Venture in Placemaking*. EcoTrust. https://doi.org/10.13140/RG.2.1.3855.8323

evolveEA. (2016). *Millvale EcoDistrict Pivot 2.0 Report*. Retrieved from https://issuu.com/evolveea/docs/millvale_pivot_2_final_report_highr

Fainstein, S. S. (2008). Mega-projects in New York, London and Amsterdam. *International Journal of Urban and Regional Research*, *32*(4), 768–785. https://doi.org/10.1111/j.1468-2427.2008.00826.x

Flint, J. (2009). Neighborhoods and Community. In R. Kitchin & N. Thrift (Eds.), *International Encyclopedia of Human Geography* (pp. 354–359). Elsevier Science.

Flurin, C. (2017). Eco-districts: Development and Evaluation. A European Case Study. *Procedia Environmental Sciences*, *37*, 34–45. https://doi.org/10.1016/j.proenv.2017.03.012

Fung, A., Wright, E. O., & Abers, R. (2003). *Deepening democracy: institutional innovations in empowered participatory governance*. London: Verso.

Garde, A. (2009). Sustainable by Design?: Insights From U.S. LEED-ND Pilot Projects. *Journal of the American Planning Association*, *75*(4), 424–440. https://doi.org/10.1080/01944360903148174

Gibson-Graham, J. K. (2002). Beyond Global vs. Local: Economic Politics Outside the Binary Frame. In A. Herod & M. W. Wright (Eds.), *Geographies of power: placing scale*. Malden, MA: Blackwell Pub.

Goodling, E., Green, J., & McClintock, N. (2015). Uneven development of the sustainable city: shifting capital in Portland, Oregon. *Urban Geography*, *36*(4), 504–527. https://doi.org/10.1080/02723638.2015.1010791

Gould, K. A., & Lewis, T. L. (2017). *Green gentrification: urban sustainability and the struggle for environmental justice*. London: Routledge.

Gragg, R. (2012, February 17). Black in Portland. *Portland Monthly*. Retrieved from https://www.pdxmonthly.com/articles/2012/2/17/black-in-portland-march-2012

Green Business Certification Inc. (2018, January 10). ND Project List 20180110. Green Business Certification Inc. Retrieved from email correspondence

Grewe, T., Anderson, S., & Butman, L. (2002). Portland, Oregon: A Case Study in Sustainability. *Government Finance Review*, *18*(Part 1), 8–13.

Gunder, M. (2006). Sustainability: Planning's Saving Grace or Road to Perdition? *Journal of Planning Education and Research*, *26*(2), 208–221. https://doi.org/10.1177/0739456X06289359

Gunder, Michael, & Hillier, J. (2016). *Planning in Ten Words Or Less: A Lacanian Entanglement with Spatial Planning*. London: Routledge.

Hacienda CDC. (2017). Who We Are. Retrieved December 15, 2017, from http://www.haciendacdc.org/about-hacienda/

Hackworth, J. R. (2007). *The Neoliberal City: Governance, Ideology, and Development in American Urbanism*. Ithaca: Cornell University Press.

Hall, T., & Hubbard, P. (1998). *The entrepreneurial city: geographies of politics, regime, and representation*. Chichester: Wiley.

Harvey, D. (1982). *The limits to capital*. Chicago: University of Chicago Press,.

Harvey, D. (1989). From managerialism to entrepreneurialism: the transformation in urban governance in late capitalism. *Geografiska Annaler*, *71*(1), 3–17. https://doi.org/10.2307/490503

Harvey, D. (1996). *Justice, nature, and the geography of difference*. Cambridge, MA.: Blackwell Publishers.

Holcomb, B. (1994). City make-overs: marketing the post-industrial city. In J. R. Gold & S. V. Ward (Eds.), *Place Promotion: The Use of Publicity and Marketing to Sell Towns and Regions* (pp. 133–143). Wiley.

Holden, M. (2013). Urban Policy Engagement with Social Sustainability in Metro Vancouver. *Urban Studies*, *49*(3), 527–542. https://doi.org/10.1177/0042098011403015

Holman, N. (2009). Incorporating local sustainability indicators into structures of local governance: a review of the literature. *Local Environment*, *14*(4), 365–375. https://doi.org/10.1080/13549830902783043

Holt, W. G. (2014). *From Sustainable to Resilient Cities: Global Concerns and Urban Efforts*. Bingley, UK: Emerald.

Iverot, S. P., & Brandt, N. (2011). The development of a sustainable urban district in Hammarby Sjöstad, Stockholm, Sweden? *Environment, Development and Sustainability*, *13*(6), 1043–1064. https://doi.org/10.1007/s10668-011-9304-x

Jessop, B. (1993). Towards a Schumpeterian workfare state? Preliminary remarks on post-Fordist political economy. *Studies in Political Economy*, (40), 7–39. https://doi.org/10.1080/19187033.1993.11675409

Jonas, A. E. G., & Wilson, D. (1999). *The urban growth machine: critical perspectives two decades later*. Albany, N.Y.: State University of New York Press.

Jonas, A., Gibbs, D., & While, A. (2011). The New Urban Politics as a Politics of Carbon Control. *Urban Studies*, *48*(12), 2537–2554. https://doi.org/10.1177/0042098011411951

Jones, J. P., Leitner, H., Marston, S., & Sheppard, E. (2016). Neil Smith's Scale. *Antipode*, *49*(S1), 138–152. https://doi.org/10.1111/anti.12254

Kahn, M. E., & Kok, N. (2014). The capitalization of green labels in the California housing market. *Regional Science and Urban Economics*, *47*, 25–34. https://doi.org/10.1016/j.regsciurbeco.2013.07.001

Katz, P. (1994). *The New Urbanism: Toward An Architecture of Community*. New York: McGraw-Hill.

Kim, K.-B. (2005). Towards Sustainable Neighborhood Design: A Sustainability Evaluation Framework and a Case Study of the Greenwich Millennium Village Project. *Journal of Architectural and Planning Research*, *22*(3), 181–203.

King, C., Gunton, J., Freebairn, D., Coutts, J., & Webb, I. (2000). The Sustainability Indicator Industry: Where to From Here? A Focus Group Study to Explore the Potential of Farmer Participation in the Development of Indicators. *Animal Production Science*, *40*, 631–642. https://doi.org/10.1071/EA99148

King, N., & Horrocks, C. (2010). *Interviews in Qualitative Research*. SAGE Publications.

Krueger, R., & Gibbs, D. (2007). *The Sustainable Development Paradox: Urban Political Economy in the United States and Europe*. Guilford Press.

Lehrer, U., & Laidley, J. (2008). Old Mega-Projects Newly Packaged? Waterfront Redevelopment in Toronto. *International Journal of Urban and Regional Research*, *32*(4), 786–803. https://doi.org/10.1111/j.1468-2427.2008.00830.x

Leitner, H., Pavlik, C., & Sheppard, E. (2002). Networks, Governance, and the Politics of Scale: Inter-urban Networks and the European Union. In A. Herod & M. W. Wright, *Geographies of power: placing scale* (pp. 274–303). Malden, MA: Blackwell Pub.

Living Cully. (2017a). About Living Cully. Retrieved October 17, 2017, from http://www.livingcully.org/about-living-cully/

Living Cully. (2017b). Health and Environment. Retrieved November 19, 2017, from http://www.livingcully.org/programs/health-and-environment/

Lloyd EcoDistrict. (2016). *Lloyd EcoDistrict Energy Action Plan Update 2016*. Retrieved from http://www.ecolloyd.org/reports/

Lloyd EcoDistrict. (2017). About the Lloyd EcoDistrict. Retrieved October 17, 2017, from http://www.ecolloyd.org/who-we-are/

Mapes, J., & Wolch, J. (2011). "Living Green": The Promise and Pitfalls of New Sustainable Communities. *Journal of Urban Design*, *16*(1), 105–126. https://doi.org/10.1080/13574809.2011.521012

Marston, S. A., Jones, J. P., & Woodward, K. (2005). Human Geography without Scale. *Transactions of the Institute of British Geographers*, *30*(4), 416–432.

