Social Equity in Urban Sustainability Initiatives: Strategies and Metrics for Baltimore and Beyond

by

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ABSTRACT

Almost all cities in the United States have initiated efforts to become more sustainable. Theoretically, sustainability encompasses social equity, as well as ecological and economic systems. In practice, many cities are unsure about the role of equity in sustainability planning. With greater knowledge of how urban sustainability initiatives affect social equity, public officials will better be able to incorporate equity into their activities. However, at this time there are few tools and almost no data to conduct such an analysis. This thesis addresses this gap by using Baltimore, Maryland, as a case study to answer two questions: (1) What are cities doing in their sustainability efforts that has the potential to affect social equity? And (2) How will we know if cities are, in fact, advancing equity by planning for sustainability?

This thesis finds that without a targeted effort to address local equity issues relevant to sustainability, these plans, policies, and programs are unlikely to produce any significant effect on existing inequities. A community-based engagement strategy to identify relevant equity issues will help cities establish these priorities and craft strategies to address them. However, cities also need to overcome major barriers to implementation in order to move toward sustainability. Sustainability planning lacks a precedent for implementation; adapting existing planning and regulatory schemes to sustainability objectives will provide one effective strategy. Leveraging public and private investments also holds promise. To facilitate learning about the relationship between sustainability strategies and equity outcomes, a protocol for assessing social equity impacts of urban sustainability plans is proposed. The thesis concludes with recommendations for cities like Baltimore that have sustainability initiatives, cities that have not yet initiated sustainability efforts, and researchers and evaluators.

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TABLE OF CONTENTS

INTRODUCTION

The role of local decision-making in charting the course of human-environmental relations has gained prominence over the past twenty years. From the 1992 Rio Summit to President Obama's Sustainable Communities Initiative, environmental planners and advocates have elevated the local scale as a critical arena for action. In the United States nearly every major city has initiated efforts to become more sustainable. Sustainability is often theorized to lie at the confluence of three spheres of social and environmental interaction: ecology, economy, and equity (Campbell, 1996). While city sustainability programs vary widely from one another in scope, approach, and level of commitment, this new, localized form of planning may offer an opportunity to address some of the environmental, economic, and equity challenges that cities face in the twenty-first century.

However, social equity has lagged behind environmental and economic improvements on the sustainability planning agenda. While equity and social justice have long concerned urban planners and advocates, economic and social inequality continue to reproduce themselves in American cities, despite (and sometimes because of) the efforts of planners. This thesis explores whether sustainability planning offers anything new for improving urban inequities. The implicit questions behind this analysis are, who benefits from sustainability planning? What is the "public interest" that sustainability planning serves? For whom do sustainability planners plan?

To understand the impact of sustainability planning for marginalized urban communities, we might ask: *How does planning for urban sustainability planning at the city scale affect environmental, social, and economic inequalities?*[1] Few empirical studies have examined the extent to which these initiatives move cities toward equity. This dearth of analysis reflects two difficulties of undertaking such an assessment: First, many cities have developed their sustainability plans and programs in the past decade, and it is too early to draw conclusions about how well the initiatives are working; second, there is a lack of data to analyze especially at smaller scales such as the neighborhood.

[1] In the United States, the term "sustainability" sometimes refers to its historic ecological connotation – the capacity of natural systems to renew themselves. However, particularly over the past ten years, planners and policy-makers have used the terms "sustainability" and "sustainable development" in interchangeable ways, particularly in reference to U.S. cities. I employ this usage.

In light of the first challenge, the material available for analysis in this nascent area of planning are written plans and policy, organizational structure, and limited and early evidence from individual programs. This limitation leads to a more specific question: *How are cities attempting to address equity in sustainability planning efforts?* Chapters I and II of the thesis use the theory of sustainability and current research on urban sustainability planning to craft an argument for the incorporation of equity into urban sustainability efforts. In Chapter III, I use Baltimore, Maryland, as a case study to look at the role of equity in one city undertaking a sustainability initiative, finding that while the city is committed to equity as a principle of sustainability, it does not prioritize equity improvements in its goals and strategies. Ultimately, improvements to equity that do result from the plan will depend largely on overcoming challenges to implementation, the subject of Chapter IV. This chapter uses a framework of "feasibilities" to analyze the current position of Baltimore's sustainability efforts in the context of city decision-making.

This thesis also seeks to address the lack of data that makes it impossible to assess how city sustainability planning addresses equity. The second question my thesis asks is, *How will we know if cities are improving equity through sustainability planning?* Chapter V presents a preliminary framework for tracking equity in sustainability planning, including administration of an assessment system for goals, strategies, program outputs, and indicators. This framework is intended to help cities learn about the outcomes of their own efforts; however, many of the elements can be adapted for other purposes. Chapter VI offers recommendations for advancing equity outcomes through sustainability planning, targeted at three audiences: cities like Baltimore that already have a sustainability initiative, cities that are starting a sustainability initiative, and evaluators and researchers.

To assess whether or not city sustainability planning improves equity, a definition of equity is required. Some researchers looking at equity in urban sustainability efforts focus narrowly on environmental justice (Pearsall & Pierce, 2010; Warner, 2002), whereas others include affordable housing, daycare services for low-wage earners, and living wage ordinances (Saha & Paterson, 2008). One could ask simply if the outcomes of sustainability planning provide equal benefit, at equal cost, to all. The scale of equity measurement could be the individual resident compared with all others, or it might be the neighborhood, or even the city or region compared with other cities or regions.

In this thesis, I use the term *equity* to refer to the distribution of "goods" (assets and desirable conditions) and "bads" (burdens and undesirable conditions), as they are relevant to the other two sustainability objectives, environment and economy. Beyond the traditional conceptions of *environmental equity* (proximity of environmental burdens and assets) and *economic equity* (opportunity and assets), I also include two relevant areas of equity for which considerable mobilization has occurred. In many instances, *health equity* has environmental components, but public health literature has demonstrated that social determinants of health also include economic opportunity. Additionally, sustainability plans often address transportation, but not necessarily in a way that improves the transportation options of those who do not own cars, for whom *transportation equity* may contribute to greater economic opportunities.[2] Figure 1 illustrates examples of resources and burdens relevant to sustainability that may be inequitably distributed.

I suggest that there are two ways that we might consider the meaning of sustainability planning for these kinds of equity. First, we can ask, how well do sustainability initiatives address the needs of those who lack resources most severely or those who live with the most burdens? This question gets at how well sustainability planning can mend historic disparities and shape more equitable cities. I ask this question with the assumption that simply allocating benefits fairly among all residents will not result in greater equity; the disparities in our cities must be targeted with specific strategies to reduce them.

Environmental equity issues: outdoor air quality burdens such as polluting industry or bus depots, home health hazards, work health hazards, water quality and affordability, access to safe green space, vulnerability to natural hazards, vulnerability to climate change impacts such as the urban heat island effect

Economic equity issues: available job opportunities, available education and training programs, living wage jobs, affordability of housing + transportation

Transportation equity issues: proximity to job centers, availability and reliability of public transit, accessibility of sidewalks and transit to people with disabilities

Health equity issues: asthma hospitalization, obesity, access to fresh food

Figure 1. Examples of Urban Equity Issues Relevant to Sustainability

[2] The four categories are not mutually exclusive, and they are causally linked; for example, many argue that transit inequity contributes to economic inequity, both of which result in public health disparities. The categorization serves as a functional organization that also reflects the fields within which many planners and policy-makers work.

The second, related, question is: how equitable are the benefits and burdens of sustainability planning? This question asks whether there is a fair distribution of the benefits of sustainability planning, whether marginalized communities can utilize those benefits, and whether the costs of sustainability planning are unfairly borne by those who have the least. Figure 2 provides some examples of inequitable benefits and burdens of sustainability initiatives that may disadvantage marginalized communities.[3] In addition to the focus on distributive equity, the case study also explores Baltimore's interest in procedural equity, but focuses generally on the distributive outcomes of that interest.

Sustainability strategy	**Potential uneven benefit/burden**
Green building and energy retrofitting	Higher development costs could reduce the number of affordable units
Transit-oriented development (TOD)	Property values rise and could cause displacement
Green jobs	Low-income and minority workers might lack the skills and knowledge needed for these jobs or jobs may not be created locally
Bike lanes	Residents of low-income neighborhoods may feel less safe riding a bike; low-income and minority communities often are not targeted for bicycling advocacy
Tax or fee structures to implement sustainability measures	In cities with a poor tax base, tax rates may already be much higher than in wealthier localities; fees are more burdensome for low-income households

Figure 2. Examples of uneven benefits and burdens of sustainability initiatives

[3] The first three are adapted from a 2010 report by Been et al. on sustainability and greater inclusion of low-income communities and communities of color in HUD's policies and programs.

I. THEORIES OF SUSTAINABILITY: ENVIRONMENT, ECONOMY, AND EQUITY

Why should a sustainability plan promote equity? The term *sustainability* originated from the discipline of ecology, where it described a system that uses resources at the same rate or slower than it replenishes them. Development practitioners sought to integrate the concept of sustainability into development objectives to generate development strategies that would balance the protection of environmental resources with economic growth and promotion of greater equity in society. They called this approach *sustainable development*. Today, many developed cities are seeking to adapt to this model under the rubric of becoming more sustainable. This chapter reviews the major theoretical questions about the objectives embedded in sustainability, illustrating the integral role of social equity.

Sustainability and its most-often invoked application, sustainable development, lack a precise definition. Environmentalists picked up on the idea of ecological sustainability in the 1970s, as it supported the theory of "limits to growth," which asserted that the exponential growth of population would eventually surpass the earth's carrying capacity (Donella H. Meadows, Dennis L. Meadows, Randers, & Behrens, 1972). For those working in development, while it was clear that development activities were compromising ecological sustainability, environmental protection could not be prioritized in isolation from social and economic needs.

Global development specialists began to merge the agenda of environmental advocates and development needs. In 1987, the United Nations World Commission on Environment and Development (UNCED) published *Our Common Future* (also known as the Brundtland Report), which provided a definition of sustainable development: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations World Commission on Environment and Development, 1987). While different definitions of sustainability have since emerged from diverse fields of research and practice, the Brundtland definition and its variants have remained popular, if not universal.

Over the past twenty-five years, scholars have sought to identify and analyze the substantive objectives that practitioners pursue, or ought to pursue, under the umbrella of

sustainable development. In 1996, Scott Campbell published a model of the sustainable development objectives of cities. His thesis posits that there are three major planning interests pursued relevant to sustainability: environmental protection, social equity, and economic growth (Campbell, 1996). Together, these areas are sometimes called the "three E's." The theory of sustainable development recognizes that these are not just objectives of good planning, but that environmental, economic, and equity outcomes are produced through linked systems of social and environmental interaction. Currently, those systems produce undesirable outcomes such as environmental degradation and social inequities.

From observation, it is clear that there are systematic connections between equity and the two other sustainability interests, environment and economy. Economic growth often causes pollution and stress on natural resources, and increasing mobility of capital creates a disincentive for states and nations to enact environmental and labor standards, as they compete with one another to attract private firms. Those who benefit from economic growth usually are not those who suffer most from these environmental and social consequences, in the United States and globally (Faber & McCarthy, 2003). At the global, national, and local scale, it is easy to point to examples of places and populations where inequitable environmental burden, poverty, and inequitable political power meet (Agyeman, Bullard, & Evans, 2003). Many of the worst examples of contamination and environmental health impacts occur in politically marginalized and poor communities: Louisiana's petrochemical "Cancer Alley" is spread across a poor, racially segregated landscape, uranium mining has left a legacy of poisonous drinking water in Navajo Nation, and repeated studies demonstrate that populations of color and poor populations live in greater proximity to environmental burdens than do white populations or higher-income populations (U.S. General Accounting Office, 1983; United Church of Christ Commission for Racial Justice, 1987). Entangled systems of political marginalization, economic disparity, externalized ecological damage, and competition among localities for private investment reproduce our current model of "unsustainable development."

Although we can seek to relieve environmental degradation and to continue to grow our economies, if we do not also aim to improve social equity, it is unlikely that these severe disparities will disappear on their own. Further, as Haughton (1999) posits, "the unjust society is unlikely to be sustainable in environmental or economic terms; the social tensions that are created undermine the

recognition of reciprocal rights and obligations, leading to environmental degradation and ultimately to political breakdown." Planners must understand equity as an integral part of both the problems of unsustainability and the objective of sustainability.

One obstacle to fixing these entangled economic, environmental, and equity problems is that current patterns of development, which might be termed "unsustainable development," require tradeoffs among environment, the economy, and equity. Using a triangular model Campbell illustrates that these objectives compete with one another in public decision-making (Figure 3). The model of sustainable development helps provide public officials greater clarity in identifying conflicts among objectives and making meaningful decisions in light of different objectives (1996). Advocates may seek the political gains achieved by advancing policies that attempt to produce outcomes beneficial to multiple sustainability objectives (Baker, et al. 1997). However, skeptics are not sure whether these individual projects are enough to sustain substantive coalitions among different interest groups (Rydin, 1999). Political convenience is unlikely to produce sustainability alone.

Figure 3. Campbell's triangle model illustrates conflict among environment, economy, and equity

As a society or as a city, becoming more sustainable will require interventions that attempt to align the production of desirable economic, environmental, and equity outcomes. While contending with existing tradeoffs among equity, environment, and economy, planners and policymakers are also trying transform the systems that produce conflict among these objectives. Many scholars illustrate this objective by placing sustainability at the nexus of a Venn diagram that includes economy, environment, and social equity (see Figure 4) (Agyeman et al., 2003). To move in the direction of sustainability, decision-makers need to shape political, economic, and social systems that produce co-benefits instead of tradeoffs in the long-term. For example, incentives to bring the clean energy production sector to scale can result in economic growth with minimal environmental impact.

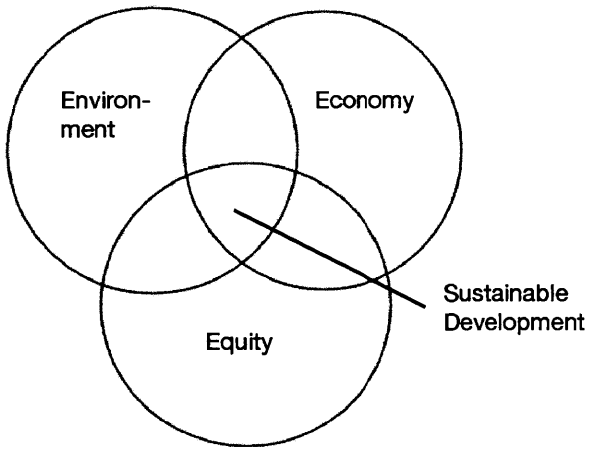

Figure 4. Venn Diagram illustrates sustainable development at the nexus of environment, economy, and equity

The challenge put forth for sustainability planners is to balance tradeoffs among environment, economy, and equity given our current reality of "unsustainable development," while using policy and planning tools to start shaping our political, economic, and social systems to produce mutually beneficial outcomes. However, most of the thinking about transformation of these systems for better development outcomes has focused on mechanisms to align environmental and economic objectives. The transformations required to produce greater social

equity, with or without economic and environmental tradeoffs, are less developed in theory and practice, as the initiatives of U.S. cities make clear.