Marvin, S., & Guy, S. (1997). Creating myths rather than sustainability: The transition fallacies of the new localism. *Local Environment*, *2*(3), 311–318. https://doi.org/10.1080/13549839708725536

McCann, E. (2003). Framing Space and Time in the City: Urban Policy and the Politics of Spatial and Temporal Scale. *Journal of Urban Affairs*, *25*(2), 159–178. https://doi.org/10.1111/1467-9906.t01-1-00004

McCann, E. (2011). Urban Policy Mobilities and Global Circuits of Knowledge: Toward a Research Agenda. *Annals of the Association of American Geographers*, *101*(1), 107–130. https://doi.org/10.1080/00045608.2010.520219

McCann, E. (2013). Policy Boosterism, Policy Mobilities, and the Extrospective City. *Urban Geography*, *34*(1), 5–29. https://doi.org/10.1080/02723638.2013.778627

Medved, P. (2017). Leading sustainable neighbourhoods in Europe: Exploring the key principles and processes. *Urbani Izziv*, *28*(1), 107–121. https://doi.org/10.1057/s41289-016-0037-1

Mitchell, K. (2008, December 16). Portland mayor-elect announces bureau changes, council duties. *The Oregonian*. Retrieved from http://www.oregonlive.com/news/index.ssf/2008/12/portland_mayorelect_announces.html

Murrain, P. (2012). The Neighbourhood Unit: The Antithesis of Sustainable Urbanism. In *Sustainable Urbanism and Beyond: Rethinking Cities for the Future* (pp. 148–154). New York: Rizzoli.

NAYA. (2017). About. Retrieved December 15, 2017, from http://nayapdx.org/about/

Peck, J. (2010). *Constructions of Neoliberal Reason*. Oxford: Oxford University Press.

Peck, J., & Theodore, N. (2010). Mobilizing policy: Models, methods, and mutations. *Geoforum*, *41*(2), 169–174. https://doi.org/10.1016/j.geoforum.2010.01.002

Peck, J., & Tickell, A. (1994). Jungle Law Breaks Out: Neoliberalism and Global-Local Disorder. *Area*, *26*(4), 317–326.

Pérez, A. (2007). Between Radical Theory and Community Praxis. In Incite! Women of Color Against Violence., *The revolution will not be funded: beyond the non-profit industrial complex* (pp. 91–99). Cambridge, MA: South End Press.

Peterson, P. E. (1981). *City Limits*. University of Chicago Press.

Portland Sustainability Institute. (2011). Pilot Report: South Waterfront EcoDistrict Development. Retrieved from https://ecodistricts.org/wp-content/uploads/2013/03/SouthWaterfront-cs51.pdf

Portland Sustainability Institute. (2012). *Lloyd EcoDistrict Roadmap*. Retrieved from http://www.ecolloyd.org/reports/

Purcell, M. (2006). Urban Democracy and the Local Trap. *Urban Studies*, *43*(11), 1921–1941. https://doi.org/10.1080/00420980600897826

Quastel, N. (2009). Political Ecologies of Gentrification. *Urban Geography*, *30*(7), 694–725. https://doi.org/10.2747/0272-3638.30.7.694

Ramiller, A., & Schmidt, P. (2017). Scale limits to sustainability: Transdisciplinary evidence from three Danish cases. *Environmental Innovation and Societal Transitions*. https://doi.org/10.1016/j.eist.2017.10.001

REACH Community Development. (2018). Gray's Landing. Retrieved February 22, 2018, from http://reachcdc.org/properties/property-listings/grays-landing/

Rees, W. E. (1992). Ecological Footprint and Appropriated Carrying Capacity: What Urban Economics Leaves Out. *Environment and Urbanization - ENVIRON URBAN*, *4*(2), 121–130. https://doi.org/10.1177/095624789200400212

Rees, W., & Wackernagel, M. (1996). Urban ecological footprints: Why cities cannot be sustainable—And why they are a key to sustainability. *Environmental Impact Assessment Review*, *16*(4), 223–248. https://doi.org/10.1016/S0195-9255(96)00022-4

Rose, N. (1996). The death of the social? Re-figuring the territory of government. *Economy and Society*, *25*(3), 327–356. https://doi.org/10.1080/03085149600000018

Schumacher, E. F. (1973). *Small Is Beautiful: Economics as if People Mattered* (Reprint edition). Harper Perennial.

Selman, P. H. (1996). *Local sustainability: managing and planning ecologically sound places*. New York: St. Martin's Press.

Sharifi, A., & Murayama, A. (2013). A critical review of seven selected neighborhood sustainability assessment tools. *Environmental Impact Assessment Review*, *38*, 73–87. https://doi.org/10.1016/j.eiar.2012.06.006

Sheppard, E. S., & McMaster, R. B. (2004). *Scale and geographic inquiry: nature, society, and method*. Malden, MA: Blackwell Pub.

Short, J. R., & Kim, Y.-H. (1998). Urban Crises/Urban Representations: Selling the City in Difficult Times. In T. Hall & P. Hubbard (Eds.), *The Entrepreneurial City: geographies of politics, regime, and representation* (pp. 55–75). Chichester: Wiley.

Singapore Ministry of the Environment. (2012). The Singapore Green Plan 2012. Retrieved from unpan1.un.org/intradoc/groups/public/documents/apcity/unpan026598.pdf

Smith, N. (1984). *Uneven development: nature, capital, and the production of space*. New York, NY: Blackwell.

Smith, N. (1992). Geography, Difference and the Politics of Scale. In *Postmodernism and the Social Sciences* (pp. 57–79). London: Palgrave Macmillan UK.

Squires, G. D. (1994). *Capital and communities in black and white: the intersections of race, class, and uneven development*. Albany: State University of New York Press.

Swyngedouw, E. (1992). The Mammon quest: “Glocalisation”, interspatial competition and the monetary order: the construction of new scales. In *Cities and regions in the new Europe: the global-local interplay and spatial development strategies*. London: Belhaven Press.

Swyngedouw, E. A. (1989). The Heart of the Place: The Resurrection of Locality in an Age of Hyperspace. *Geografiska Annaler. Series B, Human Geography*, *71*(1), 31–42. https://doi.org/10.2307/490505

Swyngedouw, Erik. (1997). Neither global nor local: "Glocalization" and the politics of scale. In Kevin R. Cox, *Spaces of globalization: reasserting the power of the local*. New York: Guilford Press.

Swyngedouw, Erik, & Heynen, N. C. (2003). Urban Political Ecology, Justice and the Politics of Scale. *Antipode*, *35*(5), 898–918. https://doi.org/10.1111/j.1467-8330.2003.00364.x

Szibbo, N. (2016). Lessons for LEED® for Neighborhood Development, Social Equity, and Affordable Housing. *Journal of the American Planning Association*, *82*(1), 37–49. https://doi.org/10.1080/01944363.2015.1110709

Talen, E. (2000). The Problem with Community in Planning. *Journal of Planning Literature*, *15*(2), 171–183. https://doi.org/10.1177/08854120022092971

Tanguay, G. A., Rajaonson, J., Lefebvre, J.-F., & Lanoie, P. (2010). Measuring the sustainability of cities: An analysis of the use of local indicators. *Ecological Indicators*, *10*(2), 407–418. https://doi.org/10.1016/j.ecolind.2009.07.013

Taylor, P. J. (1982). A Materialist Framework for Political Geography. *Transactions of the Institute of British Geographers*, *7*(1), 15–34. https://doi.org/10.2307/621909

Temenos, C., & McCann, E. (2012). The Local Politics of Policy Mobility: Learning, Persuasion, and the Production of a Municipal Sustainability Fix. *Environment and Planning A*, *44*(6), 1389–1406. https://doi.org/10.1068/a44314

Torgerson, D. (1995). The uncertain quest for sustainability: public discourse and the politics of environmentalism. In *Greening Environmental Policy* (pp. 3–20). Palgrave Macmillan, New York. https://doi.org/10.1007/978-1-137-08357-9_1

United Nations. (1992). *Agenda 21* (United Nations Conference on Environment & Development). Retrieved from https://docs.google.com/gview?url=http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf&embedded=true

US Census Bureau. (2012). 2010 Geographic Terms and Concepts. Retrieved February 10, 2018, from https://www.census.gov/geo/reference/terms.html

U.S. Department of Housing and Urban Development. (n.d.). Glossary of CPD Terms. Retrieved March 25, 2018, from https://www.hud.gov/program_offices/comm_planning/library/glossary

U.S. Green Building Council. (2018a). LEED Certification Fees. Retrieved April 7, 2018, from https://new.usgbc.org/cert-guide/fees

U.S. Green Building Council. (2018b). Projects. Retrieved April 9, 2018, from http://www.usgbc.org/projects

U.S. Green Building Council. (2018c). USGBC History. Retrieved February 22, 2018, from https://stg.usgbc.org/about/history

Verde. (2017). About Verde. Retrieved December 15, 2017, from http://www.verdenw.org/about-verde/

Wangel, J., Wallhagen, M., Malmqvist, T., & Finnveden, G. (2016). Certification systems for sustainable neighbourhoods: What do they really certify?

Environmental Impact Assessment Review, *56*(Supplement C), 200–213. https://doi.org/10.1016/j.eiar.2015.10.003

Ward, K. (2003). Entrepreneurial urbanism, state restructuring and civilizing 'New' East Manchester. *Area*, *35*(2), 116–127. https://doi.org/10.1111/1475-4762.00246

Weaver P.M., & Jordan A. (2008). What roles are there for sustainability assessment in the policy process? *International Journal of Innovation and Sustainable Development*, *3*(1–2), 9–32.

While, A., Jonas, A. E. G., & Gibbs, D. (2004). The environment and the entrepreneurial city: searching for the urban 'sustainability fix' in Manchester and Leeds. *International Journal of Urban and Regional Research*, *28*(3), 549–569. https://doi.org/10.1111/j.0309-1317.2004.00535.x

Wilson, D. (2012). Updating the global-local disorder concept (revisiting Peck and Tickell). *Area*, *44*(2), 254–257. https://doi.org/10.1111/j.1475-4762.2012.01092.x

World Commission on Environment and Development. (1987). *Our common future*. Oxford ; Oxford University Press.

Yin, R. (2013). *Case Study Research: Design and Methods* (5th ed.). Los Angeles: SAGE Publications, Inc.

Appendix

Figure 3.1: All LEED-ND projects registered with the USGBC. These numbers include certified and uncertified projects.

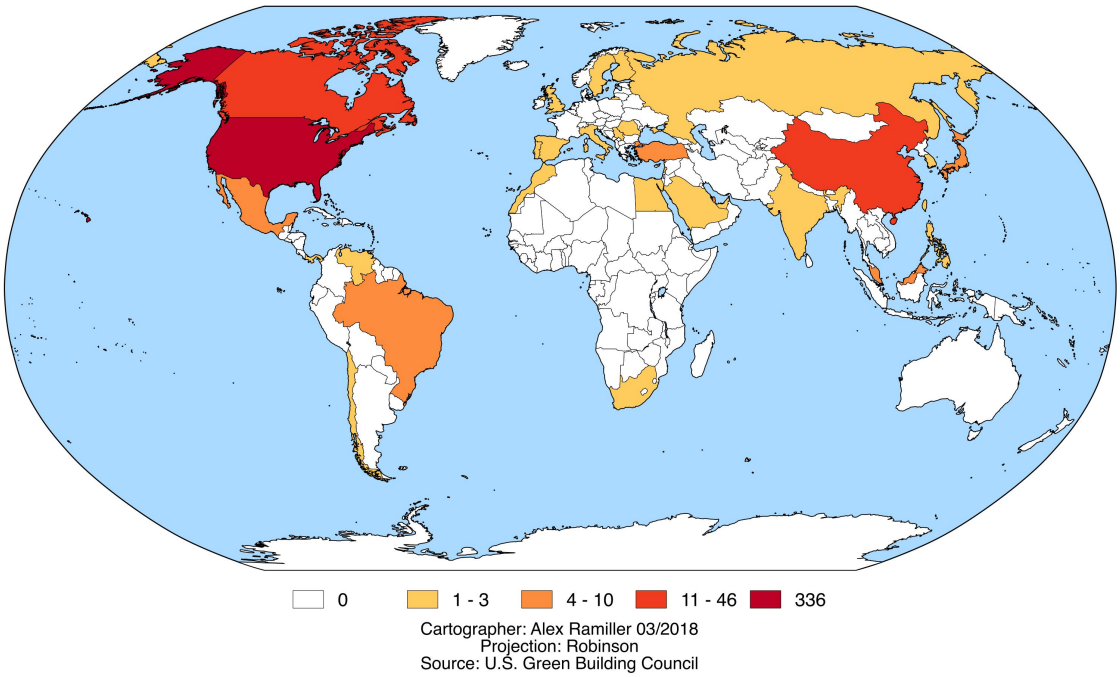


Figure 3.2: All EcoDistricts projects associated with the EcoDistricts organization. These numbers include registered and unregistered projects.

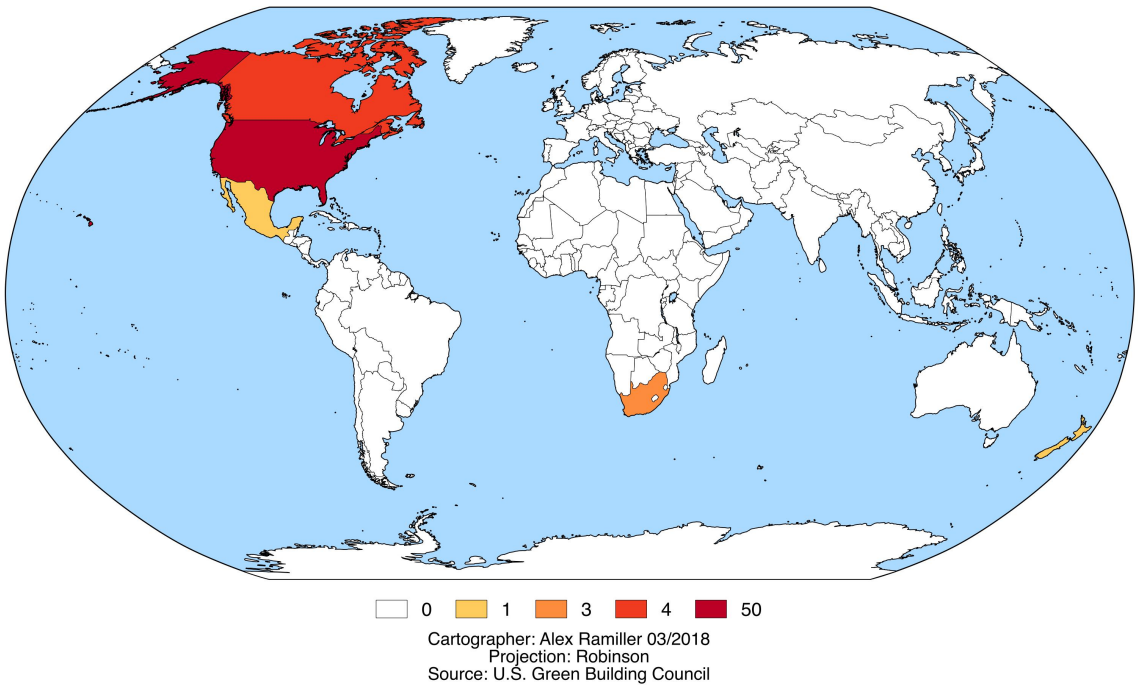


Table 3.1: Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
City of Tucson and Gadsden Comp. PPP	Tucson	Arizona	USA	Project Registration 1.0	2007	2010	Gold
Emeryville Marketplace	Emeryville	California	USA	Project Registration 1.0	2007	2008	Platinum
Hercules Bayfront	Hercules	California	USA	Project Registration 1.0	2007	2012	Gold
Taylor Yard, Parcel C	Los Angeles	California	USA	Project Registration 1.0	2007	2010	Certified
Cornfields/Arroyo Seco Specific Plan	Los Angeles	California	USA	Project Registration 1.0	2007	2010	Certified
Jordan Downs	Los Angeles	California	USA	v2009 Stage 2	2011	2013	Silver
Napa Pipe	Napa	California	USA	Project Registration 1.0	2007	2009	Gold
Tassafaronga Village	Oakland	California	USA	Project Registration 1.0	2007	2008	Gold
MacArthur BART Transit Village	Oakland	California	USA	Project Registration 1.0	2007	2009	Gold
Habitat for Humanity East Bay Edes 'B'	Oakland	California	USA	Project Registration 1.0	2007	2010	Certified
The Hive	Oakland	California	USA	v2009 Stage 3	2014	2017	Certified
Depot Walk	Orange	California	USA	Project Registration 1.0	2007	2008	Certified
Miraflores	Richmond	California	USA	Project Registration 1.0	2007	2010	Gold
Township 9	Sacramento	California	USA	Project Registration 1.0	2007	2012	Silver
Westfield UTC Revitalization	San Diego	California	USA	Project Registration 1.0	2007	2008	Gold
Quarry Falls	San Diego	California	USA	Project Registration 1.0	2007	2009	Gold
The Village at Market Creek	San Diego	California	USA	v2009 Stage 1	2010	2012	Silver
Hunters View	San Francisco	California	USA	Project Registration 1.0	2007	2010	Silver
Aspen Club Living	Aspen	Colorado	USA	Project Registration 1.0	2007	2010	Certified
Horizon Uptown	Aurora	Colorado	USA	Project Registration 1.0	2007	2009	Certified
Washington Village (formerly Cedar Commons)	Boulder	Colorado	USA	Project Registration 1.0	2007	2010	Silver
Park Avenue Redevelopment-Block 3	Denver	Colorado	USA	Project Registration 1.0	2007	2009	Gold
DHA Mariposa Mixed-Use Development	Denver	Colorado	USA	v2009 Stage 2	2012	2015	Gold
South Sloans Lake	Denver	Colorado	USA	v2009 Stage 2	2013	2016	Gold