II. URBAN SUSTAINABILITY PLANNING AND EQUITY

Today, almost every major U.S. city is planning or implementing some type of program, policy, or goal pertaining to sustainability. Cities use the word sustainability to describe a broad range of city activities, which reflects their equally vast range of reasons for adopting sustainability plans or programs. Most local sustainability efforts do not address environmental, economic, and equity equally, and equity is often the lowest among these priorities, despite the fact that cities have grappled with social equity in planning for decades. This chapter reviews urban sustainability planning in the United States to contextualize the case study, and summarizes the limited literature that analyzes equity in these efforts.

Some of the activities that fall under the umbrella of urban sustainability initiatives have long been the purview of local governments. One can trace the roots of planning for green space as far back as colonial-era city plans. Other parts of urban sustainability planning, such as transportation planning, are also part of the traditional city planner's agenda, but now have additional objectives, such as reducing vehicle miles traveled or improving air quality. Many elements of urban sustainability planning are new to city administration altogether, such as reducing greenhouse gas emissions or installing green infrastructure to absorb stormwater.

A handful of studies have attempted to survey and categorize the activities included in cities' sustainability efforts (Portney, 2003; Jepson 2004; Conroy, 2006; Saha and Paterson, 2008). One recent study, Saha and Paterson's 2008 survey used the input of 50 public and private sustainability professionals to generate a list of 36 important sustainability activities. The authors define four broad categories of activities—environmental protection, economic development, social justice and equity, and administration and governance—surveying cities for programs in energy efficiency, pollution prevention and reduction, open space and natural resource protection, transportation planning, smart growth, and promotion of local employment and industries among others, and tracking the engagement of various arms of government and the public in sustainability initiatives.

Cities focus on different combinations of these areas, and with different levels of seriousness (Portney, 2003). Some city officials characterize sustainability as just another name for

best planning practices, such as environmental review and smart growth (Saha & Paterson, 2008). Other cities such as Portland, Baltimore, New York, and Milwaukee have created separate offices of sustainability which signals a commitment to sustainability, although these offices may also oversee activities that cities were already undertaking. Some cities, such as Baltimore and New York City have formal sustainability plans; others, such as Boston, are running programs and adopting policies under different government wings. While a sustainability plan may imply increased commitment to sustainability objectives, with little data on substantive outcomes, it is difficult to say whether or not cities with particular stated commitments to sustainability are more successful in delivering improvements than others.

With so many cities approaching sustainability in so many different ways, and many having just gotten started in the past ten years, it is difficult to come to any general conclusions about progress that cities' pursuits of sustainability have achieved, much less in the specific realm of progress on equity issues. Most cities lack a comprehensive data gathering effort to match their sustainability efforts, and scholars who want to examine urban sustainability planning often do not have quantitative data on outputs or outcomes. (Greenhouse gas emissions are an exception, with sophisticated inventory tools becoming available to local governments.) Most comparative studies, such as those cited above, have looked at what cities say they are doing or how they are defining or measuring sustainability.

On the other hand, objectives related to social equity are less new to the planning profession than sustainability. Despite planning's origins in tenement houses and public health advocacy, many twentieth century planning interventions exacerbated inequities suffered by low-income urban communities and communities of color. During the past fifty years, the planning profession has improved its tools and techniques to involve citizens in decision-making, which is one approach to improve the equitability of urban planning. However, knowledge of interventions that produce more equitable outcomes has lagged behind (Fainstein, 2010), and social inequities in the United States continue to grow. Sustainability planning is no exception. A U.S. Department of Housing and Urban Development official who works with regions that received Sustainable Communities Initiative regional planning grants comments that planners "are able to [see equity from] a process standpoint. We are increasingly asking the question about outcomes: What does it mean for these efforts to yield more equitable outcomes?" (Geevarghese, 2011). Planners have

developed sophisticated strategies to engage marginalized communities, but the profession has less concrete knowledge of how to ensure equitable results.

A small number of studies have assessed cities' treatment of equity in sustainability initiatives. Most of these studies have found that cities' sustainability efforts are most concerned with environmental objectives, rather than economic objectives or equity objectives. In one of the first studies on this topic in U.S. cities, Warner (2002) analyzed three categories of sustainability content authored by cities that might pertain to environmental justice (EJ): educational or background information, policy statements, and implementation strategies (which includes participatory planning and monitoring projects). During his study completed nearly a decade ago, only a slender minority of U.S. cities (five of the largest 77) had included any EJ content, and all but one only mentioned environmental justice in their educational or background information. Only San Francisco included environmental justice in policy and implementation. Eight years later, Pearsall and Pierce (2010) completed a nationwide content analysis similar to Warner's, finding that of 107 large cities, 80 had sustainability plans, of which 31 included environmental justice as a component. However, of cities that measure EJ in their indicator projects, the authors find that nearly all of the measurement methodologies fail to explicitly address distributional or procedural environmental inequities.

Other research on equity and urban sustainability initiatives finds that cities do not perceive equity as a priority for sustainability programs on par with environmental or economic objectives. Saha and Paterson (2008) find that city governments rate ecological health as a more important sustainability objective that than economic wellbeing. Both are seen as far higher priorities than social equity. Portney reports that cities' inaction on equity measures of sustainability, reflected in these studies, suggests that most do not view equity as a prerequisite for sustainability (2003). Cities have enacted policies that address the needs of the most vulnerable, such as affordable housing policies and food security programs, but not necessarily as part of sustainability activities (Saha & Paterson, 2008). Pearsall and Pierce report that many cities have a focus on social needs in sustainability indicators projects (e.g. education, housing, safety), but these cities measure overall progress on these fronts, obscuring the comparison that would show whether cities are making any headway on social *inequities* in these areas (2010).

Within this wide scope of planning areas and administrative approaches, Baltimore has taken more initiative than many. The city adopted a Sustainability Plan, which roughly three-quarters of large cities in the United States have done (Pearsall & Pierce, 2010) and supports an Office of Sustainability (within the Planning Department), which few cities do (Saha & Paterson, 2008). The U.S. Chamber Business Civic Leadership Center and Siemens Corporation nominated Baltimore as a finalist in the Siemens Sustainable Community Awards in the "large communities" category. As the case study will detail, Baltimore has used a participatory planning approach as a main strategy to improve equity, which few other cities have done with such gusto. Baltimore addresses equity in one of its goals and in a handful of strategies, but barriers to implementation stand in the way of achieving those goals. The Baltimore case study attempts to fill in some of the gaps in research on social equity in city sustainability initiatives.

III. SUSTAINABILITY PLANNING IN BALTIMORE

In 2008 a peer-reviewed national survey ranked Baltimore tenth among the 50 most populated cities in the United States with regard to its sustainability, citing the city's green economy, commuting patterns, public transit ridership, and city innovation (SustainLane, 2008). But Baltimore also suffers from chronic disinvestment and poverty, a lasting legacy of racial discrimination, and pollution left from heavy industry (McDougall, 1993; Pietila, 2010). Given this context, what does sustainability mean to Baltimore, and how does the city address equity within its sustainability efforts?

In this chapter, I find that Baltimore's sustainability initiative, while coming out of a fairly robust public participation effort, lacks strong commitment to equity. Baltimore has one goal and a handful of strategies that address equity issues, but for the most part, these equity issues are not construed as primary goals of the plan. I argue that, like many other cities, Baltimore sees sustainability primarily as an environmental concern, which may be problematic because the environmental objectives of sustainability at times require tradeoffs with economic and equity aspects of sustainability in Baltimore. While the overwhelming economic, environmental, transportation and health disparities that Baltimore experiences may make it challenging for a small city office and a commission to make a difference, the value of sustainability that sets it apart from environmentalism is this exact engagement of equity and economic issues.

Sustainability in a post-industrial American city

Building a more sustainable Baltimore requires addressing the social and environmental outcomes of Baltimore's past economic and social history. Baltimore was founded as an agricultural port, linked to the tobacco, sugar, and slave trade in the eighteenth century. It developed into a trade and manufacturing hub in the nineteenth century, and its industrial economy prospered during Reconstruction and again in World War One and World War Two. These industrial activities attracted significant European immigration through Baltimore's port in the 1800s and early 1900s. At the same time, entrenched systems of white political and economic power shaped discrimination and blockbusting activities, which had lasting negative impacts on

Baltimore's black community and neighborhoods (Pietila, 2010). Economic decline began after the city reached its peak population of one million residents in 1950. Suburban development and deindustrialization drew families out to the suburbs, as Baltimore's job base declined during the 1960s and 1970s and crime rose. Many of these families were white, but much of the city's black middle and upper classes left as well.

The steady departure of jobs, capital, and middle-class residents caused high levels of unemployment and poverty, as well as health, drug, and crime problems that resulted from the loss of economic opportunity. Like many of its post-industrial Rust Belt neighbors, Baltimore's urban footprint serves two-thirds the number of people it was built to accommodate, leaving a third of the city's housing stock vacant. For decades, the Baltimore City government has attempted to address its post-industrial challenges by luring economic activity back into the city. One of the city's most influential development projects, the Inner Harbor, was constructed in the last 1970s and 1980s. Financed heavily by public incentives and loans, it brought a convention center and a "festival marketplace" to attract tourists. While it succeeded in attracting tourists to the Inner Harbor, the project attracted mostly low-wage service sector jobs, and has had minimal impact on Baltimore's neighborhoods (McDougall, 1993). The region now suffers from the "doughnut effect," in which the suburbs are highly affluent and the city suffers high rates of poverty.

Many of Baltimore's environmental problems are linked to the city's economic and social challenges. Highway projects designed to bring suburbanites downtown are a source of air pollution and carbon emissions. Baltimore's industrial past left contaminated soils, both a human health and water quality problem. The Patapsco River, a transportation asset, now carries runoff to the Chesapeake Bay, which is plagued by poor water quality caused by urban development and agriculture. Neglect of neighborhoods has encouraged wanton trash disposal. These are among the many problems that Baltimore must address to improve its environmental sustainability.

The social equity challenges wrapped up in these economic and environmental issues include severe inequities with respect to transit, health, pollution, and economic opportunity. In Baltimore City, 28.2 percent of children live in poverty, compared with 10.2 percent in Baltimore County, which surrounds Baltimore on three sides, and 11.8 percent statewide (U.S. Census Bureau, 2009). Asthma burdens are high in the city; residents of Baltimore "consistently have

among the highest prevalence [of asthma], rates of emergency department visit, hospitalization, and death" compared with the rest of the state" (Maryland Asthma Control Program, 2008, 2010). One 2004 study of Toxic Release Inventory data found that Baltimore City ranks fourteenth in the nation for total emissions of suspected respiratory toxicants by county (Cassady & Fidis, 2007). These inequities loom large for residents, planners, and advocates.

None of Baltimore's sustainability challenges are neatly contained within Baltimore City. Nearly all have contributing factors and resulting impacts that spread beyond municipal boundaries, including the regional economy, the Chesapeake Bay watershed, and federal transportation policy. It is clear that, like all cities, Baltimore is limited in its capacity to address issues that reach beyond its administrative borders. However, as scholars of urban sustainability policies point out, the city is the most politically relevant arena for local action. While the level of sustainability in Baltimore is linked to what happens in other communities and geographies, its challenges and potential levers for change are distinct from those of surrounding communities.

The development of Baltimore's sustainability initiative

The direction and shape of Baltimore's sustainability initiative emerged from many sources, including mayoral leadership, commission leadership, and public participation. Mayor Sheila Dixon (2007-2010) advocated for putting greater sustainability on the city's agenda by championing a "Cleaner, Greener Baltimore." Under her tenure, the Baltimore City Council passed legislation establishing the Office of Sustainability (OoS) in 2006 and the Commission on Sustainability (CoS) in 2007. The Council charged the CoS with developing and implementing a sustainability plan for the city. Mayor Dixon appointed 21 members to the CoS in early 2008, including representatives from city government, private industry, nonprofit groups, and labor (Appendix A details the composition of the CoS). Mayor Dixon gave the CoS one year to generate a sustainability plan, and allowed the Commission to design its own planning process. The CoS broke into working groups on the built environment, energy and air, green infrastructure, transportation, waste, and water. Each working group held public meetings to gather input before writing the plan, and with the help of a consultant, the CoS used public meetings and working groups to prioritize goals and actions (Washington, 2011). The plan was completed in late 2008; the CoS, Baltimore City

Planning Commission, and Baltimore City Council adopted the plan as an official amendment to the city's Comprehensive Plan in the early months of 2009. The CoS produced an annual progress report for 2009 and 2010.

The Baltimore Sustainability Plan is a 130-page document spelling out broad themes and objectives aimed at city government, private, and non-profit activities. Each of seven themes—cleanliness, pollution prevention, resource conservation, greening, transportation, education & awareness, and green economy—comprises a chapter with distinct goals, totaling 29 goals in the entire plan. For each goal, the plan lists two to six strategies. The goals and strategies are not intended to be directives only to Baltimore City government; instead the plan includes goals and strategies for the OoS as well as public, private, and non-profit partners to address. Some of the goals are measureable (e.g. Reduce Baltimore's greenhouse gas emissions 15% by 2015) whereas others do not have specific benchmarks (e.g. Improve public transit services).

Since its creation, the CoS has been in the process of determining its role in advancing the goals and strategies identified in the plan. The CoS relies on outside partners, both government and non-governmental actors, to pursue these goals and strategies. The CoS itself has acted in a facilitative and consultative role to the city and its partners, and as Cheryl Casciani, Chair of the CoS and Director of Community Investment at the Baltimore Community Foundation, stresses, the CoS aims to be an "activist" commission, affecting decision-making and influencing outcomes (Casciani, 2011). The activities of the CoS since developing the plan have included public and internal education, facilitation of collaboration among partners, political support for a handful of projects and legislation, expertise and review for city agencies and other officials, and production of annual reports. Additionally, after publishing the plan, the CoS selected five areas from the plan for special attention, including food, schools, litter, energy, and trees, which has provided a focus for the activities of the Commission (Casciani, 2011). The group meets once a month, although members spend other time working on CoS tasks. In the future, the CoS would like to monitor Baltimore's progress on sustainability and integrate quantitative data into its activities (Casciani, 2011, Bookhart, 2011).

Several public, non-profit, and private groups are working on sustainability projects that relate to the plan's goals (*Annual Report*, 2009, 2010). Baltimore's Office of Sustainability leads

the city's sustainability programming. As a result of several Commissioners' positions in area foundations, some funds have been directed toward the activities of the CoS (Bookhart, 2011). Determining the role of Baltimore City government in working with the Sustainability Plan remains an iterative process. Many cities in the U.S. are similarly faced with the reality of implementing sustainability on an ad hoc basis (Saha & Paterson, 2008).

Strategies to address equity

The planning process, the sustainability goals and strategies, the ongoing activities of the CoS and OoS, and the implementation of the plan all have implications for equity. This next section reviews the ways in which these activities could affect equity, and concludes with an analysis of the likelihood of these actions to affect equity outcomes.

(1) Procedural strategies to generate public input into the plan and make the plan accessible and meaningful to Baltimore residents;
(2) Goals and strategies within the text of the plan to address distributional inequities embedded in multiple areas related to sustainability, including transit, health, and employment;
(3) Efforts by the Commission on Sustainability to influence decisions made by public and private actors.