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
Ever Vail	Vail	Colorado	USA	Project Registration 1.0	2007	2008	Platinum
360 State Street	New Haven	Connecticut	USA	Project Registration 1.0	2007	2012	Platinum
Harbor Point	Stamford	Connecticut	USA	Project Registration 1.0	2007	2009	Gold
Metro Green Residential	Stamford	Connecticut	USA	Project Registration 1.0	2007	2010	Gold
The Yards	Washington	District of Columbia	USA	Project Registration 1.0	2007	2009	Gold
Solea Condominiums	Washington	District of Columbia	USA	Project Registration 1.0	2007	2009	Gold
3910 Georgia Commons	Washington	District of Columbia	USA	Project Registration 1.0	2007	2009	Gold
Constitution Square Phase I	Washington	District of Columbia	USA	Project Registration 1.0	2007	2009	Gold
Parkside Mixed-Use Development	Washington	District of Columbia	USA	Project Registration 1.0	2007	2011	Gold
Old Convention Center Site Redevelopment	Washington	District of Columbia	USA	Project Registration 1.0	2007	2012	Gold
Downtown Doral	Doral	Florida	USA	v2009 Stage 2	2013	2014	Certified
Northwest Gardens	Fort Lauderdale	Florida	USA	v2009 Stage 2	2011	2012	Gold
Miami Design District	Miami	Florida	USA	v2009 Stage 2	2011	2012	Gold
Brickell City Centre	Miami	Florida	USA	v2009 Stage 2	2011	2016	Gold
West Town	Atlanta	Georgia	USA	Project Registration 1.0	2007	2010	Certified
Sustainable Fellwood	Savannah	Georgia	USA	Project Registration 1.0	2007	2009	Silver
Hitch Village	Savannah	Georgia	USA	v2009 Stage 2	2014	2016	Certified
Simpson Wisser Fort Shafter	Honolulu	Hawaii	USA	Project Registration 1.0	2007	2009	Certified
Ward Village	Honolulu	Hawaii	USA	v2009 Stage 2	2013	2013	Platinum
Hawaii Regional Housing PPV Increment 2	Kaneohe	Hawaii	USA	Project Registration 1.0	2007	2009	Certified
Meadow Ranch	Coeur d'Alene	Idaho	USA	Project Registration 1.0	2007	2010	Certified
Sweetwater	Hailey	Idaho	USA	Project Registration 1.0	2007	2009	Certified

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
South Chicago LEED ND initiatve	Chicago	Illinois	USA	Project Registration 1.0	2007	2010	Certified
Harper Court	Chicago	Illinois	USA	v2009 Stage 2	2010	2012	Gold
Prairie Crossing - Station Village	Grayslake	Illinois	USA	Project Registration 1.0	2007	2010	Certified
Town of Normal Uptown Renewal Project	Normal	Illinois	USA	Project Registration 1.0	2007	2009	Silver
Whistler Crossing	Riverdale	Illinois	USA	Project Registration 1.0	2007	2010	Certified
MFCDC 20/21 Project	Indianapolis	Indiana	USA	v2009 Stage 1	2012	2014	Silver
Global Green USA Holy Cross Project	New Orleans	Louisiana	USA	Project Registration 1.0	2007	2010	Silver
Decker Walk envirowHOMES	Baltimore	Maryland	USA	Project Registration 1.0	2007	2008	Silver
Terrapin Row Development	College Park	Maryland	USA	v2009 Stage 2	2014	2016	Silver
Terrapin Row Development Stage3	College Park	Maryland	USA	v2009 Stage 3	2016	2017	Silver
Cafritz Property at Riverdale Park	Riverdale	Maryland	USA	v2009 Stage 1	2012	2013	Certified
Twinbrook Station	Rockville	Maryland	USA	Project Registration 1.0	2007	2008	Gold
Seaport Square	Boston	Massachussets	USA	v2009 Stage 2	2011	2014	Gold
Old Colony Public Housing Redevelopment	Boston	Massachussets	USA	v2009 Stage 3	2015	2016	Gold
Jackson Square Redevelopment Initiative	Roxbury	Massachussets	USA	Project Registration 1.0	2007	2008	Silver
Old Colony Public Housing Redevelopment	South Boston	Massachussets	USA	v2009 Stage 2	2011	2014	Gold
Excelsior & Grand	St. Louis Park	Minnesota	USA	Project Registration 1.0	2007	2009	Certified
Renaissance Place at Grand	St. Louis	Missouri	USA	Project Registration 1.0	2007	2014	Certified
Midtown Crossing at Turner Park	Omaha	Nebraska	USA	Project Registration 1.0	2007	2008	Certified
Union Park	Las Vegas	Nevada	USA	Project Registration 1.0	2007	2008	Gold

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
Lincoln Park Coast Cultural District	Newark	New Jersey	USA	Project Registration 1.0	2007	2010	Gold
Teachers Village	Newark	New Jersey	USA	v2009 Stage 3	2015	2017	Silver
Barelas Homes	Albuquerque	New Mexico	USA	Project Registration 1.0	2007	2010	Certified
Melrose Commons	Bronx	New York	USA	Project Registration 1.0	2007	2010	Silver
Navy Green	Brooklyn	New York	USA	v2009 Stage 2	2010	2012	Silver
Willets Point Redevelopment Project	Flushing	New York	USA	Project Registration 1.0	2007	2009	Gold
The New Stapleton Waterfront	New York	New York	USA	Project Registration 1.0	2007	2010	Silver
Syracuse Art, Life, & Tech. (SALT) Dist.	Syracuse	New York	USA	Project Registration 1.0	2007	2009	Gold
East 54	Chapel Hill	North Carolina	USA	Project Registration 1.0	2007	2009	Gold
Celadon	Charlotte	North Carolina	USA	Project Registration 1.0	2007	2010	Certified
Brightwalk	Charlotte	North Carolina	USA	v2009 Stage 2	2012	2016	Certified
The Renaissance	Charlotte	North Carolina	USA	v2009 Stage 3	2012	2017	Certified
The Arbors	Cincinnati	Ohio	USA	Project Registration 1.0	2007	2009	Certified
Flats East Development	Cleveland	Ohio	USA	Project Registration 1.0	2007	2010	Certified
St. Luke's Neighborhood Redevelopment	Cleveland	Ohio	USA	Project Registration 1.0	2007	2010	Silver
Grandview Yard	Grandview	Ohio	USA	v2009 Stage 2	2010	2013	Silver
Eliot Tower	Portland	Oregon	USA	Project Registration 1.0	2007	2007	Silver
Helensview	Portland	Oregon	USA	Project Registration 1.0	2007	2008	Gold
Ladd Tower	Portland	Oregon	USA	Project Registration 1.0	2007	2009	Gold
Hoyt Yards	Portland	Oregon	USA	Project Registration 1.0	2007	2010	Platinum
South Waterfront Central District	Portland	Oregon	USA	Project Registration 1.0	2007	2011	Gold
Edgewater	Oakmont	Pennsylvania	USA	Project Registration 1.0	2007	2011	Certified
9th and Berks Street TOD	Philadelphia	Pennsylvania	USA	v2009 Stage 2	2012	2013	Platinum
9th and Berks Street TOD	Philadelphia	Pennsylvania	USA	v2009 Stage 3	2016	2017	Platinum
Larimer Neighborhood	Pittsburgh	Pennsylvania	USA	v2009 Stage 1	2013	2013	Silver

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
Former Civic Arena Site Redevelopment	Pittsburgh	Pennsylvania	USA	v2009 Stage 2	2014	2017	Gold
The Navy Yard at Noisette	North Charleston	South Carolina	USA	Project Registration 1.0	2007	2010	Certified
Uptown at Falls Park	Sioux Falls	South Dakota	USA	Project Registration 1.0	2007	2010	Gold
Legends Park & University Place	Memphis	Tennessee	USA	Project Registration 1.0	2007	2010	Certified
The Gulch	Nashville	Tennessee	USA	Project Registration 1.0	2007	2008	Silver
The Gateway to Nashville	Nashville	Tennessee	USA	Project Registration 1.0	2007	2009	Gold
OneC1TY	Nashville	Tennessee	USA	v2009 Stage 2	2011	2012	Silver
Mueller	Austin	Texas	USA	Project Registration 1.0	2007	2009	Silver
Alliance Town Center	Fort Worth	Texas	USA	Project Registration 1.0	2007	2011	Certified
Regent Square	Houston	Texas	USA	v2009 Stage 2	2014	2017	Silver
Newpark Town Center	Park City	Utah	USA	Project Registration 1.0	2007	2009	Silver
City Creek Center	Salt Lake City	Utah	USA	Project Registration 1.0	2007	2012	Silver
Founder's Square	Arlington	Virginia	USA	Project Registration 1.0	2007	2009	Gold
Crystal City Plan	Arlington	Virginia	USA	Project Registration 1.0	2007	2009	Certified
Mosaic at Merrifield	Fairfax	Virginia	USA	Project Registration 1.0	2007	2010	Silver
Reston Heights	Reston	Virginia	USA	Project Registration 1.0	2007	2009	Silver
1812 N Moore Street	Rosslyn	Virginia	USA	Project Registration 1.0	2007	2010	Gold
The Waterfront District	Bellingham	Washington	USA	Project Registration 1.0	2007	2011	Silver
South Lake Union Urban Center	Seattle	Washington	USA	Project Registration 1.0	2007	2011	Certified
The Brewery, the former Pabst Brewery	Milwaukee	Wisconsin	USA	Project Registration 1.0	2007	2012	Platinum
Westlawn Revitalization	Milwaukee	Wisconsin	USA	v2009 Stage 2	2011	2013	Silver
Westlawn Revitalization	Milwaukee	Wisconsin	USA	v2009 Stage 3	2013	2013	Silver
Ilha Pura	Rio De Janeiro	Rio De Janeiro	Brazil	v2009 Stage 2	2012	2014	Certified
Ilha Pura Empreendimentos Imobiliarios	Rio de Janeiro	Rio De Janeiro	Brazil	v2009 Stage 3	2015	2016	Certified
BMX - Parque da Cidade	São Paulo	São Paulo	Brazil	v2009 Stage 2	2013	2014	Silver

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
Currie Barracks	Calgary	Alberta	Canada	Project Registration 1.0	2007	2008	Gold
University District	Calgary	Alberta	Canada	v2009 Stage 2	2014	2015	Platinum
The Village at Griesbach, Stage 8	Edmonton	Alberta	Canada	Project Registration 1.0	2007	2009	Gold
Strathearn Masterplan	Edmonton	Alberta	Canada	Project Registration 1.0	2007	2009	Silver
Garrison Crossing	Chilliwack	British Columbia	Canada	Project Registration 1.0	2007	2010	Certified
Southeast False Creek	Vancouver	British Columbia	Canada	Project Registration 1.0	2007	2010	Platinum
Dockside Green	Victoria	British Columbia	Canada	Project Registration 1.0	2007	2009	Platinum
Preston Meadows	Cambridge	Ontario	Canada	Project Registration 1.0	2007	2010	Certified
Rebecca Street	Oakville	Ontario	Canada	v2009 Stage 2	2011	2013	Certified
Lansdowne Park	Ottawa	Ontario	Canada	v2009 Stage 2	2012	2016	Silver
Toronto Waterfront Area 1	Toronto	Ontario	Canada	Project Registration 1.0	2007	2009	Gold
METROGATE	Toronto	Ontario	Canada	Project Registration 1.0	2007	2012	Silver
Faubourg Boisbriand	Boisbriand	Quebec	Canada	Project Registration 1.0	2007	2008	Gold
Technopole Angus	Montréal	Quebec	Canada	Project Registration 1.0	2007	2008	Gold
Pointe Nord	Montréal	Quebec	Canada	Project Registration 1.0	2007	2010	Gold
UdeM - Campus Outremont	Montréal	Quebec	Canada	v2009 Stage 2	2010	2016	Gold
Les Bassins du Nouveau Havre de Montréal	Montréal	Quebec	Canada	v2009 Stage 2	2011	2013	Gold
Beijing Olympic Village	Beijing	Beijing	China	Project Registration 1.0	2007	2008	Gold
Silo City	Beijing	Beijing	China	Project Registration 1.0	2007	2010	Certified
Linked Hybrid	Beijing	Beijing	China	Project Registration 1.0	2007	2011	Certified
Beijing COFCO Hou Shayu Development	Beijing	Beijing	China	v2009 Stage 1	2010	2013	Certified
Junhao Central park plaza	Beijing	Beijing	China	v2009 Stage 2	2013	2017	Silver
Beijing CBD Core Zone	Beijing	Beijing	China	v2009 Stage 2	2016	2016	Gold
Chongqing Tiandi Xincheng	Chongqing	Chongqing	China	Project Registration 1.0	2007	2010	Gold
Dongguan International Trade Center	Dongguan	Guangdong	China	v2009 Stage 2	2013	2016	Gold
Foshan Lingnan Tiandi	Foshan	Guangdong	China	v2009 Stage 2	2010	2011	Gold
Oriental Bund Foshan	Foshan	Guangdong	China	v2009 Stage 2	2011	2013	Gold
Jinshan Project	Guangzhou	Guangdong	China	Project Registration 1.0	2007	2010	Certified

Table 3.1 (cont.): Summary of Certified LEED-ND Projects

Project Name	City	State	Country	Rating System	Registration Date	Certification Date	Certification Level
BaoNeng City Garden	Shenzhen	Guangdong	China	v2009 Stage 2	2013	2015	Gold
Wuhan Tiandi Mixed Use Development	Wuhan	Hubei	China	Project Registration 1.0	2007	2009	Gold
Gold Time Ecological Bay	Hohhot	Nei Mongol	China	v2009 Stage 2	2011	2012	Silver
Gold Time Ecological Bay	Hohhot	Nei Mongol	China	v2009 Stage 3	2013	2015	Silver
Shanghai Rui Hong Xin Cheng	Shanghai	Shanghai	China	v2009 Stage 2	2011	2012	Gold
Shanghai EXPO UBPA	Shanghai	Shanghai	China	v2009 Stage 2	2012	2013	Platinum
Shanghai Taipingqiao Master Plan	Shanghai	Shanghai	China	v2009 Stage 2	2013	2014	Gold
Shanghai Knowledge Innovation Community	Shanghai	Shanghai	China	v2009 Stage 2	2014	2015	Gold
Taikang Community Shen Garden	Shanghai	Shanghai	China	v2009 Stage 2	2014	2016	Silver
Dong Financial City	Shanghai	Shanghai	China	v2009 Stage 2	2015	2016	Gold
Taikang Community Shen Garden	Shanghai	Shanghai	China	v2009 Stage 3	2017	2017	Silver
Chengdu Daci Mixed Use Complex	Chengdu	Sichuan	China	v2009 Stage 2	2011	2014	Gold
Double Cove	Hong Kong	New Territories	Hong Kong	v2009 Stage 2	2014	2015	Gold
Futakotamagawahigashi Area Redevelopment	Setagaya-ku	Tokyo-to	Japan	v2009 Stage 3	2015	2015	Gold
Futakotamagawahigashi Area Redevelopment	Tokyo-to	Tokyo-to	Japan	v2009 Stage 2	2013	2014	Gold
KL Metropolis	Kuala Lumpur	Kuala Lumpur	Malaysia	v2009 Stage 1	2010	2012	Certified
KLIFD	Kuala Lumpur	Kuala Lumpur	Malaysia	v2009 Stage 1	2011	2012	Gold

Table 3.2: Summary of EcoDistricts Projects						
Name	**City**	**State/Province**	**Country**	**Registered**	**Incubator**	**Area (Acres)**
Entrepreneurial District	Birmingham	Alabama	USA	No	2015	144
Burbank HSR Station Area EcoDistrict	Burbank	California	USA	No	2015	551
Crenshaw Corridor	Los Angeles	California	USA	No	2016	17193
North Bayshore	Mountain View	California	USA	No	2012	702
International Boulevard Corridor	Oakland	California	USA	No	2013	584
beautifulPB	San Diego	California	USA	Yes	2014	2452
North Park EcoDistrict	San Diego	California	USA	No	2013	132
Central Corridor	San Francisco	California	USA	No	2012	319
Sustainable Chinatown Initiative	San Francisco	California	USA	No	2015	70
Santa Monica City Yards	Santa Monica	California	USA	Yes	2016	13
Civic Area Development	Boulder	Colorado	USA	No	2014	31
Sutherland Park	Boulder	Colorado	USA	No	2014	23
Western Industrial Park	Boulder	Colorado	USA	No	2014	57
RiNo Art District	Denver	Colorado	USA	Yes	N/A	986
Sun Valley	Denver	Colorado	USA	Yes	2013	410
Mason UniverCity District	Fort Collins	Colorado	USA	No	2015	1224
Rhode Island Metro Improvement District	Washington	District of Columbia	USA	No	2015	118
Southwest EcoDistrict	Washington	District of Columbia	USA	No	N/A	110
Sustainable Congress Heights	Washington	District of Columbia	USA	No	N/A	500
Little Haiti	Miami	Florida	USA	Yes	N/A	1898
Central Downtown Orlando EcoDistrict	Orlando	Florida	USA	No	2013	480
AUC Vine City & English Avenue	Atlanta	Georgia	USA	No	2016	982
Neighborhood Planning Unit Y	Atlanta	Georgia	USA	No	2015	2087
ATL	College Park	Georgia	USA	Yes	N/A	4405
Boise Central Addition	Boise	Idaho	USA	No	2014	176
Boston Innovation District	Boston	Massachussets	USA	No	2012	713
Talbot-Norfolk Eco-Innovation District	Boston	Massachussets	USA	Yes	N/A	48
Kendall Square	Cambridge	Massachussets	USA	No	2013	248
Eco-D (Brightmoor)	Detroit	Michigan	USA	No	2014	3917
Perrin Park	Detroit	Michigan	USA	No	2014	29
Near North Side	Saint Louis	Missouri	USA	No	2015	1420
High Falls	Rochester	New York	USA	Yes	2015	281