Procedural strategies in the planning process and impact

Public participation played a central role in the development of the Sustainability Plan, and many see it as a key element of addressing the equity dimension of the city's initiative. Advocates for equity in planning and policy often focus on the ability of marginalized communities to participate in decision-making that affects them. This is captured in the idea of "procedural justice." All five of the Commissioners I interviewed identified the public planning process, which started with public conversations before any text was written, as a noteworthy element of Baltimore's sustainability work. As one Commissioner noted, the CoS wanted to "reverse the normal planning process," in which officials write a plan, request public comment, and usually make only minor amendments before passing it (Washington, 2011). Baltimore's Department of Planning fielded

many complaints resulting from this top-down approach in the past, and the sustainability planning process explicitly sought an alternative (Farooq, 2008).

To ensure the inclusion of the public, the working groups held meetings to solicit ideas from community members first, and then synthesized them into a plan, which went out for public review and a second round of public meetings. The CoS used two main strategies for public engagement: over 40 public meetings held by the working groups in neighborhood spaces like libraries, and an outreach team known as "Sustainability Ambassadors." During neighborhood meetings, the CoS sought to hold conversations that would make the resources areas, and sustainability broadly, more meaningful to residents (*The Baltimore Sustainability Plan*, 2009). The CoS also tried to make the sustainability plan relevant to Baltimore residents by recruiting "Sustainability Ambassadors," interested citizens trained by a facilitator who were dispatched to discuss the plan at meetings of senior citizens groups, community groups, and business associations. As then-Sustainability Coordinator Sarah Zaleski describes, "instead of calling it a sustainability meeting" and reaching a small community of people who already "identified with that term," the CoS used the sustainability ambassadors to engage people "in their settings" (2011). They recruited ambassadors through a snowball strategy in which the CoS asked visible community leaders to refer "people who aren't up necessarily up front spokespeople typically, but have great ideas...People identified themselves, identified others, and we were fortunate to have a great group of volunteers who were really interested in the effort" (Zaleski, 2011). In both working group and Ambassador outreach meetings, citizens expressed a few sentiments repeatedly, including a desire for the plan to address local environmental issues such as litter and recreational water quality and to emphasize an outreach and education component to reach more Baltimore residents (Washington, 2011; Zaleski, 2011).

While this thesis does not attempt to evaluate the public participation process, it is clear that the outreach did result in the inclusion of some specific elements of the plan that the Commission would otherwise not have included. These elements pertain to local environmental improvements and outreach about environmental issues. The Cleanliness chapter is one example. Its three goals, "Eliminate litter throughout the City," "Sustain a clean and maintained appearance of public land," and "Transform vacant lots from liabilities to assets that provide social and environmental benefits," deal with the environment as it affects human health and wellbeing, often

captured by environmental justice advocates as "where we live, work, and play" (as opposed to a conservationist approach that defines the environment in less tangible terms such as biodiversity). Zaleski explains that this chapter was developed and prioritized as the Plan's first chapter in large part due to the input received during their efforts to reach those beyond a small circle of sustainability advocates. "If we had just talked to the choir, we wouldn't have pulled that out. It would probably have been sustainability in a less local sense, more global issues" (Zaleski, 2011).

Similarly, in the initial stages of planning, the water working group focused only on technical aspects of water regulation such as groundwater regulations and billing, but the citizen outreach process caused the group to expand its scope to the safety of water for recreation. State Delegate Mary Washington, who headed the water working group, said, "We had a lot to deal with: groundwater regulations, overbilling water...Our community meetings brought out issues that we might not have focused on, like water as a recreational resource. Meetings influence wonky types like us" (Washington, 2011). The Plan's water quality goal borrows language of the Clean Water Act to include the idea of recreational uses—"Ensure that Baltimore water bodies are fishable and swimmable"—although the strategies do not target recreational waters. In many cities, the concentration of residents who fish for personal or family consumption, particularly out of possibly contaminated waters, are people of color (Gibson & McClafferty, 2005). The public participation process gave rise to the inclusion of a goal that was framed to be relevant to a local environment and health issue that particularly affects some nonwhite Baltimore residents.

The Education & Awareness chapter also came out of the public participation effort. This chapter also highlights the local environment, explaining that "sustainability should not be an abstract term used only by government, scientists, and environmentalists; it should be a way of life in which informed aware citizens become environmental stewards and work together to make Baltimore a better city." Zaleski cites this standalone chapter as a result of citizen engagement, saying it "came up over and over again. People kept saying 'it needs to be integrated, and also have its own chapter'" (Zaleski, 2011). The CoS created a youth panel that organized a one-day youth sustainability summit, attended by 150 youth of all ages. The youth expressed concerns about sustainability that "were not drastically different from the concerns of the adult population," and asked "to be fully integrated into the ongoing work of the CoS" (*The Baltimore Sustainability Plan*, 2009). The Education & Awareness chapter aims to encourage that involvement, with goals

to "turn every school in Baltimore City into a green school," and "ensure that all city youth have access to environmental stewardship programs and information." The requests of citizens and youth to make sustainability more relevant in their lives, expressed during the public participation process, resulted in the inclusion of education and awareness goals.

In a related effort, the CoS also strove to make the plan accessible to all Baltimore residents. In the initial stages of the planning process, the Commission reviewed plans from other cities to find examples they might follow. Many cities' plans used highly technical language, read "like dissertations," and were inaccessible to anyone "not in the club" (Spencer, 2011; Washington, 2011). In contrast, Baltimore wanted its plan to have meaning for all residents, and the Commission aimed to use "plain, but not simple" language to achieve this goal (Spencer, 2011). For example, the overview of pollution prevention discusses externalities without using that word, writing that "historically, we have made decisions without consideration for where the materials or inputs we use come from or what will become of outputs, in the form of pollution. In contrast, sustainable decision-making considers both the external impacts of the inputs we use in production and consumption as well as the 'waste' created." This explanation makes clear the problem of externalities and the idea of internalizing them, without oversimplifying or using jargon.

Finally, the diverse composition of the CoS itself can be seen as a strategy to include equity on the city's sustainability agenda. The roster includes at least two Commissioners with environmental justice backgrounds: Scot Spencer, Manager of Baltimore Relations at The Annie E. Casey Foundation, who chairs the Maryland Commission on Environmental Justice & Sustainable Communities, and Mary Washington, who has experience working in Baltimore's neighborhoods on social and environmental justice issues. The Commission also includes a representative from the Sheet Metal Workers local, a CDC director, and representatives from foundations that work in Baltimore's neighborhoods. Given the CoS' continuing efforts to define its role and set a course of action, the ability of individual Commissioners to understand and lobby for equity-relevant issues will likely influence the city's sustainability efforts.

Distributive strategies in the Sustainability Plan

As in most cities in the United States, the substance of Baltimore's sustainability initiative is

primarily oriented toward improving the city's environmental quality, although the plan also includes some goals and strategies related to equity. In the introduction to the Plan, Baltimore uses the analogy of "a three-legged stool, comprised of social equity (*people*), economic health (*prosperity*), and environmental stewardship (*planet*)" (Baltimore Sustainability Plan, 2009). However, because the Sustainability Plan is an appendix to the Master Plan, the city wanted it to focus on environmental issues the Master Plan had not addressed. As Zaleski explains, "The master plan did a pretty thorough job talking about the social and economic legs of sustainability's three-legged stool, but the environmental portion was less discussed" (Zaleski, 2011). The city council legislation does not define sustainability, but mandates that the Plan "discuss all elements of sustainability, including air quality, water quality, resource conservation and recycling, energy, public health, environmental justice, reduction of greenhouse emissions, and increasing use of alternative means of transportation" (Baltimore City Code [hereinafter B.C.C.] Article 5, Section 34-5(1)). For those engaged in the sustainability planning effort, this list of mostly environmental issues, combined with the Plan's future as an appendix to the Master Plan, "gave use liberties to scale back issues our coverage of issues in the master plan, like housing, land use planning, education, and transportation planning" (Zaleski, 2011).

As a result, the plan is structured around environmental issues. Most of the seven different theme chapters that organize the plan's recommendations are defined by areas of environmental protection and enhancement, although they include relevant local and global environmental, economic, and equity issues (see Figure 5).

Theme/Chapter	What kind of a problem?
Cleanliness	Environmental
Pollution Prevention	Environmental
Resource Conservation	Environmental
Greening	Environmental
Transportation	Environmental, equity
Education & Awareness	n/a (strategy for achieving goals)
Green Economy	Economic

Figure 5. Baltimore Sustainability Plan's Theme Chapters

The plan includes one goal and a few strategies that directly address equity-relevant outcomes in transit, indoor air quality, weatherization, and green jobs. The equity issues identified in the plan all pertain to environmental quality and/or economic opportunity, and all of the strategies identified to address equity issues have environmental co-benefits. The Transportation chapter offers the most explicit treatment of equity as an objective, listing "Measure and improve the equity of transportation" as one of five goals. Transportation equity relates closely to poverty in Baltimore. The city has one of the lowest car ownership rates in the country, particularly in the poorest neighborhoods of East and West Baltimore (Cohen, 2008), but lacks a public transit system as extensive or reliable as other cities such as Washington, D.C., New York, and Boston. Many residents cannot afford to own cars. The first goal of the Transportation chapter is "Improve public transit services," which includes some strategies, such as "Work with the MTA to expand QuickBuses to more high-volume transit corridors," that may improve public transit for those who must rely on it. Assessing and improving transit equity and public transit services address one major social equity concern in the city.

Similarly, air quality and greening goals acknowledge the need to address inequities in asthma rates, which "among urban children from lower socioeconomic areas have reached epidemic proportions" (*The Baltimore Sustainability Plan*, 2009). Poor air quality is linked to asthma rates, and under "Increase and coordinate all healthy housing efforts," the plan prescribes

a strategy to ensure that low-income residents live in safe homes (which includes not just indoor air quality but also lead poisoning, another health problem more common in low-income families).

Additionally, the plan suggests that low-income and public housing structures should have priority in energy efficiency retrofitting, listed as a strategy to reduce Baltimore's energy consumption by 15% by 2020. Weatherization has a capital cost, making it difficult to finance for low-income households, who benefit from reduced energy bills and increased comfort indoors. Finally, the green jobs section of the plan suggests that investing in green jobs will advance opportunities for "historically unemployed and underemployed groups." Two of the green jobs strategies suggest job training and hiring practices that benefit these groups. Home weatherization programs and transit access improvement also have potential positive economic impacts for low-income households. Transit, health, and employment are three areas of inequity in Baltimore that the Sustainability Plan acknowledges and addresses.

Other elements of the plan address environmental problems that contribute to ongoing equity problems. Many of the equity issues indirectly referenced pertain to public health. For example, in the Pollution Prevention chapter, the plan outlines strategies to reach the goal of eliminating very poor air quality days (Code Red days) and minimizing poor air quality days (Code Orange days). Eliminating Code Red days and reducing Code Orange days will alleviate respiratory stress, a significant health equity issue. Similarly, strategies to achieve the goal of establishing Baltimore as a leader in sustainable, local food systems have the potential to address "food deserts," low-income neighborhoods that lack grocery stores, of which Baltimore has many (JHU Center for a Livable Future, 2010). Minimizing the production of waste, a goal under Resource Conservation, could reduce the air quality impact of the trash-to-energy facility located in the city. (The plan generically references landfills as an environmental justice issue, but not specifically in Baltimore.) These goals and strategies have the *potential* to improve equity.

Ad-hoc activities of the CoS outside the Plan

The CoS also has an opportunity to address equity issues through ad-hoc activities in which it engages, such as offering comment on local and state decisions. For example, the CoS was asked to review plans for the 25th Street Station Mixed Use Development, one of the largest

commercial real estate developments in Baltimore outside downtown in decades, slated to feature big box stores including a Wal-Mart and a Lowe's, as well as other retail and 85 apartment units. Commissioners expressed differences of opinion over the project; some supported it as an important job creation effort, while others saw that the space might have fewer environmental impacts if a different land use such as a park or open space were encouraged (Bookhart, 2011; Spencer, 2011). Ultimately, because the CoS lacked a formal review role, their consultation occurred too late in the process to make substantive changes – the project had already received Planned Unit Development approval (Spencer, 2011). However, this kind of opportunity for public comment or advocacy will likely continue.

Analysis

Like many cities, Baltimore does not systematically target equity in its sustainability plan, and thus, it is unlikely to produce substantial equity outcomes in many areas. The planning process itself is a promising part of Baltimore's effort. Many cities have foregone public engagement processes in their sustainability initiatives, and Baltimore's effort to reach out to constituents beyond a typical sustainability crowd merits commendation. However, process alone will not generate sufficient strategies to address distributional outcomes. Although participants in the planning process identified several local environmental issues tied to inequities, they may not have the perspective or the background knowledge to name larger equity issues or suggest strategies to address them. The careful input of professionals working in community-based organizations and experts in community development policies and programs will be required.

The substantive framing of the plan in terms of environmental issues limits its capacity to address equity. For one, equity issues outside the environmental realm are unlikely to be seen within the purview of sustainability, and particularly so if they are not directly linked to economic development. For example, during the public planning process, residents raised some equity issues, like unequal educational quality, that commissioners saw as outside the scope of a body charged with sustainability (Bookhart, 2011). If the strategies designed to address equity must also provide environmental improvements, they may be limited in their success, as factors like educational quality play a role in providing or limiting opportunity for communities that lack access

to economic or political resources. And while many environmental problems have equity outcomes, the root causes of inequity in Baltimore are not environmental, and most of the solutions proposed to advance environmental objectives have no explicit benefit to equity. Further, defining equity issues within an environmental framework may not engage the interest of environmental justice advocates, many of whom see their work not as an outgrowth of the environmental movement, but as a continuation of civil rights or immigrant rights struggles (Bullard, 2000; Cole & Foster, 2001).

Environmental justice, one of the most visible intersections of environment and equity, does not feature in the Baltimore Sustainability Plan. The term *environmental justice* caused debate among stakeholders and Commissioners; one Commissioner described the planning staff as "very nervous" about including these words, worrying if they did that they would lose partners from the business community who could help with the plan's implementation (Washington, 2011). Further, longstanding tension between conservationists and EJ interest groups, whose priority issues and stakeholders differ, was also present in the planning process. The final text of the plan includes two uses of the term *environmental justice*: one under the objective to minimize waste, describing that landfills "are a serious environmental justice issue because most landfills are placed near lower income communities," and a second describing the varied backgrounds of the Commissioners. However, there are no specific references to addressing unequal environmental burdens and assets in the city, many of which have been documented with respect to concentrations of black residents and low-income residents (Boone, Buckley, Grove, & Sister, 2009; Robinson, 2008; Boone, 2002). This finding suggests that the presence of Commissioners with environmental justice backgrounds is not sufficient to ensure that the plan will substantively tackle EJ. Despite the fact that environmental justice is an environmental issue, the Commissioners deemed that the politics associated with acknowledging and addressing presented too much of a risk of conflict for the Plan to include it. Without targeting environmental justice problems in Baltimore, the commitment of the plan to equity appears low.