Table 3.2 (cont.): Summary of EcoDistricts Projects						
Name	**City**	**State/Province**	**Country**	**Registered**	**Incubator**	**Area (Acres)**
South End District	Charlotte	North Carolina	USA	No	2012	572
Warehouse District	Grand Forks	North Dakota	USA	No	2015	93
Northside Cincinnati	Cincinnati	Ohio	USA	No	2016	1065
Cleveland EcoVillage	Cleveland	Ohio	USA	No	2012	125
MetroHealth Community District	Cleveland	Ohio	USA	Yes	N/A	585
Bend Sustainable Neighborhood Initiative	Bend	Oregon	USA	No	2013	585
Broadway Corridor	Portland	Oregon	USA	No	2016	35
Lincoln High	Portland	Oregon	USA	No	2016	12
Lloyd District	Portland	Oregon	USA	Yes	N/A	407
Portland Innovation Quadrant	Portland	Oregon	USA	No	2017	609
South of South	Philadelphia	Pennsylvania	USA	No	2012	322
Homewood Children's Village	Pittsburgh	Pennsylvania	USA	No	2017	1
Homewood EcoDistrict Initiative	Pittsburgh	Pennsylvania	USA	No	2017	658
Millvale EcoDistrict	Pittsburgh	Pennsylvania	USA	Yes	2016	434
Uptown Eco-Innovation District	Pittsburgh	Pennsylvania	USA	No	2014	142
Central Health Brackenridge Campus	Austin	Texas	USA	No	2015	25
Seaholm	Austin	Texas	USA	Yes	2012	55
Railyard Enterprise Project	Burlington	Vermont	USA	No	2013	67
Downtown/Oldtown/Waterfront District	Bellingham	Washington	USA	No	2012	1001
Capitol Hill EcoDistrict	Seattle	Washington	USA	Yes	N/A	1179
Central Area Culture District	Seattle	Washington	USA	Yes	N/A	2205
Chinatown/International District	Seattle	Washington	USA	No	2016	143
East Harbour	Toronto	Ontario	Canada	Yes	N/A	70
Acadia	Vancouver	British Columbia	Canada	No	N/A	117
False Creek Flats	Vancouver	British Columbia	Canada	No	2014	485
Food EcoDistrict	Victoria	British Columbia	Canada	No	2015	40
Vallarta Sur	Guadalajara	Jalisco	Mexico	No	2012	45
Wairaka Precinct	Auckland	Auckland	New Zealand	No	2016	192
Old Mutual Mupine Development	Cape Town	Western Cape	South Africa	No	2017	51
Braamfontein West	Johannesburg	Gauteng	South Africa	No	2017	377
Metro Centre Precinct	Johannesburg	Gauteng	South Africa	No	2017	18

Table 4.1: Summary of Interviews and Correspondence

Date	Organization	Location	Interviewee Name	Interviewee Title	Relevant Framework(s)	Method	Citation
09/28/17	Lloyd EcoDistrict	Portland, OR	Devon Snyder	Communications and Outreach Coordinator, Lloyd EcoDistrict	EcoDistricts	Phone	Snyder, D. (2017, September 28). Personal Communication.
10/02/17	Midtown EcoDistrict	Atlanta, GA	Thomas Wynn	Program Manager, Midtown Transportation and Sustainability, Midtown Alliance	Not Affiliated	Phone	Wynn, T. (2017, October 2). Personal Communication.
10/05/17	Living Cully	Portland, OR			Not Affiliated	Phone	Living Cully (2017, October 5). Personal Communication.
11/25/17	Talbot-Norfolk Triangle Eco-Innovation District	Boston, MA	David Queeley	Director of Eco-Innovation, Codman Square Neighborhood Development Corporation	EcoDistricts	Phone	Queeley, D. (2017, November 25). Personal Communication.
11/27/17	Millvale EcoDistrict & Triboro EcoDistrict	Pittsburgh, PA	Brian Wolovich	Director, Triboro EcoDistrict	EcoDistricts	Phone	Wolovich, B. (2017, November 27). Personal Communication.
11/27/17	High Falls EcoDistrict	Rochester, NY	Rachel Walsh	Director of the High Falls EcoDistrict, Greentopia	EcoDistricts	Phone	Walsh, R. (2017, November 27). Personal Communication
11/28/17	Santa Monica City Yards	Santa Monica, CA	Erin Hamant	Senior Administrative Analyst, Architecture Services Division, City of Santa Monica	EcoDistricts	Phone	Hamant, E. (2017, November 28). Personal Communication.
12/12/17	Seaholm EcoDistrict	Austin, TX		City of Austin Chief Sustainability Officer	EcoDistricts	Email	City of Austin Chief Sustainability Officer (2017, December 12). Email Communication.

Table 4.1 (cont.): Summary of Interviews and Correspondence

Date	Organization	Location	Interviewee Name	Interviewee Title	Relevant Framework(s)	Method	Citation
01/05/18	City of Portland Bureau of Planning and Sustainability	Portland, OR		City of Portland Green Building Policy Coordinator	LEED-ND, EcoDistricts	In-Person	City of Portland Green Building Policy Coordinator (2018, January 5). Personal Communication.
01/19/18	Bend Sustainable Neighborhood Initiative	Bend, OR	ML Vidas	Principal Architect Vidas Architecture LLC	EcoDistricts	Phone	Vidas, M.L. (2018, January 19). Personal Communication.
01/19/18	Gerding Edlen	Portland, OR	Renee Loveland	Director of Sustainability	LEED-ND	Phone	Loveland, R. (2018, January 19). Personal Communication.
02/22/18	Living Cully	Portland, OR	Carolina Iraheta Gonzalez	Community Energy Advocate, Verde	Not Affiliated	Phone	Gonzalez, C. (2018, February 22). Personal Communication.
03/09/18	United States Green Building Council	N/A	Emma Hughes	Project Manager, LEED, U.S. Green Building Council	LEED-ND	Phone	Hughes, E. (2018, March 9). Personal Interview

Figure 5.2: Certified LEED-ND projects in the United States by level of certification