The political conflict over the term environmental justice is emblematic of other tradeoffs that involve equity. The framing of the Sustainability Plan as primarily environmental can put equity priorities at risk when sustainability objectives come into conflict. Some of the goals and tasks are clearly aligned to meet multiple objectives, such as prioritizing a weatherization program in low-

income and public housing stock, where energy cost savings will benefit residents who pay their own utilities and decreased energy use will reduce carbon emissions. However, the implementation of sustainability in Baltimore urban development work illustrates that significant conflicts among environmental, economic, and equity objectives remain, as interviews with commissioners and community development professionals reveal. For example, Tony Cipollone of the Annie E. Casey Foundation described challenges in addressing environmental objectives in the East Baltimore Redevelopment Project, a large residential redevelopment in some of the "least safe, most vermin infested housing in Baltimore." Cipollone reports that the cost of green building limits the use of environmental friendly materials in redevelopment projects in low-income neighborhoods, saying that "green building materials tend to drive [the units] out of the low-income price range. We are not just catering to new residents; non-gentrification is a huge priority and so is making sure homes are affordable to people who live in the community now" (Cipollone, 2011). If sustainability is predominantly about environmental issues, conflicts between the environment, economy, and equity may have a tendency to favor environment over the others. Therefore, careful attention must be paid to these conflicts, to monitor whether equity is losing out repeatedly to environmental or economic priorities for political, logistical, or financial reasons.

Other equity issues are unevenly addressed. The transportation equity goal and strategies are the most straightforward means of addressing equity, tackling the measurement specifically of disparities and recommending the development of strategies to reduce inequities. However, even this pointed goal lacks suggestions of the kinds of interventions required to improve transportation equity, and falls short of identifying an implementation strategy. The air quality and greening goals touch on health equity issues in their strategies, and include one measurable goal of reducing and eliminating Code Orange and Code Red days that will improve health outcomes. However, health disparities are not specifically targeted. Indoor and outdoor air quality are not the only relevant contributors to health inequities that the plan could address.

The strategies for the green economy are among the least developed in the plan, which reflects the nascence of this field and uncertainty about strategies that other cities share. The chapter does not target any specific sectors or opportunities other than clean technology, and lacks any measurable goals. More broadly, given the severe need for good jobs for Baltimore residents, other strategies for creating and attracting sustainable sources of income might also be

included. Finally, despite coming out of a robust public participation effort, the plan's goals and strategies do not mention equitable representation in planning and development of programs and policies.

While several of the Plan's strategies have the potential to relieve inequities, without explicitly targeting disparities, the plan risks that implementation of strategies to accomplish these goals will not address the underlying equity problem. For example, strategies may not be employed in the neighborhoods of greatest need. If public transit improvements target the north-south light rail line in Baltimore, the neighborhoods of East Baltimore and West Baltimore, among the city's poorest, will not benefit. Or, programs may improve an environmental or resource problem, strictly speaking, but also include externalities that negatively impact equity issues. As a result of a lawsuit against the U.S. EPA, Maryland has proposed a stormwater fee that will fund the improvement of the state's water quality, but burden of the tax will be greater in Baltimore, where tax rates are higher and incomes are lower, than in surrounding communities. Scot Spencer, Baltimore Sustainability Commissioner and Chair of the Maryland Commission on Environmental Justice and Sustainable Communities, described this disparate burden as a top potential environmental justice issue in Baltimore (Spencer, 2011).

Finally, interventions that *could* have a positive impact for marginalized communities may need to be tailored explicitly to achieve that benefit. For example, the plan calls for improving bicycling infrastructure. In the United States, bicycling advocacy has focused mainly on white communities, and to engage a broader audience these groups may want to partner with institutions in communities of color to overcome safety, communications, and perceptions challenges specific to biking in those communities (Zewde, 2011). While the plan addresses several environmental problems with equity implications, without strategies to ensure that environmental enhancements target those who need them most, these goals may not contribute to social equity outcomes of the plan.

The CoS sought to include equity across different chapters to avoid relegating it to a separate chapter that might not be integrated with other goals and strategies (Washington, 2011). However, for this strategy to be effective, goals will need to directly target the reduction of disparities, and strategies must include consideration of how to bring the benefits of sustainability to disadvantaged. Further, to make improvements to the root causes of some of these inequities,

policymakers will need to use tools that do not necessarily have environmental benefits. Some might argue that city sustainability officials such as Baltimore's cannot specialize in everything pertaining to equitable development, economic development, and environmental improvement, and that to try to fit all the sources of inequity into sustainability would only dilute the meaning of the term. However, global environmental crises and chronic urban disparities are among the most pressing policy challenges in the United States. Sustainability initiatives need to build the capacity to improve social equity in the context of environmental and economic objectives, both by understanding tradeoffs among these goals and by implementing policies and programs that better align them. Otherwise, cities will never be forced to change their political, economic, and social systems in a way that moves them toward sustainability.

Baltimore's history of economic and industrial fluctuation, the challenges associated with poverty and a weak real estate market, and its location in the Chesapeake Bay present challenges to the city for sustainability. In this context, the city has launched a sustainability initiative aimed at improving some of the environmental, economic, and social equity problems it faces. This sustainability effort, although earnest and well planned, does not address equity very thoroughly. The participatory planning process, while generating goals and strategies relevant to the local environment, did not result in thorough inclusion of equity issues in the plan. The plan does include some specific equity concerns related to transit, health, and employment; however, the ability of these goals and strategies to improve equity depends both on targeted strategies to reduce disparities and the effectiveness of their implementation.

VI. DISCUSSION OF IMPLEMENTATION AND IMPACT

The effective implementation of any city's sustainability plan depends on many variables. Cooper and Vargas categorize the challenges to implementation of sustainable development as legal feasibility, fiscal feasibility, administrative feasibility, political feasibility, ethical feasibility, cultural feasibility, and technical feasibility (Cooper & Vargas, 2004). I explore four of these variables—legal, administrative, fiscal, and political feasibility—that have played a role in the impact of the Baltimore Sustainability Plan.

While it is too early to evaluate the full impact of Baltimore's sustainability efforts, early indications are that there are barriers to implementing the Plan's goals and strategies that may have an adverse effect on efforts to advance sustainability including equity. The Plan has some legal authority but that authority is not being utilized. The city is relying mostly on voluntary actions of partners to achieve the Plan's goals, in part due to low administrative capacity, funding, and shifting political support. For legal, fiscal, and political variables, I compare the Sustainability Plan with other kinds of interventions that promote sustainability in the city, which suggests how differences in implementation design may impact effectiveness.

Legal feasibility

Many cities' sustainability goals and strategies lack clear legal standing. In Baltimore, the City Council granted legal authority to the Sustainability Plan and the CoS in the Baltimore City Code, but both the CoS and outsiders do not believe that the Plan itself is enforceable. The enabling legislation delegates responsibility to the CoS to prepare the Sustainability Plan, as well as to "monitor the Office of Sustainability and that Office's incorporation and implementation of the Comprehensive Sustainability Plan" (B.C.C. 5 § 34-4). Further, it states that "the Sustainability Plan [upon approval by the Mayor and City Council] will be incorporated into the City's Comprehensive Master Plan as an appendix" (B.C.C. 5 §34-8). This gives the CoS the authority to oversee the implementation of the plan. There is no stipulation that the Sustainability Plan, as an Appendix to the Comprehensive Master Plan, should have less of a role in shaping development as the Comprehensive Master Plan, which was most recently rewritten in 2007.

In practice, however, Baltimore sustainability officials do not utilize the Plan's authority as an appendix to the Master Plan. As written, the strategies of the Sustainability Plan are less specific about how to ensure implementation than those of the Master Plan. The two plans are generally aligned: both specify objectives, timeframe, funding sources, and implementation partners. However, the Master Plan is much more specific in identifying responsibility for implementation and tying strategies to programs already in existence. For example, the Master Plan outlines the following historic preservation strategy: "Simplify, and actively pursue the local historic district designation process for Baltimore neighborhoods." To implement this, the plan designates the three responsible entities—two commissions and the Department of Planning. The plan states that the Commission for Historical and Architectural Preservation "will revise the local designation process in order to shorten the time for local designation to nine months on average," identifying the actions that are supposed to be taken by specific city entities.

By contrast, the Sustainability Plan shies away from assigning responsibility for implementation, and instead identifies lead partners and more general actions. Under the objective of minimizing waste, the Sustainability Plan calls for "expanding Baltimore's composting program and opportunities." The directive is not tied to an existing program, and it instead recommends the creation of "new public/private partnerships to locate new composting facilities and expand existing operations to compose residential yard and food waste." The text identifies several "lead partners" (not implementers): the Office of Sustainability, the Northeast Maryland Waste Disposal Authority, the Department of Public Works, and composting businesses, but does not say that any of them will be held accountable. The Master Plan provides timeframes in years for specific goals to be met, while the Sustainability Plan calls for "short-term," "mid-term," or "long-term" action. The Master Plan lists indicators that can be used to evaluate performance, such as the number of historic districts created; the Sustainability Plan does not.

The Comprehensive Master Plan undoubtedly benefited from far greater staff time and budget resources. Additionally, a long history of master planning efforts provides a precedent, whereas the Sustainability Plan created its own structure, so we should not expect the two plans to match (Iyer, 2011). However, the Sustainability Plan might use some of the Master Plan's tactics, such as stronger and more specific language, naming implementers, and committing to specific actions, to impart greater authority.

The difference between the plans is not just semantic; it reflects different views of how the plans are supposed to be used. As a Planning Department official stated, the Master Plan and the Sustainability Plan "have totally different scopes and totally different mandates" (Iyer, 2011). Multiple Commissioners refer to the plan as a "report," something separate and less explicit that a formal "plan." Commissioner Davis Bookhart summed it up: "The report itself has no authority; it has no mandate" (2011). The text of Sustainability Plan reflects this characterization, stating that it "is not a prescriptive work plan, but rather serves as an umbrella to connect previously disparate efforts already underway in Baltimore and help to identify gaps to target with future initiatives." Despite having legal authority, those inside and outside of the sustainability effort view the Sustainability Plan as a document that describes more than prescribes.

This separation between more traditional plans and sustainability plans resembles, and perhaps derives from, the relationship between traditional plans and climate action plans. Climate action plans have a more specific objective than sustainability, to use local policy action to reduce greenhouse gas emissions, but they suffer a similar problem—that is, because climate action plans are separate documents, climate action is considered an issue apart from regular city decision-making, which is an important arena for action to reduce greenhouse gas emissions. Climate policy experts have found that while the development of a separate plan highlights the issue during the planning process, that short-lived attention has a negative tradeoff of separation from everyday decision-making.

At least one of the Baltimore Commissioners sees an opportunity for the CoS to act more forcefully. Commissioner Ruth Ann Norton states, "I think most of what [the Commission] has done is collect some good stories. We have to do a better job of laying out the goals and objectives of the Commission to set standards" (Norton, 2011). While calling the planning process "really excellent," Norton suggests that the Commission would be more effective if it asserted more explicit standards and communicated these with agencies and citizens.

The Commission currently writes letters in support of legislation, supports public and internal education, and facilitates partnerships among public and non-profit partners. None of these approaches, however, guarantees results. One promising lead, mentioned by two Commissioners in interviews, is the development of a checklist based on the Sustainability Plan for use by the Planning Commission in its permitting approval process (Spencer 2011; Casciani,

2011). If this checklist contained specific requirements and became a formal part of permit reviews, it could provide the Plan with greater impact. However, at this time, the Commission's sense that it lacks authority and tools to implement what it proposes has undercut the formal legal authority behind the Sustainability Plan.

In comparison: Baltimore Green Building Standards. In contrast to the Sustainability Plan, Baltimore has defined a clear role for its green building standards, which has aided in their implementation. In 2007, City Council passed legislation mandating that developers follow Baltimore City Green Building Standards, adapted from LEED criteria to fit the development, sustainability, and climate needs of Baltimore. Developers of commercial and multi-family homes must pass these standards during the Department of Planning permitting process. According to the green building standards manual, the standards "are designed to integrate the following City sustainability goals," which include energy, water, resource use, transportation, and greening (*Baltimore City Green Building Standards Volume 1: Regulations Manual*, 2010).[4] Because the standards are used as a required part of permitting review, their practical legal authority results in more reliable implementation. City officials might build on the authority of the Sustainability Plan by integrating it into development controls like permitting.

Administrative feasibility

The interest and capacity of public, private, and non-profit partners to administer strategies identified in the plan is another factor that can either enhance or impede implementation. As Bookhart makes clear, "the Commission is not an agency," highlighting that it does not have the authority or capacity of an agency. The Commission meets monthly, and many of its Commissioners give substantial extra time to the activities of the Commission. The Office and Commission have a strong relationship, and one of the Office's most prominent programs, the Baltimore Energy Challenge, comes from the Plan's recommendation for "a multi-sector energy

[4] The "city sustainability goals" of the Baltimore City Green Building Standards are all included somewhere in the Sustainability Plan, although not all are goals of the official plan, the Standards do not use the Plan's text, and they do not match the overall chapters or goals of the Plan.

challenge to engage and motivate citizens, businesses, and institutions". The Office runs this program with support from the Baltimore Community Foundation (*Annual Report*, 2009). However, with a limited staff (five in 2010), the Office cannot assume responsibility for implementing the full range of policies and programs recommended in the Plan.

Instead, the city relies on partner organizations to implement the Sustainability Plan voluntarily. As the 2009 and 2010 Annual Reports point out, many public and private partners are implementing programs and changes that contribute to the Plan's goals. For example, under the goal to "reduce Baltimore's water use while supporting system maintenance," the 2009 Annual Report lists water conservation activities of the Department of General Services, Department Public Works, a local service corps, and a local watershed association, in addition to the green building regulations that went into effect in 2009 and the Baltimore Energy Challenge (*Annual Report*, 2009). Of these actions, only the Baltimore Energy Challenge is a direct outgrowth of the city's formal sustainability activities. The 2009 Annual Report also cites data from the Department of Public Works that demonstrates a significant decline in the average water consumption of residential and commercial customers from 2007 to 2009. While this achievement suggests that progress is being made, this is not directly because of the Plan or the Commission. Underscoring this point, the actions toward this goal listed in the annual report do not correspond with the strategies outlined in the plan.

This approach to implementation through key partners is important, particularly in a city like Baltimore that lacks a strong tax base to generate funding for government services. The voluntary approach may help achieve goals that are easily attainable or for which there is significant advocacy, such as local watershed restoration projects. However, this approach does not guarantee action. For more challenging goals, the Commission will have a difficult time finding partners. The reliance on partners also makes it difficult to push the private sector to achieve better sustainability outcomes. If a private actor does not support the sustainability goals or strategies, that actor is not compelled to adhere to them.

This is particularly worrisome with regard to equity concerns. For many issues, actions to address equity will need to be mandated. For example, the 2009 Annual Report cites four actions that address Sustainability Plan's most pointed equity goal, "Measure and improve the equity of transportation": development of a web-based housing and transportation affordability index by the

Brookings Urban Markets Initiative and the Center for Neighborhood Technology, a new position in the city government and a study pertaining to job development with the Red Line transit project, and MTA grants for $200,000 and $100,000 to help low-income workers and people with disabilities get to jobs and job interviews (*Annual Report*, 2009). Of these four projects, only one, the MTA grants, will actually enhance equity in transportation, and the grants are for minimal amounts of money compared with the cost of major transportation investments. Transit equity is a complex, challenging problem, requiring significant infrastructure, capital investment, and political support. A concerted effort on the part of many coordinated actors will be needed to advance transit equity. A stronger mandate to act will be required to produce greater transit equity—reliance on the voluntary efforts of independent partners will not be enough.

Furthermore, the city will need to build partners outside of its administrative boundaries to increase its capacity to affect changes for sustainability. For example, the Baltimore region's metropolitan planning organization allocates federal transportation dollars, but its voting structure is skewed toward suburban municipalities (Spencer, 2011). Building partnerships with neighboring municipalities or developing a regional sustainability initiative can help the city gain additional leverage and encourage synergy, instead of competition, among municipalities. The state of Maryland has significant impact on urban development through policy and budgeting, and their partnership could also expand administrative capacities.

Finally, this implementation approach renders the Plan itself less important. The public participation effort, which was such a critical part of the mission of the CoS and Plan development, influenced specific goals and strategies. If public, private, and non-profit organizations "opt in," there is no way to ensure that all the goals and strategies will be addressed. The plan's reflection of community perspectives, particularly in its specific strategies, may get lost.

Fiscal feasibility

Most sustainability interventions require funding. With a tight budget, Baltimore City government is cautious about offering money, and the Commission has no funding of its own. Part of the political palatability of the Sustainability Plan may rest on its non-commitment of city funds. When the City Council initially approved the Plan in 2009, the Department of Finance submitted a

letter that supported the plan but noted that "the plan acknowledges that sustainable funding strategies that do not impose additional financial burdens on the City government need to be developed for many of the recommendations" (Department of Finance, 2009). In a city weary from chronic financial strain, the cautious wording of this comment suggests that sustainability efforts may be hard pressed to secure necessary public funding.

The city's sustainability efforts have found some financial support from Baltimore's philanthropic community. The CoS benefits from multiple Commissioners with positions at foundations; as one Commissioner explained, "Being part of the philanthropic community helps a lot; there are little pots of money here and there" (Bookhart, 2011). Many foundations seek to influence public policy by implementing pilot projects and testing innovative strategies (Cippollone, 2011), but the reliance on philanthropic funds and a small city office within the Department of Planning presents concerns for long-term implementation of the plan's most important objectives. While some low-cost changes may achieve significant enhancements in sustainability, large-scale investments (public or private) will also undoubtedly be required, particularly in regard to equity aspects. The city will likely want to look to other sources of major investments in the city, such as institutions like universities and hospitals with strong ties to Baltimore, as sources of leverage. Large projects like the Red Line, which will bring east-west light rail service to through Baltimore City and Baltimore County, will offer another opportunity to tap outside funding for sustainability benefits. Another option is to tie sustainability requirements to any city incentives provided to developers. Because developers require incentives to make investments in Baltimore's weak real estate market, the city has some amount of control over the shape of almost all development.

In comparison: Red Line Community Contract. In contrast to the limited funding expected for the Sustainability Plan, the Red Line transit project will be a significant investment that provides an opportunity for furthering sustainability goals. With approximately $1.78 billion expected in investments for the line, the city, state, and Baltimore community want to ensure that the Red Line is not thought of as just a transit project, but that it "makes Baltimore more green, provides jobs, [and] causes neighborhood reinvestment" (Gauvin, 2011). In light of this opportunity, the Red Line Community Compact, started by the City and signed by Maryland Department of Transportation, Maryland Transit Authority, and seventy smaller signatories, sets expectations for community

involvement, including the negotiation of community benefits agreements for any transit-oriented development that the city subsidizes (*Red Line Community Compact*, 2008). Although Red Line funding is not all in hand, the expectation of such a significant injection of public financing in Baltimore has sparked significant planning and high expectations for equity benefits. Sustainability officials ought to look to large investments as opportunities beyond the Sustainability Plan to improve equity outcomes.

Political feasibility

Another significant factor in effective implementation of a sustainability plan is political will. In Baltimore, there does not appear to be political opposition to the CoS or sustainability activities in general; however, currently there is a lack of mayoral leadership and little demand for accountability in implementing sustainability measures. Baltimore's sustainability planning effort started with strong support from Mayor Sheila Dixon, who left office for ethical violations and was replaced by Mayor Stephanie Rawlings-Blake in 2010. Rawlings-Blake is less visible on sustainability issues, perhaps because it was associated with the former Mayor. She is "not against [the sustainability agenda], she's just not a cheerleader," which presents new challenges for the CoS (Casciani, 2011). As one Commissioner puts it, "We need the Mayor to be much more of a bully pulpit leader" (Norton, 2011).

Additionally, while the City Council has not gotten in the way of the CoS or most sustainability efforts, the Council is not pushing the CoS particularly hard. While the enabling legislation states that "the Commission shall report annually to the City Council on its activities" (B.C.C. 5, Section 34-4), Casciani indicates that the Commission is holding itself to its own accountability standards, and the City Council is not "setting the clock" (Casciani, 2011). Baltimore has the benefit of a neutral or supportive political environment for sustainability efforts, but the city leadership is not "carrying the banner" or setting high expectations. Furthermore, perhaps because sustainability continues to be viewed as an environmental issue, few community development voices are strongly advocating for sustainability in the city. Without pressure from a broad range of residents and community leaders, the administration likely will not feel a need to take a clear stance on sustainability.

In comparison: Maryland Stormwater Management Act. In contrast to the political ambivalence about the Baltimore Sustainability Plan, the Maryland Stormwater Management Act provides a cautionary example of how political will has interfered with a sustainability measure. The State of Maryland requires the design for new developments to include certain stormwater management elements, but the City of Baltimore does not appear to have a strong will to implement them. Baltimore passed the 2010 Baltimore City Stormwater Management Ordinance to implement the Maryland Stormwater Management Act of 2007, which requires environmental site review for stormwater management (*Stormwater Management Act of 2007*). However, since adoption, the city has granted several administrative waivers to this requirement, including to the 25th Street Mixed Use Redevelopment Project (Baltimore City, 2011). Despite the authority of the state law and the capacity of the city to enforce it, a lack of interest in forcing developers to amend their plans has made more of a difference in implementation than legal authority or concerns from the public (Baltidome, 2011). Some vocal critics have charged that Baltimore City's political interests align against implementing this sustainability strategy. It is clear that without a minimum of political tolerance, it will be difficult to implement strategies for sustainability.

These issues in implementation—legal authority, capacity of partner organizations, funding, and political will—suggest some positives regarding Baltimore's current positioning of its sustainability efforts, but also significant challenges that will need to be overcome if the city is going to make progress. Essentially, at this time, many of the strategies Sustainability Plan are not being implemented, although partners are making progress on some of its broader goals. The reasons for this – the Plan's lack of perceived authority and the lack of capacity within partner organizations or the OoS to implement some strategies – raise serious questions about the city's ability to advance more than a few of the equity-relevant goals and strategies in the plan. An update of the plan, mentioned by a few Commissioners as a possibility in upcoming years, would have a greater chance of advancing equity issues if it addresses strategies for effective implementation.

Summary of case study conclusions

The findings of this case study suggest Baltimore has a ways to go in terms of addressing equity in its sustainability initiative. However, cities can learn a lot from the strengths and weaknesses of Baltimore's efforts. In terms of planning goals and strategies, Baltimore piloted an engagement strategy for people who do not identify with sustainability, which led to the inclusion of specific goals and strategies. Further research could evaluate the reach of this effort and identify those groups that the city did and did not reach, but bringing a discussion about sustainability to communities helped make the sustainability effort more meaningful to a greater number of people.

However, the goals and strategies need revision if they are to produce greater social equity in Baltimore. The clear goal to address transportation equity might be a model for other kinds of equity goals, but even the transportation goal lacks strong strategies by which Baltimore might change outcomes. A few goals have the potential to improve major health disparities, such as lead poisoning and indoor and outdoor air quality, but they are primarily environmental improvement strategies. Some specifically mention reaching low-income populations, others only have potential equity outcomes. Overall, the commitment of the Plan to tackling equity in Baltimore is low.

The implementation strategies also raise some concerns. The CoS and OoS are building a strong network by linking the voluntary actions of partners to the Plan, but planners need to develop other implementation strategies that work within the challenges of Baltimore's fiscal context. The mechanisms for implementation are particularly critical for equity issues, which may have a less political mobile stakeholder group than environmental issues. Crafting implementation strategies has been difficult because of the newness of sustainability planning; all cities lack a model for the implementation of a sustainability plan. The sustainability initiative will need to flex more strength through continuing to build partnerships, identifying opportunities to leverage existing public and private investments, incorporating sustainability objectives into existing policies and programs, and generating greater political support. It is too early to conduct a comprehensive analysis of how well Baltimore's sustainability plan has actually affected equity in the city. However, creating a strategy to identify key data and generate stakeholder feedback will help the city do so eventually.

V. AN ASSESSMENT FRAMEWORK FOR EQUITY OUTCOMES OF SUSTAINABILITY PLANNING

Having outlined the planning process, the goals and strategies, and implementation challenges that have the potential to affect equity, I turn to addressing the second question of my thesis: How can we measure the effect of sustainability planning on social equity? For cities like Baltimore that are already implementing their sustainability plans, regular assessments of the outcomes of a city's sustainability plan are important. Cities will need to adjust their sustainability efforts, and changes should be keyed to credible reports on progress. Additionally, with few resources that advise cities on changing disparities through sustainability, many cities will want to learn about the ways in which their sustainability efforts are making a difference. There are several individual tools—community outreach strategies, government performance assessment, and indicators projects—that in combination can suggest how well strategies to address sustainability are improving equity issues. Assessments of this sort can clarify for sustainability practitioners what is working, what is not, and why, and help hold government accountable for results. Because equity remains an area of sustainability planning that receives less attention, an assessment focused on equity can help a city clarify its commitment to equity and think through the steps required to reach equity goals. For cities that are just starting out with planning or piloting programs, many of the same tools will help orient officials to make sustainability planning more effective for equity outcomes. Adaptations of elements of this framework for such cities are included in the recommendations in Chapter VI.

At this time, most of the scholarly research on sustainability planning has focused rather narrowly on what cities have said they are doing, not what change their efforts have accomplished. Many cities have indicators projects, but most are too broad to track the short-term impact of interventions. This chapter aims to address these shortcomings by proposing a framework for an assessment of the contributions that sustainability planning is making to social equity. I outline a protocol for an assessment of a city-level initiative based on my review of research and evaluation and monitoring projects that other cities are conducting (see Figure 6). Based on the literature on city sustainability planning and the case study, I propose this framework with the assumption that most cities are not explicitly aiming to reduce disparities through sustainability planning. As far as I know, no assessment protocols exist for evaluating the actual impact of a

sustainability plan for equity. Therefore, the elements of the protocol are pulled from relevant evaluation and indicators projects, but the examples may not pertain specifically to equity.

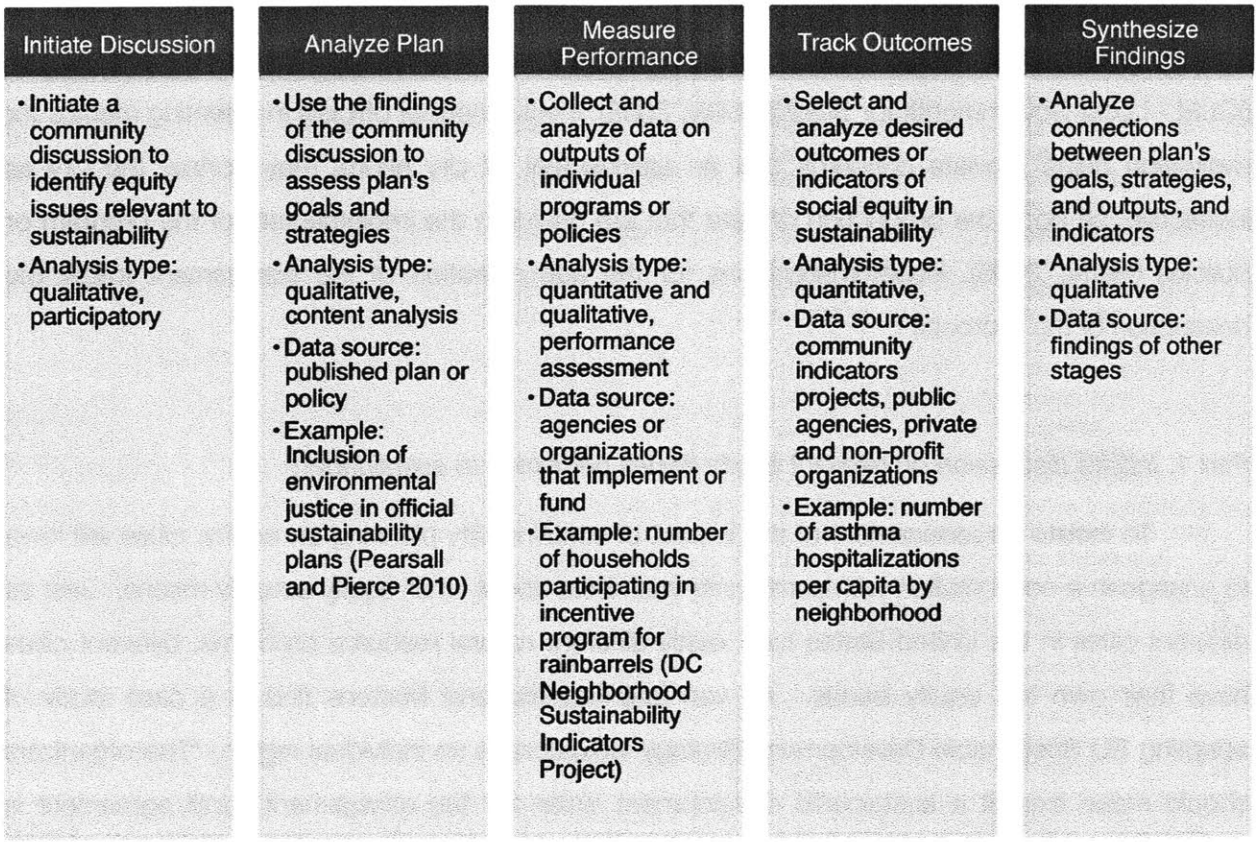

Figure 6. The Assessment Protocol

Studies of individual indicators projects almost universally recommend sustained community participation for several reasons (AtKisson, 1999; Corburn, 2010; Urban Ecology Coalition, 1999; Washington DC Neighborhood Sustainability Indicators Project, 2010). Leadership of community members from the outset helps ensure that many perspectives inform the assessment. Community input in selection of methods also provides additional accountability for the assessment process. Suggestions for sustained engagement of community partners and stakeholders are included in the detailed discussion of the protocol below. Across all stages, the organizer of the assessment must have a commitment to and the capacity for community engagement for stakeholder involvement to be meaningful.

Additionally, the ongoing involvement of public officials helps ensure that the findings include analysis that is usable by the city. An ICLEI study of projects that measure city and regional progress on sustainability (termed "sustainable community frameworks") finds that "a framework is best served by robust linkages to those entities responsible for implementation" (ICLEI - Local Governments for Sustainability, 2008). Involvement of officials in selecting metrics for evaluation helps alleviate concerns that an assessment of city efforts may portray the city as ineffective, as does the production of data that are useful to the implementers of the program or policies (Hatry, 2006). Recommendations for the administration of the assessment follow the description of the protocol.

Part 1. Initiate discussion on relevant equity issues pertaining to sustainability

To initiate an assessment of the impact of sustainability planning on equity, cities will have to engage in a conversation with community members about what equity actually means. Just as different cities in the United States face vastly different natural resource problems, different cities have their own top equity issues. As van Zeijl-Rozema and Martens find in a case study of adapting EU Sustainable Development Strategy indicators in an individual region, "The organizers should make explicit a sustainable development vision for the assessment. Until agreement is reached on what it is that should be sustained...it is impossible to identify relevant and valid indicators" (2010).