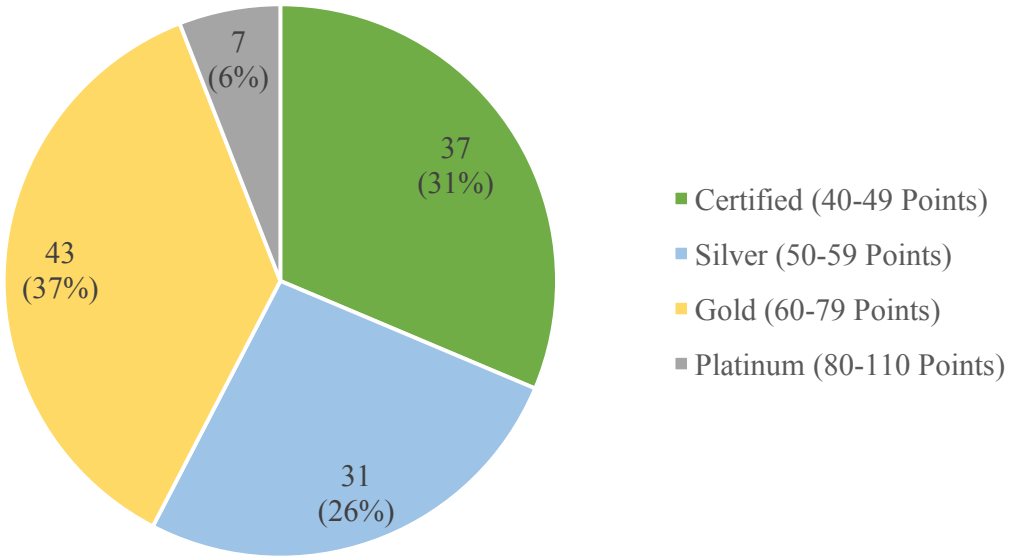
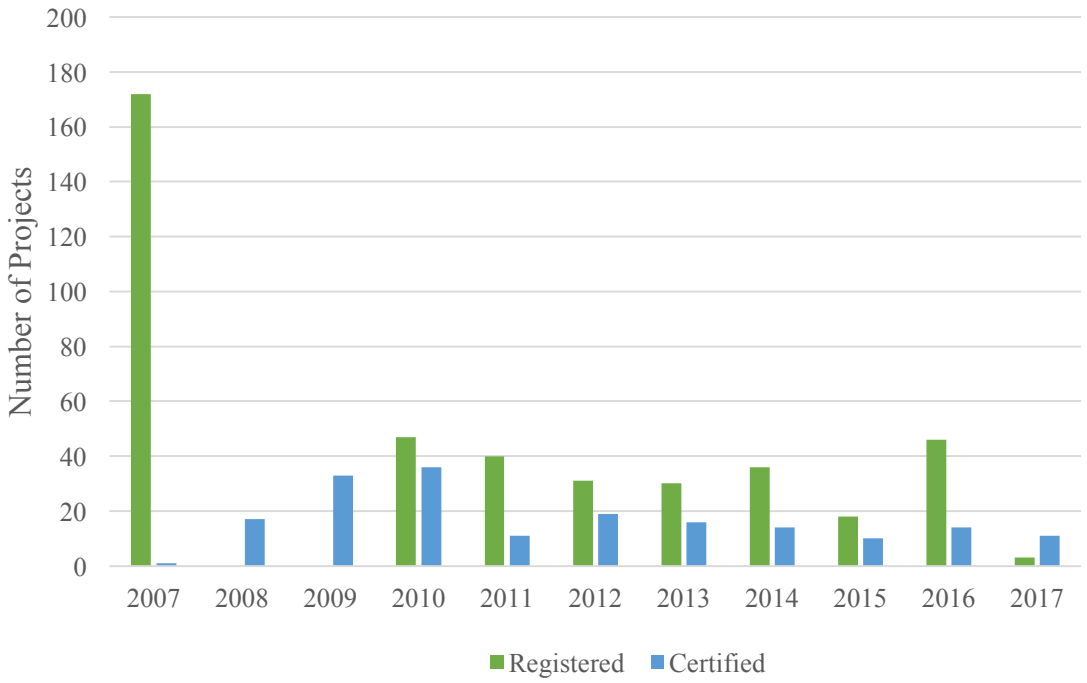


Figure 5.3: LEED-ND projects in the United States by date of registration and certification