In the case of equity, many cities that have sustainability plans that lack a "vision" or commitment to addressing equity. Cities will need to identify relevant equity issues, such as those examined in earlier chapters, like disparities in access to transit, air quality, and access to fresh food. Figure 1 provides examples of other equity issues relevant to sustainability. These issues may not be explicitly comparative (i.e. about a comparative deficit), and may instead simply represent the priority issues of marginalized communities with respect to environmental and economic sustainability. Ultimately, it should be up to communities and public officials to determine what issues are most important for an equitable, sustainable city. Most forms of inequity, whether they are neighborhood-, city- or regionally-based, will not be solved by a sustainability

plan. However, this should not stop cities from identifying equity considerations linked to sustainability, and incorporating them in a sustainability initiative's goals and strategies.

Who should initiate? The organizer of the assessment will likely influence the structure of this conversation, and in most cities, the agency or office responsible for overseeing sustainability efforts will take the lead. However, stakeholder input will provide invaluable perspectives in discussing equity issues relevant to sustainability, and ideally community perspectives will drive the conversation and findings. For example, in San Francisco, the Department of Public Health (SFDPH) partnered with the environmental justice group Residents in Bayview-Hunters Point to survey the neighborhood to name the top environmental health issues (Corburn, 2010). SFDPH was surprised to find that less traditional health problems, including crime/violence and unemployment, topped air pollution and toxics. Potential partners for this conversation include local community groups focused on improving low-income neighborhoods, livelihoods, or health. Outreach methods could include a survey, as in the SFDPH case, or a series of meetings or focus groups in neighborhoods. In Washington D.C., residents met and voted on goals and indicators for the Neighborhood Sustainability Indicators Project. As the Sustainable Seattle indicators project demonstrated, "Skilled facilitation helps ensure an inclusive, participatory organizational culture, while ensuring that meetings were well organized and productive" (AtKisson, 1999). These are among some of the strategies that organizers can use to generate a rich picture of what issues are most important for equity in sustainability plans.

Part 2. Analyze the Plan

The largest body of research on urban sustainability planning analyzes the adoption of policies, plans, or indicators projects. These assessments analyze the goals and strategies that cities say they are undertaking, whether under a formal sustainability plan or not. For example, Warner's 2002 study identifies cities that include environmental justice in three types of materials: educational content, policy objectives, and implementation content, and Pearsall and Pierce conduct a similar study in 2010 looking at conceptual/educational materials, policy objectives or "action items," and indicators for distributional and procedural environmental justice. Combining the categories used by these studies, I recommend evaluating published policy objectives,

strategies, and indicators for the presence of equity issues identified in community stakeholder conversations (conceptual/educational material has less impact on outcomes). During this stage, the assessment should also look at whether the benefits and burdens of the sustainability effort are disproportionately distributed. Specific questions one can ask with respect to both of these inquiries are summarized in Figure 7 and further detailed below. The findings of this stage of assessment are critical to cities like Baltimore that are not sure how to include equity in sustainability planning. Along with analysis of performance and outcome data, these findings should guide the revision of goals, strategies, and indicators.

Content	Questions to address equity issues	Questions to address equitability of effort
Goals	How sufficiently are relevant equity issues addressed in the goals, explicitly or implicitly? How specific are the goals? How ambitious are the goals? How realistic are the goals?	What is the stated commitment to principles of equity?
Strategies	How does the city plan to address different relevant equity issues? Are these strategies likely to make a difference?	For each strategy, who benefits? Who bears the greatest burden?
Indicators	Are the selected metrics relevant to equity issues? Are they specific enough to capture progress on this issue?	Do the metrics capture the geographic or demographic distribution of interventions?

Figure 7. Questions for analyzing equity issues and equitability of sustainability plan

Goals:

A content analysis of a plan's *goals* suggests a city's interest in equity as part of sustainability. These goals may not necessarily use the word "equity," but they may still deal with important equity issues. A clear example is Baltimore's objective to "measure and improve the equity of transportation" (Baltimore Sustainability Plan, 2009). Less clear, and more common, are goals that may or may not have meaning for equity. For example, Pearsall and Pierce cite the uncertainty over whether Minneapolis' goal to remediate 100 brownfields sites by 2014 has environmental justice benefits, writing "the question of its justice implications depends on which sites are chosen for clean-up, as well as how they are chosen. Nevertheless, given the

concentration of brownfields in low-income neighbourhoods, success in this dimension likely implies a reduction of environmental disamenities in historically disadvantaged neighbourhoods" (Pearsall & Pierce, 2010). The assessment must explore this uncertainty in goals with implied equity benefits, particularly in light of strategies that have been identified to achieve them.

Additionally, one can draw conclusions about how ambitious or specific goals are. Specific goals have the advantage of being easier to monitor and evaluate than vague ones (Seasons, 2003). For example, the resource conservation goal, "Reduce Baltimore's energy use by 15% by 2015," will be easier to measure, provided data are available from energy companies, than "Minimize production of waste," which does not set a specific target. Specific goals imply greater commitment, as do ambitious goals. Whether a goal is ambitious enough (or realistic enough) is subjective, and ought to be part of a discussion among assessment administrators.

Strategies:

One can also assess the *strategies* by which a city hopes to achieve its goals for their relevance to equity issues, gauging the appropriateness or potential efficacy of a strategy to improve equity on a particular issue. Scholarly or grey literature on best practices can provide one benchmark for the adequateness of strategies. Others may have more obvious problems. For example, as discussed in Chapter IV, several of the strategies in Baltimore's plan are broad and do not identify agencies who are accountable for their implementation. These strategies are less likely to succeed without a mechanism to compel (or at least encourage) action.

All strategies should be assessed for their equitability in terms of costs and benefits. For example, one Commissioner voiced concern that a regional increase in water rates to support water quality projects would disproportionately burden Baltimore, which already has property taxes twice as high as surrounding communities but median income levels far lower (Spencer, 2011). An analysis of the distribution of burdens and benefits resulting from strategies suggest how equitable they are.

Indicators:

If a city has developed a set of indicators for measuring sustainability, one can assess to what extent they capture relevant equity issues, and how specifically tied to equity they are. For example, Pearsall and Pierce (2010) search city sustainability indicator projects for the inclusion of indicators that deal with intra-city disparities, such as San Francisco, which measures the proportion of environmental pollution sources in historically disadvantaged communities compared with San Francisco's other communities and Portland, which measures change in biodiversity by neighborhood.[5] This analysis might also include indicators that capture participation in planning processes by marginalized communities, such as San Francisco, which measures "participation of historically disadvantaged communities as a whole and their indigenous self-selected representatives in decision-making processes," or Washington, D.C., which measures the number of participants in the neighborhood sustainability program's events.

Part 3. Measure performance and implementation

A performance assessment approach will help cities assess their implementation efforts for equity. According to the U.S. government, performance measurement "is the ongoing monitoring and reporting of program accomplishments, particularly progress towards pre-established goals...Performance measures may address the type or level of program activities conducted (process), the direct products and services delivered by a program (outputs), and/or the results of those products and services (outcomes)" (U.S. General Accounting Office, 2005). This strategy can provide cities with information about (1) how well they are implementing goals and strategies related to equity (assuming that some of the goals and strategies are found to address equity), and (2) how equitable the products of their plans are. The table below provides an overview of data required for these two kinds of measurements (Figure 8). For the first question, data provides basic information about whether the strategies identified in the plan analysis (Part 2) are achieving their intended ends. For example, a city might measure the outcome of a weatherization incentive program targeted at low-income households by asking how many houses are being retrofitted, and

[5] While both of these indicators address equity through intra-city comparison, biodiversity is not as commonly identified as an equity issue as pollution, although ultimately the relevance of indicators to equity should be part of broader community conversations.

compare that with its goals for the program and resources being allocated. Using this type of approach for sustainability programs that address equity helps build a broad picture of the landscape of current activities and their impact. Data for this step will likely come from the implementing agency, such as a Department of Energy, Department of Neighborhood Development, or environmental non-profit in the weatherization example. For this reason, it is advantageous to work with implementing partners from the start of the program to ensure that useful data is collected and available.

Question	How well are strategies that promote equity being implemented? Why?	How equitable is the implementation of sustainability efforts? Why?
Data Required (Source)	Output data for strategies identified as relevant to equity issues (implementing agencies, performance assessment systems); Interviews with program administrators and participants (if applicable)	Expenditures devoted to or outputs as a result of strategies identified as relevant to equity issues versus those that are not (implementing agencies, city budget records); Output data or expenditures for all programs, analyzed by geographic or demographic distribution; Interviews with program administrators and participants (if applicable)

Figure 8. Implementation and Program/Policy Evaluation Questions

If resources allow, supplementing the data analysis with interviews, meetings, or surveys with participants and implementers will offer additional insight about why a program is performing in the way that it does and the reasons for success or failure. For example, one might ask weatherization program participants whether the financial incentive caused them to participate, or if they would have completed upgrades on their own, and might ask other residents why they chosen not to take advantage. One could ask a program administrator about challenges to implementation, such as the political, legal, financial, and capacity constraints identified in Chapter IV.

A second area of analysis concerns the overall fairness of the plan as it is being implemented. This concern involves the distribution of sustainability expenditure or amenities among populations or geographies, and includes consideration of who will likely benefit from sustainability programs or policies, and who will end up paying for necessary improvements. There

are two approaches to this question, both of which require data from all aspects of a sustainability initiative. First, a city can compare actual interventions (outputs) or the amount of money it is spending (inputs) on equity-relevant goals and strategies versus those not relevant to equity. Continuing with the weatherization example, the city could compare the expenditure on the low-income weatherization program, and the number of houses retrofitted, to the expenditure and number of houses retrofitted through weatherization programming aimed at non-low income households. The proportion of expenditure or retrofitted houses in each program can be compared to the proportion of low-income and non-low-income population. Note that the comparison does not necessarily need to be of two programs of the same type; in fact, using expenditure, it may be quite interesting to look across a sustainability initiative to see the percentage of funding spent on programs that aim to improve equity.

Similarly, one can compare interventions across demographic or geographic boundaries. For example, for Baltimore's goal to double its tree canopy, one might look at where saplings are going in, and whether they are in areas that need trees the most, or whether they are in certain neighborhoods more than others, and why. These approaches attempt to measure how equitable the city's sustainability initiative is. Both of these strategies will provide city officials with useful feedback about how well their plan is being implemented, reasons for its success and failure, and the outputs of the city's effort vis-à-vis equity.

Outcomes beyond sustainability objectives:

A city should also assess the impact of its sustainability plan outside of the plan's goals. This includes the unintended impacts of its policies or programs as well as the effects of the sustainability effort as it serves other city objectives. For example, Beth Feingold, co-author of a health impact study of Baltimore's rezoning process, notes that environmental improvements targeting "transitioning" neighborhoods may accelerate displacement due to gentrification (Feingold, 2011). Because evaluation metrics are often tailored to an intervention's goals, regularly gathering stakeholder feedback is important to capture unintended consequences (Swanson et al., 2010). A core group of external stakeholders and community leaders involved in the assessment

can work to identify these unintended effects and with the larger assessment group suggest ways to measure them.

Part 4. Track long-term sustainability outcomes or indicators related to equity

Long-term indicators are metrics that allow a city to assess the current status of equity and sustainability, and generate a picture of change over time. Indicators can capture a broader landscape of social equity issues than program output data, and are useful for comparison. Outcomes are narrower than indicators. Outcomes consist of desired conditions that a plan or policy seeks to affect in the long term, such as a reduction in greenhouse gas emissions. For sustainability practitioners, identifying and obtaining the right indicators has been challenging. In some fields, such as poverty alleviation, researchers and practitioners have spent decades working on how best to use data for definitions and measuring progress. Because the sustainability field is new, only preliminary frameworks for sustainability accounting have been put forth, and these have yet to stand the test of time. Additionally, sustainability remains a difficult field to quantify because the term "sustainability" has so many definitions, many of which are too broad to immediately suggest relevant metrics.

Many cities have sustainability indicators projects developed by city agencies or independent groups. Many of these projects took examples from Sustainable Seattle, a 20-year-old non-profit effort to track sustainability indicators that "seeks to balance concerns for social equity, ecological health, and economic vitality to create a livable community today while ensuring a healthy and fulfilling legacy for our children's children" (Sustainable Seattle, 2011). Helpful guidelines for selecting indicators come from Seattle's multi-sector stakeholder panel, which agreed, on the following four criteria:

Indicators should be

- "Reflective of trends that [are] fundamental to long-term cultural, economic, and environmental health [and for the purposes of this assessment, relevant to equity];
- Statistically measurable, with data preferably available for one or two decades;
- Attractive to the local media; and
- Comprehensive to the average person" (AtKisson, 1999)

All of the indicators do not need to meet all four criteria, and in particular, "lack of data availability on a key sustainability issue is itself an indicator that the issue is receiving insufficient attention" (AtKisson, 1999). Minneapolis' Neighborhood Sustainability Indicators Project, another highly recognized indicator project, came up with a different set of objectives for its indicator project, of which a relevant selection are included here. According to this project, a set of indicators should:

- Express values that have been formally adopted by community residents;
- Identify the linkages among issues that are often seen as separate in neighborhood action (i.e., "housing," "economic development," "transportation," and "public safety.");
- Focus on the long-term future of the neighborhood; and
- Work toward equitable distribution of resources, opportunity, and wealth for the current generation as well as for future generations (Urban Ecology Coalition, 1999)

These guidelines can help a city select a pool of indicators.

However, most of the indicators used in community indicators projects are not designed to respond to city policy or planning in the short- or mid-term; the metrics are too broad to capture this change. The set of metrics also ought to include indicators or desired outcomes that are linked to the goals and strategies of the sustainability initiative, which will enable evaluators to understand the relationship between program performance and outcomes or indicators. For example, for Baltimore's goal of improving public transit, the city can collect information on the number of routes that have been designated as QuickBus routes and whom they serve during the program evaluation stage. An indicator that links to this strategy could measure the average commute time, and compare averages among different neighborhoods or demographics (the U.S. Census Bureau collects data on average commute time).

There are two ways that a city can capture equity in the indicators, presented in the table below (Figure 9). A city can compare indicators tied to equity issues among neighborhoods or regions, such as transportation access or residents with living wage jobs. Or, as in the transit commute time example, the city can use more traditional measures of sustainability such as air quality, water quality, and access to green space, and compare across geographic or demographic boundaries. Thor Peterson, who is the Technical Content Director for STAR, the sustainable communities index that ICLEI is developing, reports that at least one of the STAR

indicators uses this approach, measuring high school graduation rates in aggregate and by neighborhood disparities (Peterson, 2011). One advantage of this approach is that, because cities and scholars have more experience in measuring and analyzing metrics in these areas, relevant data are more likely to exist. This approach would be particularly relevant if the equity assessment is built into a larger assessment of sustainability performance, where indicators can also be analyzed in aggregate.