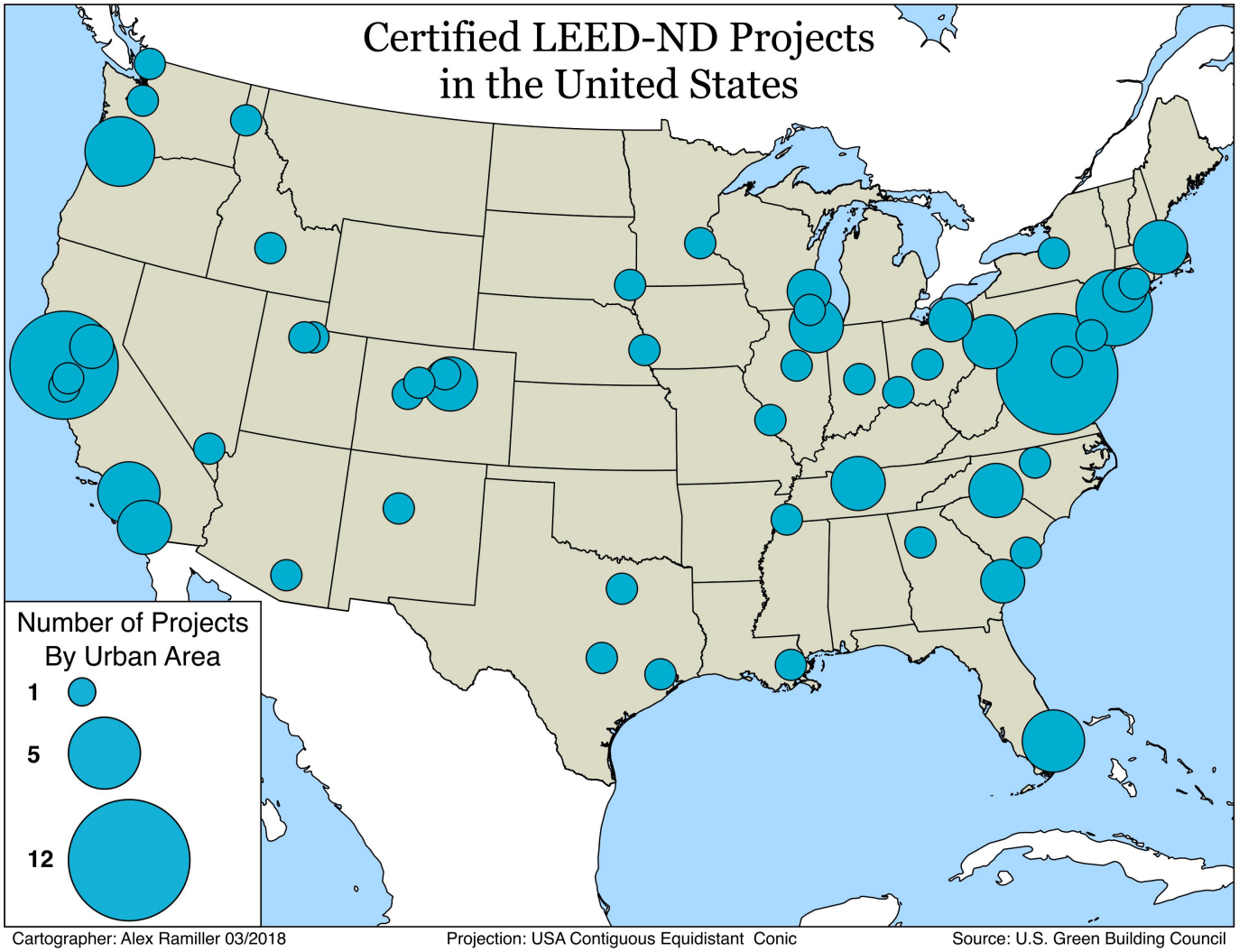


Figure 5.4: Locations of certified LEED-ND projects in the United States

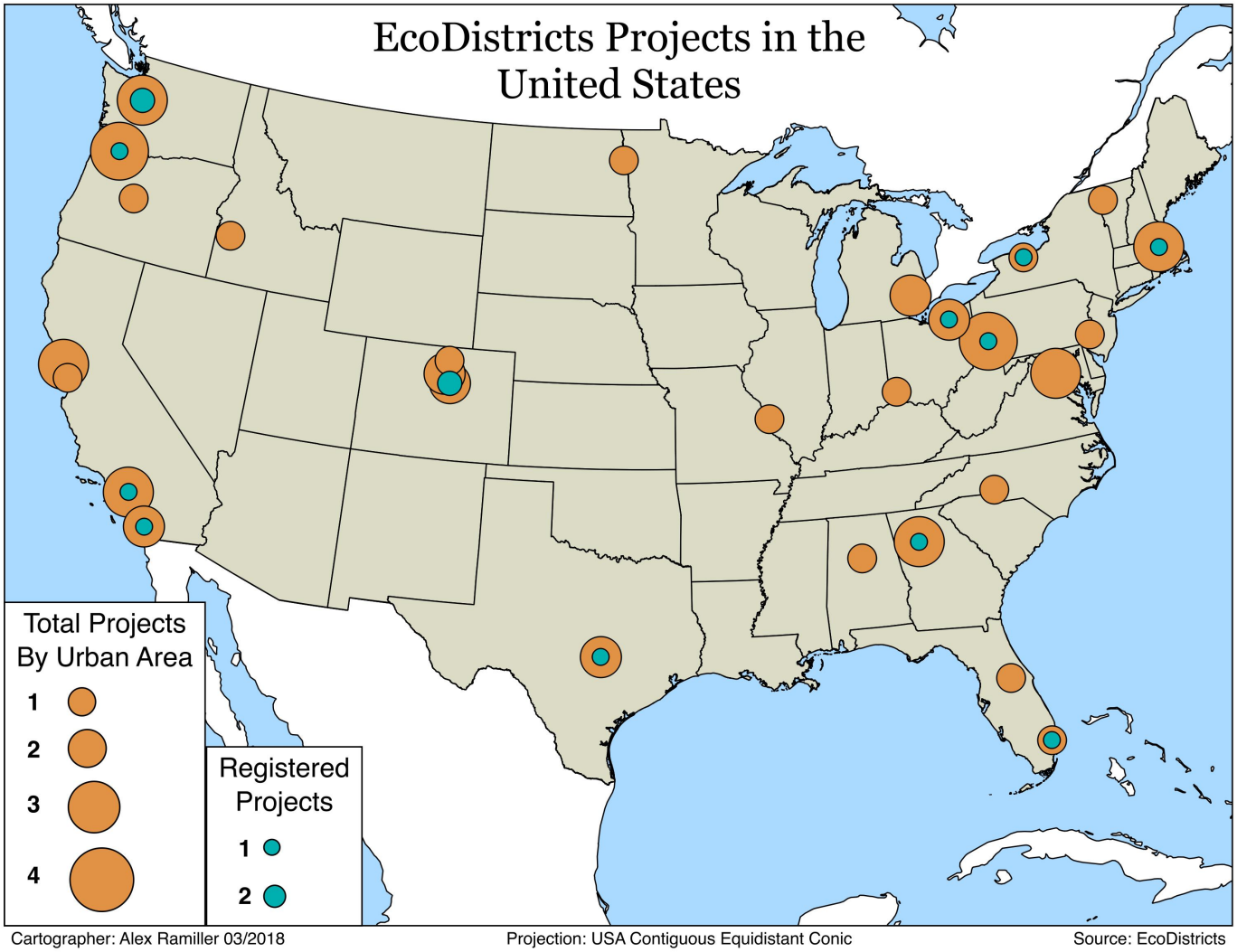


Figure 5.5: Locations of registered and non-registered EcoDistricts projects in the United States

Table 5.2: Descriptive statistics for median household income of LEED-ND neighborhood projects

	Median Income (2009)	Median Income Relative to AMI (2009)	Median Income (2016)	Median Income Relative to AMI (2016)	Change (2009-2016)
Mean	$45,610	66%	$57,908	82%	+$7,204
Median	$39,489	60%	$50,288	78%	+$2,316
Minimum	$11,768	23%	$12,355	20%	-$16,940
Maximum	$133,786	159%	$175,259	211%	+$57,544
Std. Dev.	$27,629	35%	$35,427	43%	+$14,295
Range	$122,018	135%	$162,904	191%	+$74,484

Table 5.3: Descriptive statistics for median household income of EcoDistricts neighborhood projects

	Median Income (2009)	Median Income Relative to AMI (2009)	Median Income (2016)	Median Income Relative to AMI (2016)	Change (2009-2016)
Mean	$42,078	65%	$47,661	72%	+$4,799
Median	$39,501	61%	$41,855	69%	+$2,202
Minimum	$9,344	15%	$11,410	17%	-$10,688
Maximum	$104,671	131%	$120,655	157%	+$32,541
Std. Dev.	$20,818	28%	$26,162	33%	+$10,036
Range	$95,327	116%	$109,245	140%	+$43,229

Figure 5.6: Median Household Income of LEED-ND projects in the United States relative to Area Median Income

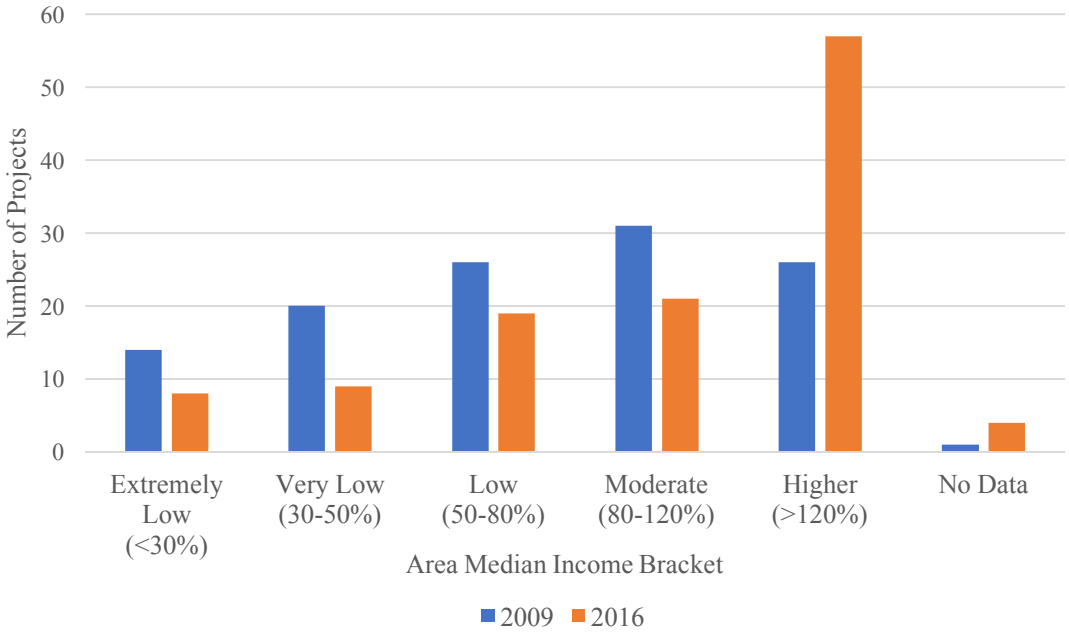


Figure 5.7: Median Household Income of EcoDistricts projects in the United States relative to Area Median Income

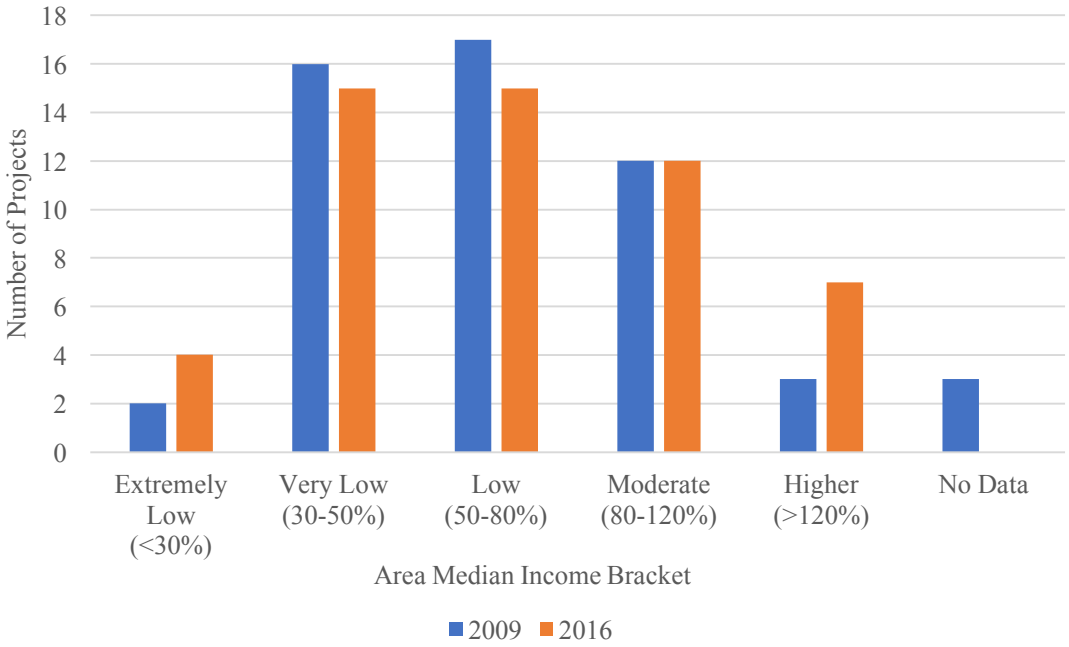


Table 5.4: Descriptive statistics for proportion white of LEED-ND project neighborhoods

	Percentage White of Neighborhood Population (2009)	Percentage White of Neighborhood Population (2016)	Change (2009-2016)
Mean	48.54%	53.30%	+2.22%
Median	46.76%	57.33%	+2.59%
Minimum	0.30%	0.73%	-17.84%
Maximum	98.83%	99.51%	+44.07%
Std. Dev.	30.47%	27.86%	+10.87%
Range	98.54%	1.22%	+61.91%

Table 5.5: Descriptive statistics for proportion white of EcoDistricts project neighborhoods

	Percentage White of Neighborhood Population (2009)	Percentage White of Neighborhood Population (2016)	Change (2009-2016)
Mean	52.40%	57.52%	+3.94%
Median	59.19%	65.53%	+1.49%
Minimum	0.00%	2.55%	-9.99%
Maximum	95.21%	96.53%	+93.63%
Std. Dev.	31.54%	29.97%	+14.22%
Range	95.21%	93.99%	+103.62%

Figure 6.1: Locations of each Portland case study initiative