Question	Is the city advancing equity issues relevant to sustainability?	Is the city advancing sustainability in a way that is equitable?
Data Required (Source)	Indicators to measure change over time on relevant equity issues (Census data, pre-existing community indicators projects, administrative data, other public, private, non-profit data)	Indicators compared across neighborhoods/municipalities and demographic categories (Same data sources)

Figure 9. Questions and data for indicators

Part 5. Synthesize findings from all stages to analyze the impact of the plan on equity

Finally, an assessment that links the plan's strategies, its performance assessment, and sustainability indicators will provide the greatest opportunity for learning about the effect of an initiative. The ICLEI study of sustainable community frameworks finds that "a framework is best served ... by connections between indicators used to measure sustainability and government performance measures" (2008). These linkages can help mitigate the challenges of determining causality for change in performance and indicators, such as confounding variables like market fluctuation, federal or state policy change, and change in leadership (Seasons, 2003). However, Layzer and Stern (2010) point out that, compared with tracking indicators, "tracing the linkage between a particular program and its outputs and outcomes is much less common."

What makes this connection so difficult? Often indicators projects and efforts to evaluate government policies or programs are conducted by separate entities, the former being a non-profit activity and the latter being a government activity. Barriers to linking the two kinds of data collection efforts include lack of trust, lack of shared data, and different scopes of measurement

(Community Indicators Consortium, 2007). This protocol seeks to overcome the lack of trust and barriers to sharing data by calling for a collaborative panel to manage the assessment (detailed below). Some cities have experience in collaboration between community indicators projects and government activities; for example, the Baltimore Neighborhood Indicators Alliance (BNIA) has assisted Baltimore City Public Schools in targeting the geographic concentration of students with high absenteeism. In this case, the indicators project had a dataset that allowed the school system to determine not just the schools with the highest absenteeism, but the residential neighborhoods that house the students who miss the most days of school to target neighborhood policing. Through repeated joint projects, BNIA has developed ties with the City of Baltimore that facilitate sharing data and completing projects together.

The protocol also aims to enhance the connection between program data and indicators through careful design of evaluation metrics and broader indicators or outcome data that can be linked to one another. Greenwood recommends three steps to achieve this objective: (1) Indicators should "capture directly things that governments can do (that is, take on aspects of citizen-based performance measurement and reporting), (2) Performance assessment should "obtain input from the public about what performance measures to use and how to report the information about them (become citizen-informed performance measurement and reporting)," and (3) Evaluators should "link indicators and performance measure in logic chains" (2008). Basically, if the indicators become more tied to municipal government capacities, and the performance assessments reflect community interests, generating analysis that combines the two data sets will be fruitful. The synthesis stage will be greatly enhanced by taking these steps early in the process.

Administration and management

Ideally, a long-term, stable partnership or group that includes public officials and external community perspectives will administer the assessment. Because this protocol seeks to produce usable information for amending a plan, significant involvement of city sustainability officials will be required. The city's ownership of the results will encourage actions that respond to the findings. A partnership that includes a city agency or office that deals with sustainability and a community panel or community group with strong ties to neighborhood conditions and social justice could

jointly administer the protocol. Similar to the SFDPH and Bayview-Hunters Point partnership, this group can collectively determine the best methods for integrating community perspectives and values.

The inclusion of professionals with expertise in data, evaluation, community development, and sustainability will help the panel make sound methodological decisions. The National Neighborhood Indicators Partnership, administered by the Urban Institute, provides a listing of dozens of community data groups in cities across the country; these are logical partners with expertise in relevant data. The staff of citywide performance assessment projects such as CitiStat in Baltimore can provide guidance with data and methods. Bringing in university professionals with experience in community-based research and municipal governance can add academic expertise and credibility to the project and provide connections to institutional sources of funding, inexpensive research labor (students), and data. Collectively, this group should determine a decision-making process that values citizen knowledge and professional expertise, and use that process to make decisions about funding, methods, data, and indicators.

The partnership should seek a sustainable source of funding for the program early on. While grant funds may be most promising for start-up, commitment from a municipal budget has the advantage of not being one-off. A financial and logistical commitment to continuous monitoring and regular evaluation improves the utility of assessment information because it allows for tracking change over time. Finally, while repeated or continuous assessment projects require a level of consistency in metrics and points of analysis, a reasonable amount of flexibility will help a program adapt to successful and unsuccessful methods and metrics. The partnership can guide these decisions.

A National Example

ICLEI-Local Governments for Sustainability is developing a sustainability rating system called the STAR Community Index, which is linked to a performance assessment tool. Its mission is challenging: to provide "a roadmap for creating healthy, inclusive and prosperous communities" across the United States. The metrics for the STAR Community Index are still in development, but the project has settled on 81 sustainability goals, which, along with its indicators and performance

assessment metrics, include natural systems, economic prosperity, planning and design, energy and climate, employment and workforce training, affordability and social equity, health and safety, and education, arts, and community (ICLEI - Local Governments for Sustainability, 2010).

This project is groundbreaking as an effort to link sustainability performance assessment and indicators. Its breadth may help a local government assess its relative strengths and weaknesses compared with sibling cities. However, developing national standards requires generating metrics that make sense for large cities and small cities in variable climates and economies. The STAR system cannot replace assessments that are led by local collaborations with meaningful community input, and those that are tailored specifically to look at local sustainability programs and policies.

Although many cities are just now implementing their sustainability plans, it is not too early to implement an assessment framework. The protocol detailed in this chapter will help cities organize an assessment system that includes leadership from the city and from community partners. This group should start with a community conversation about the meaning of equity in sustainability efforts. The protocol suggests that analyzing the plan's goals, strategies, evaluation metrics in light of equity issues (as earlier sections of this thesis have done for Baltimore) can help cities orient their efforts toward equity at an early stage. As implementation continues, linking performance data to long-term indicators will provide quantitative feedback about different programs, policies, and objectives. Collectively, these pieces help cities learn about the impact of a city's sustainability effort on priority equity issues.

VI. RECOMMENDATIONS

Because sustainability planning is an emergent field, practitioners and researchers want to learn from what local governments are planning and implementing. The case study in this thesis analyzes at what one city has been doing in the name of sustainability and how it might affect social equity. The central conclusions of this thesis lead to recommendations for sustainability officials and researchers in Baltimore and beyond to improve the equity outcomes of sustainability initiatives. Recommendations are provided for three audiences: (1) cities like Baltimore that are in the midst of implementation of plans (this set of recommendations includes specific suggestions for Baltimore), (2) cities that do not have a formalized sustainability initiative, and (3) researchers and evaluators.

Recommendations for cities that have a formalized sustainability initiative

Cities like Baltimore have the opportunity to evaluate their work and improve their sustainability initiatives with respect to equity outcomes. These recommendations repeat several stages of the assessment framework proposed in Chapter V and include opportunities to use the information gathered in assessment stages to craft changes to the initiative. Figure 10 below provides a summary of the recommendations, including the basics of the assessment protocol from Chapter V, overlaid with recommended action steps in boxes.

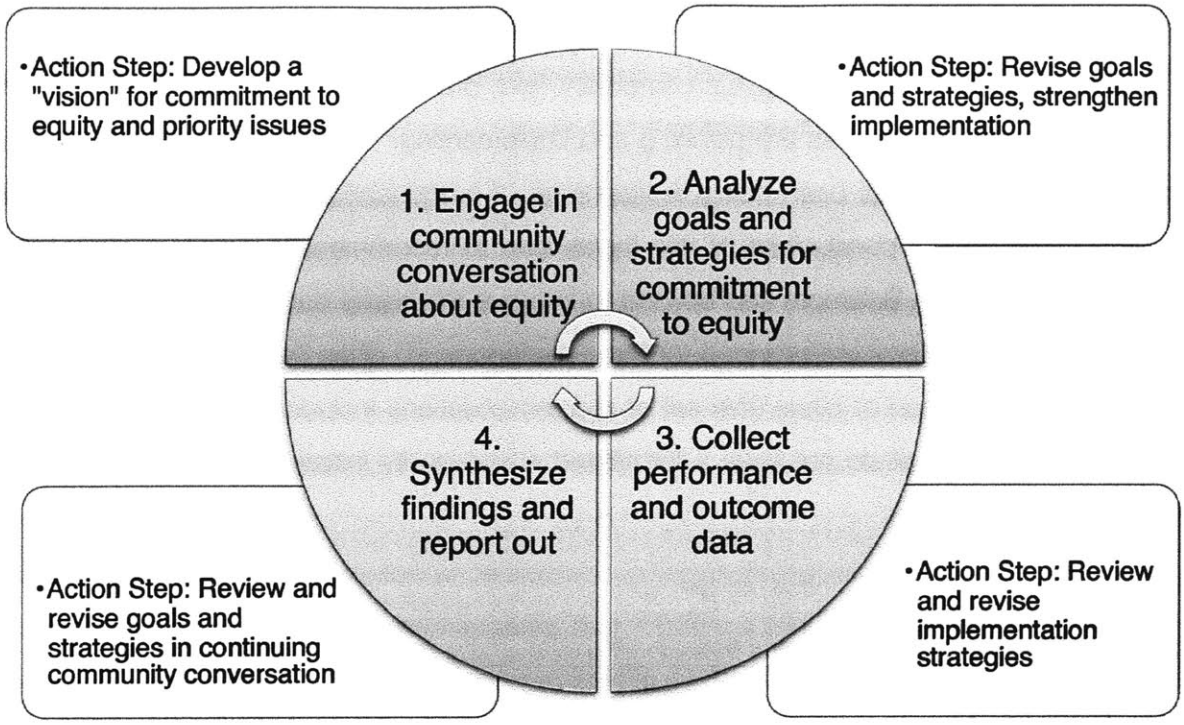

Figure 10. Overview of recommendations for cities that already have a sustainability initiative

1. Identify priority equity issues through community conversations

Cities need a vision of their commitment to equity in sustainability planning, and that vision needs to include specific issues or disparities that the initiative seeks to address. A community engagement process, as detailed in Chapter V, should lead the establishment of these priorities. Baltimore developed one model, the Sustainability Ambassador approach, to engage communities that might otherwise not be interested in sustainability. However, a more in-depth discussion with potential partners who have experience living or working in low-income and marginalized communities needs to supplement this engagement. Leadership in the city's sustainability initiative should be involved in the conversation as well, to shape the incorporation of these issues into the current initiative. This step should be clearly linked to a process for revisiting the goals and strategies of the initiative (outlined in the next recommendation), both to ensure that the conversation has an outcome, and to help motivate people to engage in the conversation. The relationships developed during the visioning stage

can help city sustainability officials with the analysis and action steps. Figure 1, repeated below, provides examples of the kinds of issues cities might consider.

Environmental equity issues: outdoor air quality burdens such as polluting industry or bus depots, home health hazards, work health hazards, water quality and affordability, access to safe green space, vulnerability to natural hazards, vulnerability to climate change impacts such as the urban heat island effect

Economic equity issues: available job opportunities, available education and training programs, living wage jobs, affordability of housing + transportation

Transportation equity issues: proximity to job centers, availability and reliability of public transit, accessibility of sidewalks and transit to people with disabilities

Health equity issues: asthma hospitalization rates, obesity rates, access to fresh food

2. Analyze plan for its commitment to equity

According to the protocol proposed in Chapter V, cities should analyze their goals, strategies, and indicators for their commitment to equity issues. Further, they should analyze all of the strategies of the sustainability initiative for inequitable burdens, and use this information to generate new goals or strategies that deal with equity or revise existing goals or strategies. Examples of potential uneven burdens, illustrated in Figure 2, are presented here again with some suggestions of strategies to overcome disparate burdens. This action step should be tied to the community conversation and development of a vision about the role of equity in sustainability.

Sustainability strategy[6]	Potential uneven benefit/burden	Possibility to address equity
Green building and energy retrofitting	Higher development costs could reduce the number of affordable units	Strike a balance between green development and affordable housing production, particularly in areas with high demand for affordable housing; Ensure that low-income residents benefit from energy cost savings; Tie retrofits to creation of local jobs
Transit-oriented development (TOD)	Property values rise and could cause displacement	Ensure that affordable units are included in TOD; Ensure that employment opportunities and community resources are available for low-income residents
Green jobs	Low-income and minority workers might lack the skills and knowledge needed for these jobs or jobs may not be created locally	Ensure that job pipelines are in place to link low-income and minority individuals to training for local job opportunities
Bike lanes	Residents of low-income neighborhoods may feel less safe riding a bike; low-income and minority communities often are not targeted for bicycling advocacy	Develop context-specific programs to make biking more feasible and desirable in low-income and minority communities
Tax or fee structures to implement sustainability measures	In cities with a poor tax base, tax rates may already be much higher than wealthier localities; fees are more burdensome for low-income households	Scale the level of tax by locality

In Baltimore:

Baltimore sustainability officials should engage in an outreach and education effort that will prepare the city to incorporate equity more thoroughly into its sustainability initiative.

- The CoS and OoS should continue to build partnerships and outreach strategies that include non-traditional sustainability partners. In particular, outreach and partnership efforts should target (or continue to target) representatives of community groups with social justice missions
- In future revisions or re-writes, the CoS should use its outreach capacity to identify equity issues such as environmental justice, employment opportunities, environmental health conditions, and reliable public transit options, and tailor goals and strategies to address

[6] The first three rows are adapted from a report on U.S. Department of Housing and Urban Development policy as it pertains to sustainable communities and inclusiveness of low-income and minority communities (Been et al., 2010).

them. The CoS should decide whether strategies to address equity must also have environmental co-benefits, as those in the Plan do, and share this position with its audience to generate appropriate expectations and creative ideas.

- The CoS should host an internal workshop about the potential for sustainability activities to disparately impact marginalized communities, guided by someone with expertise in this area such as Commissioner Scot Spencer, who chairs the Maryland Commission on Environmental Justice & Sustainable Communities. With this knowledge, CoS should review sustainability activities for their impact on low-income and marginalized communities, and develop adjustments to equalize the burden.

3. Address weaknesses in implementation and look for new possibilities

While data collection will help cities analyze their implementation strategies at a fine level, many cities like Baltimore have some obvious challenges to overcome. To organize an analysis of implementation strengths and weaknesses, cities can use Cooper and Vargas' feasibility framework, which includes questions considered in Chapter IV about legal, administrative, political, and fiscal feasibility, as well as technical feasibility and ethical and cultural feasibility, which deal with the values and norms with which sustainability initiatives contend (Cooper & Vargas, 2004). Cities can use this framework to develop strategies for expanding these kinds of feasibilities. Because the lack of standard framework for sustainability planning creates challenges for cities, officials should look to add sustainability requirements (including relevant equity issues) to existing regulatory and incentive structures. This approach also reduces the possibility that sustainability will be siloed. Cities can also leverage private and public investments for sustainability objectives. Cities should also generate coalitions with neighboring municipalities, regional actors, and state actors, to build greater political power and broaden available implementation strategies.

In Baltimore:

The Sustainability Plan is intended to serve as an umbrella for activities of a variety of public, civic, and private organizations. However, the effort put into developing specific goals and strategies and the enabling legislation suggest that the Plan could be much more than a means of organizing and connecting the actions of disparate actors. However, a lack of faith in the Plan's authority,

reliance on voluntary actions, and lack of funding stand in the way of the city taking action on goals and strategies.

- In updates or future re-writes, CoS should include implementation specifics including implementers, sources of funding, and accountability metrics.
- The CoS should set more specific targets like the 15% reduction in energy use and greenhouse gas emissions, seek their adoption by City Council resolution, and publicize them widely.
- The CoS and the Planning Department should jointly explore the opportunities to use the Sustainability Plan's status as an appendix to the Comprehensive Master Plan to flex its authority.
- The CoS and OoS should continue to look for no-cost, low-cost, or externally financed mechanisms to implement the plan, with particular attention to equity issues.
    - Investments by private and non-profit developers present opportunities to advance sustainability. The City should pressure institutions tied to Baltimore, such as Johns Hopkins University, to ensure that expansion or development projects have meaningful sustainability and equity elements (such as job pipelines for local residents). Institutions should be recognized for their successes in this area, not just for stated commitments.
    - Public subsidies in Baltimore should be tied to sustainability outcomes. Because of the market dynamics in Baltimore, subsidies are required for almost any major development; thus, the stipulations of the incentives carry significant weight. One suggestion is for the City to expand the agreement to generate community benefits agreements in the Baltimore Community Contract to any development project with public subsidies.
    - CoS should look for opportunities to build sustainability and equity measures such as job creation, public health, and other social equity and environmental justice needs, into extant rules, regulations, and programs with strong implementation prospects, such as development codes.
    - If the Planning Department develops and utilizes a sustainability checklist for its review processes, the checklist ought to include equity elements such as living wage jobs and locally sourced labor
- The CoS or OoS should examine the plan to determine which of its goals and strategies are least likely to be met by voluntary actions of partner agencies alone, and do outreach to organizations or coalitions that may better be able to direct their capacities to achieving them.
- A collective effort to increase the political and social profile of sustainability, particularly its equity elements, will support all of the city's sustainability activities.
    - Mayor Rawlings-Blake ought to take a clear leadership stance with regard to sustainability.
    - Other city leaders, particularly those who lead city economic development, health, transportation, and parks activities should visibly support sustainability efforts.
    - The OoS should continue to do outreach with agency leaders to craft visible strategies that help agencies become more sustainable.

- The CoS, which largely consists of non-governmental representatives, should use its leverage to pressure Baltimore leadership to adopt a strong stance with regard to a vision of sustainability that includes strong equity aspects.

4. Craft a strategy to collect equity-relevant program data and outcome or indicator data

Using the protocol suggested will provide information that city officials can use to evaluate their successes and identify areas of concern. The information generated in this step should feed into revisions of the initiative, and into continuing conversations about the meaning of equity in sustainability.

In Baltimore:

- The CoS and OoS should oversee the use of a system for monitoring sustainability programming outputs and indicators for equity and for sustainability broadly. Early collection of data will create a baseline and will help the city learn how to collect data that is useful for its programming
  - The CoS and OoS should build partnerships for a data and assessment project. Partners should include institutions with expertise with community development and data relevant to sustainability, such as BNIA-JFI, CitiStat, the Baltimore Ecosystem Study, Johns Hopkins University, and the Baltimore Region Environmental Justice and Transportation Project, community-based partners who can help CoS or OoS orient their assessment to relevant issues and appropriate methodologies, and the organizations that are implementing programs, to ensure that findings are usable for decision-making.
  - This partnership should select program measurements and outcome/indicator measurements that are linked with one another, and that capture major environmental, economic, transportation, and health equity issues. Data should have rigorous connections to what sustainability officials and partner organizations would consider desired outcomes.

Chapter V outlines the kinds of issues that Baltimore should take up in its effort to collect and analyze program data and indicators or outcomes (summarized in Figures 8 and 9, repeated below for reference). Suggestions for output data and for outcome/indicator data for three of the Plan's theme chapters follow.

Question	How well are strategies that promote equity being implemented? Why?	How equitable is the sustainability plan in implementation? Why?
Data Required (Source)	Output data for strategies identified as relevant to equity issues (implementing agencies); Interviews with program administrators and participants if applicable	Expenditures devoted to or outputs as a result of strategies identified as relevant to equity issues versus those that are not (implementing agencies, city budget records); Output data or expenditures for all programs, analyzed by geographic or demographic distribution; Interviews with program administrators and participants (if applicable)

Figure 8. Implementation and Program/Policy Evaluation Questions

Question	Is the city advancing equity issues relevant to sustainability?	Is the city advancing sustainability in a way that is equitable?
Data Required (Source)	Indicators/outcome metrics to measure change over time on relevant equity issues (Census data, pre-existing community indicators projects, administrative data, other public, private, non-profit data)	Indicators/outcome metrics compared across neighborhoods or municipalities and demographic categories (Same data sources)

Figure 9. Questions and data for indicators

SAMPLE METRICS FOR BALTIMORE

TRANSPORTATION

Sample suggested output data

- *Transit improvements by neighborhood.* Analyze data from Maryland Transit Authority on transit improvements mentioned in the Plan, such as new or revised bus routes and the transit signal priority system, to answer questions such as: What proportion of the upgrades is going to transit poor neighborhoods? To low-income neighborhoods? Are transit routes are being changed or removed, and if so, what demographics will be most affected?

Sample suggested outcome/indicator data

- *Accessibility of major job centers by transit.* Compare the accessibility of neighborhoods to major job centers by public transit. This indicator requires identifying (or approximating) the top locations of job concentration for Baltimore residents as "job centers." Using these locales as references, this indicator can track the proportion of job centers that are accessible on public transit within a reasonable amount of time, such as 40 minutes, from neighborhoods in Baltimore grouped by median income or poverty rate. Raw data on transit time is increasingly accessible through websites such as the General Transit Feed Specification Data Exchange; Google Maps makes this data easily accessible and allows users to estimate travel time on public transit.

POLLUTION PREVENTION

Sample suggested output data

- *Air quality improvements required by state law.* Track actual reduction of SOx and NOx emissions as a result of installation of pollution control technologies under the Maryland Healthy Air Act, listed in the 2010 Annual Report as progress for Pollution Prevention Goal 2, "Improve Baltimore's air quality and eliminate Code Red days." The U.S. EPA Toxic Release Inventory (TRI) program tracks emissions data for industrial polluters. Maryland Department of Environment manages the state TRI program and makes this data publically available.

Sample suggested outcome/indicator data

- *Air quality.* Compare air quality levels by municipality in region and by neighborhood or Census tract in Baltimore. U.S. EPA National Air Toxics Assessments (NATA) provide some of the most comprehensive Census tract-level data on air toxics. One drawback of this dataset is that different years are not comparable due to improvements in methodology. NATA data provides a snapshot in time of disparities between neighborhoods.

GREEN ECONOMY

Sample suggested output data

- *Green workforce development programs*. Track the number of participants in green jobs programs, their graduation rate, and the percentage of participants who find jobs in their field immediately and within a set amount of time, such as six months. Data on the wages paid to workers and average length of (expected) employment can provide insights into the quality of these jobs.

Sample suggested outcome/indicator data

- *Economic opportunities for low-income Baltimore residents*. Track the number and growth of Baltimore jobs in occupations that do not require advanced education, and that are expected to grow as part of the green economy. Green jobs are difficult to track, in part because they develop in existing occupations, such as contractors and machinists. The city can use Bureau of Labor Statistics data to track Baltimore jobs associated with growth of the green economy, such as those identified by the Political Economy Research Institute (Pollin & Wicks-Lim, 2008). To approximate jobs available to low-income residents in these fields, the set of jobs considered can be limited to jobs that require an associate's degree or less (Been et al., 2010). This indicator can also be set up as a ratio of jobs to residents that lack education beyond an associate's degree to indicate the relative availability of jobs in light of their demand. While this indicator will not be affected directly by green workforce development programs (suggested as a data point above), the growth of green industries in Baltimore may be influenced by the availability of trained labor. The two are also closely linked because availability of jobs can determine whether green workforce development programs result in employment.

Recommendations for cities that are initiating a formalized sustainability initiative:

Cities that are newer to sustainability activities have the opportunity to prioritize equity outcomes from the start. Based on the findings of the case study and the proposed assessment framework, these cities can follow several steps to position themselves to produce equity outcomes through sustainability initiatives.

1. Identify priority equity issues through community conversations

Cities need a vision of their commitment to equity in sustainability planning that includes specific issues or disparities that the initiative seeks to address. Identifying all relevant issues and selecting priorities among them will help a city tailor its initiative. A community engagement process should lead the establishment of these priorities. Baltimore developed one model, the Sustainability Ambassador approach, to engage communities that might otherwise not be interested in sustainability. However, a more in-depth discussion with potential partners who work with or live in low-income and marginalized communities needs to supplement this engagement. This step should be linked to a process for developing goals and strategies of the initiative to motivate people to engage in the conversation and to ensure that the conversation has an outcome. The relationships developed during the visioning stage can help city sustainability officials with later planning, implementation, and analysis. Figure 1, repeated below, provides sample issues to consider.

Environmental equity issues: outdoor air quality burdens such as polluting industry or bus depots, home health hazards, work health hazards, water quality and affordability, access to safe green space, vulnerability to natural hazards, vulnerability to climate change impacts such as the urban heat island effect

Economic equity issues: available job opportunities, available education and training programs, living wage jobs, affordability of housing + transportation

Transportation equity issues: proximity to job centers, availability and reliability of public transit, accessibility of sidewalks and transit to people with disabilities

Health equity issues: asthma hospitalization rates, obesity rates, access to fresh food

2. Develop capacity and commitment to thinking about strategies to address these equity issues in sustainability planning

A city that initiates a sustainability project should bring on board individuals with expertise in addressing these equity issues at the outset. Other sustainability planners should not rely on these individuals as the "representatives" of equity, but instead should learn as much as possible about how to address equity issues. Part of developing capacity and commitment to address equity requires identifying the ways in which sustainability strategies may result in uneven benefits or burdens, and developing strategies to equalize those burdens. The figure below illustrates some examples of potential uneven burdens, originally outlined in Figure 2, with opportunities to address equity or equalize the burden.

Sustainability strategy[7]	Potential uneven benefit/burden	Possibility to address equity
Green building and energy retrofitting	Higher development costs could reduce the number of affordable units	Strike a balance between green development and affordable housing production, particularly in areas with high demand for affordable housing; Ensure that low-income residents benefit from energy cost savings; Tie retrofits to creation of local jobs
Transit-oriented development (TOD)	Property values rise and could cause displacement	Ensure that affordable units are included in TOD
Green jobs	Low-income and minority workers might lack the skills and knowledge needed for these jobs or jobs may not be created locally	Ensure that job pipelines are in place to link low-income and minority individuals to training for local job opportunities
Bike lanes	Residents of low-income neighborhoods may feel less safe riding a bike; low-income and minority communities often are not targeted for bicycling advocacy	Develop context-specific programs to make biking more feasible and desirable in low-income and minority communities
Tax or fee structures to implement sustainability measures	In cities with a poor tax base, tax rates may already be much higher than wealthier localities; fees are more burdensome for low-income households	Scale the level of tax by locality

[7] The first three rows are adapted from a report on U.S. Department of Housing and Urban Development policy as it pertains to sustainable communities and inclusiveness of low-income and minority communities (Been et al., 2010).

3. Set goals and develop strategies to address these issues

Equity should feature prominently in the goals of a plan. Sustainability is unlikely to produce meaningful equity outcomes without pointed objectives. Setting simple goals that are measurable may help the city stay accountable to its commitment to equity. Strategies should be realistic and reflect the knowledge of experts in relevant areas.

4. Develop effective implementation strategies while acknowledging limitations

Cities have an increasing number of resources from grey literature and academic literature about the many ways that cities are implementing sustainability initiatives. Cities should look to add sustainability requirements (including relevant equity issues) to existing regulatory and incentive structures. Like the green building codes that cities have begun passing, or "hire local" policies, codes with sustainability requirements can shape the ways that developers and city contractors affect equity, economic, and environmental outcomes. Sustainability initiatives often live in small offices and have little authority on their own, and this approach helps integrate sustainability objectives into everyday city operations. Cities should also generate coalitions with neighboring municipalities, regional actors, and state actors, to build greater political power and broaden available implementation strategies. Many sustainability and equity issues have particular relevance to the regional scale, such as transportation and economic development. State governments may have the capacity to team with cities to add stipulations to projects receiving public funding, and can pass legislation with greater influence than the city. Finally, cities should identify those sustainability goals (particularly those that deal with equity issues) that are most difficult to implement unilaterally, and start building partnerships and coalitions that can produce outcomes.

5. Craft a strategy to collect equity-relevant program data and outcome or indicator data

The earlier that cities start collecting baseline data, the more effective evaluation and indicators programs can be. Using the protocol suggested will provide information that city officials can

use to evaluate their successes and identify areas of concern. Early selection of indicators should include multiple priority equity issues with geographic and demographic distributions as relevant. The information generated in this step will eventually feed into revisions of the initiative, and to continuing conversations about the improving equity outcomes with sustainability policies and programs.

Recommendations for researchers and evaluators:

While equity is often identified as a principle of sustainability, strategies to address equity in sustainability remain underdeveloped. Greater understanding of successes and failures of strategies in improving equity outcomes is needed.

1. Track equity outcomes of sustainability programs across the United States.

Institutions that are funding and implementing multi-city sustainability planning should track different strategies for equity outcomes. ICLEI is well positioned to undertake this analysis, particularly with the STAR Community Index (although the STAR product is currently marketed as a tool for cities to learn from their own efforts). The Federal Sustainable Communities Partnership is also positioned to undertake this analysis. The indicators and metrics for the research and evaluation effort associated with their grant programs has not yet been released. The protocol in Chapter 5 provides a model that could be adapted for administering such an evaluation.

2. Academic studies should start to account for comparative results

Scholars of urban sustainability, particularly those who have been focused on analyzing cities' plans or goals, should follow up their research with findings about outcomes. This research will enhance the understanding of results produced by the different policies and programs that cities implement.

3. Cities should take part in networks to share information and lessons learned

Cities can learn from one another. The Urban Sustainability Directors Network, a national network of local sustainability officials, should facilitate the exchange of information about pilot strategies and lessons learned. Baltimore could partner with sustainability officials in other post-industrial cities (e.g. Cleveland, Buffalo, Pittsburg, Canton) to exchange such information.

APPENDIX A.
COMPOSITION OF THE BALTIMORE COMMISSION ON SUSTAINABILITY (APRIL 2011)

Chair - Cheryl Casciani, Director of Community Investment, Baltimore Community Foundation

Ted Atwood, Director, Department of General Services, City of Baltimore

Davis Bookhart, Director of Sustainability Initiatives, Johns Hopkins University

John Ciekot, Projects Director, Civic Works

Peter Doo, President, Doo Green Building Consulting

Raymond Ehrlich, Regional Manager, Dart Container Corp.

Lynn Heller, Strategic Planning Consultant

Brian Knight, President, Knox Hope Community Development Corporation

Keith Losoya, Founder and President, Waste Neutral Group

Patrick McMahon, Transportation Planner and Sierra Club Board Member

Sharon Middleton, City Council Representative, Sixth District

Ruth Ann Norton, Executive Director, Coalition to End Childhood Lead Poisoning

John Quinn, Director of Environmental Issues, Constellation Energy

Jake Ruppert, President, Ruppert Homes, Inc.

Ali Smith, Executive Director, Holistic Life Foundation, Inc.

Scot Spencer, Manager of Baltimore Relations, The Annie E. Casey Foundation

Tom Stosur, Director, Department of Planning, City of Baltimore

Alyson Taylor, Landscape Architectural Designer, Hord Coplan Macht

Mary Washington, The Parks & People Foundation

Edward Whalen, Sheet Metal Workers Local 100

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